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Chapter: Wikis

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Abstract: This entry describes the socio-technical specificity of wikis and their application in domains of culture, knowledge and learning. It begins by locating the wiki in the history of technological visions for collective cognition and continues by examining the material and social properties of wikis through a series of concepts: collective intelligence and crowdsourcing, openness and open collaboration. It examines some key tensions surrounding the properties of participation within open collaborative systems pointing to empirical research within media and communications, education as well as computer and information sciences. In doing so, it situates the ways in which wiki phenomena have been used to define ideological movements and fields of socio-economic activity in domains of science, culture and politics.

Keywords: wikis, collective intelligence, crowdsourcing, openness, collaboration, social media, expertise, participatory architectures, open education

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Introduction

Wikis are among the most prominent open source software tools, enabling users to publically and collaboratively edit web pages, debate with each other and trace the history of their contributions within a shared project or text. Readers of such texts can become contributors and create novel media genres; as contributors they can also work towards creating a social world and online communities of practice. The premise of wikis then – one of facets of web 2.0 and social media - is based both upon technical possibilities for developing and managing content collaboratively (e.g., more user-friendly and accessible tools for ‘making’, ‘sharing’, ‘publishing’ and ‘archiving’), and upon (re)defining the social conditions for participating in the pursuit of a collective and, quite frequently, public enterprise.

Hundreds of thousands of wiki-based projects and applications in the fields of information and knowledge, education and culture, and work and politics have been started and many of these have ended since the early 2000s. Many such projects have used wikis to serve practical aims of collaboration or knowledge management in virtual learning contexts or work-related projects respectively and are short lived or private. Others have served to define websites for popular culture and fandom or grassroots community projects within new domains of what is widely known as citizen–science, -journalism, -mapping, and more recently, informational activism.

With Wikipedia emerging as the largest, most successful, peer-to-peer, free and global encyclopaedia project, indeed, one of the most popular sites on the Web, the wiki has become the epitome of open access and retrieval of information, and of transparent debate and archiving in the public pursuit of knowledge. By providing access to deeper structures contained in the meta-data sections (history, discussion pages, user pages, etc), Wikipedia also provides the tools for tracing, developing and sustaining collaborative knowledge building, but also a work-in-progress and a public and scaleable online space in-flux.

Wikipedia exemplifies some of the ambivalence and tensions surrounding the material and social spheres of the Internet and the information society. Some, for example, persistently express skepticism about its credibility and authority, which may potentially be compromised by its openness, contributor anonymity and lack of centralized editorial control that may encourage instances of vandalism and spin, flatten professional or epistemic expertise and promote plagiarism. Others celebrate its potential for the same reasons; anyone can contribute, and note the provision of peer review, transparency and meritocracy as guarantees of continuous improvement in the quality and scope of its content and its unparalleled success (Benkler, 2006; Jenkins, 2006). More generally, wikis, along with other social software, contribute to new ‘architecture(s) of participation’ (Harrison and Barthel 2009: 155), which are characterized by low barriers to engagement and relatively easy possibilities for artistic and creative expression, and by new opportunities for socialization and connection, solidarity and consensus.

Certainly wikis, and other forms of social software, adhere to a similar techno-social logic that defines popular terms such as ‘collaborative turn’ and ‘participatory culture’ (e.g. Jenkins, 2006). Such terms have been used to denote how the availability of user-generated resources in news, science, technology, art and learning may destabilize the power of mainstream organizations in media, education and politics and essentially contribute to processes of democratization. Yet, these very systems that wikis facilitate also give rise to novel agendas, configurations of power and crises surrounding participation, representation and control.

From technological imaginaries to convergence cultures: locating the wiki within the history of collective intelligence

Historical roots and technological imaginaries

An open source software tool, web application and social medium, the wiki was described by its inventors as the simplest database that could develop quickly (Leuf and Cunningham, 2001) by allowing people to add, modify, or delete content in collaboration with others. Yet, although the wiki is a relatively new technology, its material substrate and popular applications have surfaced earlier visions of a technology acting both as an agent for cognitive improvement or collective intelligence and as a means to aggregate and mediate the sum of all human knowledge.

H. G. Well's 'World Brain' (1938) and Vannevar's Bush's Memex, formulated in his 1945 article 'As we may think', are frequently cited as precursors of global systems like the World Wide Web. They proposed ideas similar to 'hyperlinking' and machine-based information handling and archiving in order to assist cognitive associations and the representation of knowledge in accessible 'encyclopedic' forms. Inspired by the convivial counter culture movement of the 1960s, Ted Nelson, an American computer scientist and pioneer of hypertext systems, avowedly influenced by Bush, set out to build a knowledge system to challenge mainstream scientific and scholarly establishments. He articulated a vision, which he called 'docuverse' (universe of documents), and worked towards developing the Xanadu project - a publishing system which would not only allow universal access to information, but also would provide a network for the social production and mediation of knowledge.

The vision of the Xanadu – although never fully realized – fed into conceptions of later technologies (e.g. HyperCard) which modeled implementations of early web browsers. More importantly, through Xanadu, Nelson articulated a link between technology and socio-cultural change. He expressed a political position that would be later be linked to passionate discourses of freedom, fairness and justice that have accompanied the emergence of the Free, Libre and Open Source Software movement (F(L)OSS). One of the proponents and key engineers of this movement, Richard Stallman, in 1999 also articulated a similarly utopian vision of the Web as a free and accessible knowledge space; this included working for a free encyclopaedia that would consist of web pages covering all suitable topics, created in a decentralized manner, by thousands of contributors. This vision was inspired by, and fed into, experimental, grass roots collaborative projects that emerged during the 1980s and 1990s (such as Project Gutenberg, Interpedia, Distributed Encyclopedia, and GNU-Pedia).

Also in the 1990s, Pierre Lévy, a French computer engineer and networks theorist, articulated an utopian vision of cyberspace, as a pluralistic and cosmopolitan knowledge space and as an agent for mobilizing collective intelligence. Although notions of collective intelligence have been proposed in several fields, ranging from Artificial Intelligence to biology, the thesis proposed by Lévy put forward a progressive vision of the social shaping of technology and a technologically mediated form of knowledge building which were linked to wider processes of democratization. According to this logic, although individual knowledges may be incomplete or inaccurate, aggregated together in a common knowledge pool, Lévy argued, they could form a transitive memory system: 'the cosmopedia is the mediating fabric between the collective intellect and it's world, between the collective intellect and itself' (Lévy 1998, 190). This type of 'knowledge exchange' ideally would work against the economies of hierarchy, authority and privilege (Lévy 1998, 18), producing a different form of 'public' and public information goods.

Although mobilized by different ideological positions, historical circumstances, technological and socio-economic realities, three interrelated components connect these perspectives. First, they articulate an ideal of a technologically enabled network of information and people, which could also serve as a method for publishing knowledge in an accessible form. Second,

the (digital) network is imagined as the principle model for augmenting human intelligence, by organizing, archiving and representing diverse knowledge(s) and knowers. Thirdly, the encyclopaedic feature is one of the key metaphors and tools for what Mejjias calls ‘a network episteme’ – a system and a strategy for organizing knowledge on, and about, the world (see Mejjias, 2013: 9). By the mid 2000s, the wiki would become one of the principal properties of web 2.0 with inscribed possibilities for ‘collective intelligence’.

Collective Intelligence and Crowdsourcing in Convergence Culture

Wikipedia and associated Wikimedia projects (e.g. Wikiversity, Wiktionary, Wikinews) became mainstream between 2000 and 2010. While these run one of the most popular applications (MediaWiki), numerous other wiki applications exist (e.g. WikiSpaces, TikiWiki); these are being used for content management and creation of both commercial and grass-roots media projects. Sites dedicated to open education (e.g. Wikieducator, or Wikiversity), Open mapping, or volunteered geographic information systems (e.g. OpenStreetMap) frequently operate in the public domain and are based on public fund-raising. Other projects - though they may be open and community moderated – often operate on commercial business principles and private investment (e.g. Wikihow a-how-to site and Wikia, a popular gaming and fan culture community platform).

Wikis and wiki-based projects and communities have invited diverse lines of scholarly research and many popular accounts, particularly within business and politics, education, media, communications and cultural studies, and in information as well as the computer sciences. Common threads relate to the ways new forms of knowing, and new types of knowers, may be empowering for culture and society and whether they create new avenues for value generation by individuals and organizations. A contentious relationship between corporate interests and collective power, what has been coined as ‘convergence culture’ (Jenkins, 2006), points to user activities becoming opportunities for re-enforcing consumer commitments. Notions of collective intelligence and crowdsourcing can highlight these tensions further.

Concerned with the ways in which people are understood to engage in the production of meaning, whether in terms of texts or as active audiences, some areas of research within media and cultural studies have deployed notions of collective intelligence to point to practices of re-interpretation and remixing of resources. Some scholars have argued that wikis offer the material conditions to enhance heterogeneity and agency over mainstream information flows. Henry Jenkins, for example, points to sites ranging from gaming and fan fiction to Wikipedia and offers an influential thesis of participatory culture acting as an alternative to the power of mainstream media (Jenkins, 2006). Using examples from wiki communities within popular culture, art, gaming and education, Clay Shirky (2010) and Axel Bruns (2008), combine concepts from collective intelligence and distributed creativity to argue for the blurring of boundaries between production and use (which Bruns terms prod-usage), formal disciplines of knowledge, amateur creativity and professional expertise. Exploring practices of mediated collaborative writing and remixing may, indeed, lead to a better understanding of creative processes.

Collective intelligence is often conflated with crowdsourcing and crowd-wisdom: the latter addresses the provision of ideas, texts or observations contributed by a large number of people via an online platform (including wikis). The term has its roots within economics, business and politics and is elaborated in James Surowiecki’s (2004) influential book, *The Wisdom of Crowds*. It is based on the premise that a diverse collection of independently deciding individuals is likely to make certain types of decisions better than individuals and experts and draws many parallels with statistical sampling and predictions about markets.

Crowdsourcing and crowd-wisdom are popular vocabularies used to describe processes of

idea generation within policy, labour markets, business investment, charitable donations, knowledge commons, cultural goods, public management reform, and education as well as scientific development. There are some important differences and similarities between processes of crowdsourcing and sites of collective intelligence, however. In crowdsourcing, goals are set *a priori* by a small set of individuals, an organization or a corporation, and are distributed amongst participants who respond to allocated tasks and divisions of labour. Unlike crowd-wisdom, collective intelligence assumes liberation from established authorities, with self organizing communities collaborating openly to develop peer structures where participants can define and redefine collective goals and shared outputs in an ongoing way.

Despite the positive association of collective intelligence and crowdsourcing with democratization, persistent areas of criticism during the early 2000s have pointed out that established notions of expertise and individuality create uneasy boundaries between professionalism and quality. Some have cautioned that wikis, alongside other aspects of Web 2.0, are meta-filters and formations of a 'hive mind' that may form another part of the information economy. They point to new ways of capitalizing on the power of the collective, increased possibilities of productivity and value for networked user(s). The sourced intelligence of the crowd or the collective does not always distinguish between proprietary and non-proprietary spaces (Van Dijck, 2013).

Wikis have been used in relation to both perspectives, but with significant differences regarding outcomes or outputs. Yet, an area where the distinction between wikis and other social media may be elaborated further is in understanding the association of the wiki with openness, peer production and public goods.

Openness and commons based peer production

Notions of openness, which are inspired by the origins of the Open Source Software Movement (FOSS) and subsequently by wiki applications, are central to perspectives on the ethical, legal, and economic components of issues regarding freedom, rights (including copyright) and processes of production in the context of public goods. The wiki has lent itself to popular vocabularies to describe domains commonly known as open-politics, -media, -business and -education. At the macro level, openness is frequently associated with both liberal theories of freedom and neo-liberal theories about the features of gift economy which may lead to both techno-economic efficiency and social innovation.

Commonly accepted definitions of openness then in the context of creative cultural and technical goods refer to peer evaluation, communal production and public sharing of technical tools (e.g. software code) as well as to content. Proponents of such forms of software and content often seek to promote an alternative approach to established, expert or proprietary tools or forms of knowledge, by emphasizing, not only free access, but also a public domain dimension.

Not all wikis are public or non-proprietary, but openness within a public wiki context is also defined by the use of an accessible and flexible platform for collaboration which does not discriminate among who participates or how they participate, but, at the same time, insists that participants must work in the context of a shared goal: the collective review and production of artifacts that reside in the public domain. Shared goals are negotiated through an accessible and transparent style of communication that allows for community building and deliberation. Dimensions of open public goods involve acceptance that: a) artifacts from such collaborations may not be original or fully completed, and b) since such artifacts are common property they can be constantly improved or re-mixed or re-appropriated in different contexts – or repurposed by anyone who wants to divert from the goal of a particular project to produce similar artifacts (a process called 'forking') (Bruns, 2008; Reagle, 2011).

The ethics of freedom advocated by the Free Software and Open Content Movements emphasize public access to information and accountability, encouraged via competing judgments and solutions which are publically negotiated by mediating the modular design of the software code or the platform for content generation. Within this context, the conception of the “public good” includes not just public domain access, but also the importance of the social and the communicative experience of coding or writing, enabled by careful documentation, discussion and peer support. The social and communal sharing manifested within such projects is built, often, on trust and reliance on others to provide improvements and ideas freely to a project which can benefit the wider society. Likewise, open public goods challenge what some see as the corrosive effect of copyright or patent protection to suggest an alternative mode of production that puts forward common public goods (freely accessible information, open access and free copyright licenses) and a viable ‘alternative’ networked information economy.

Adopting an approach to the social shaping approach technology, Yochai Benkler has offered an influential thesis on technologically conditioned openness. Benkler uses examples, ranging from FOSS to Wikipedia, Open Educational Resources, citizen journalism, social bookmarking and news commentary sites (Slash.Dot, Digg), to review networked forms of organization that he argues are creating ‘technological-economic feasibility spaces’ (2006: 31): these spaces are granular, modular and collaborative and are based on peer sharing and non-proprietary models of production. Associating participation in such networks with the political process and liberal notions of justice based on the public redistribution of resources, Benkler offers a compelling conception of the “networked information economy” and society by stressing simultaneously: a) the efficacy of individuals participating in non-market based conditions affecting the democratization of culture through self-reflexivity and informed citizenship; and b) the role of alternative models of production and ownership in shifting notions about transparency and malleability in the governance of communities which may inform the political process of engagement in states and markets. For Benkler, wikis are one of the principal technologies representing the techno-economic feasibility of these spaces as they offer a modality for distributed, social production, both individual and cooperative. Wikipedia, for example, offers a new system, alongside markets, firms, and traditional non-profits, within which individuals can engage in information, knowledge, and cultural production. Several applications within the domains of open education and open access movements, open data and open government and, more recently, in information activism, have deployed these perspectives.

Within the open education movement, initiatives ranging from Wikiversity and Wikieducator to Peer-to-Peer University have sought to extend notions of liberal education and cultural pedagogy by including alternative and convivial curricula emphasizing modalities of participation, rather than acquisition. Historically the Open Educational Resources (OER) movement has sought to mobilize an ideal of public access to education as a right that is located in the principle of justice in the transfer of goods, including the voluntary exchange of gifts. The focus on the provision of open resources addresses concerns about restricted access (or no access) to formal education institutions, and emancipation from hierarchies of control in systems which condition admission to knowledge. Within this context, wikis are seen as ‘innovative approaches to remove barriers to the creation, use, re-use of content’ but also a platform for improvement through community building, dialogue and collective wisdom: “key tenet of open education is that education can be improved by making educational assets visible and accessible and by harnessing the collective wisdom of communities of practice and reflection” (Iiyosh and Kumar, 2008: 10).

Legal advocacy organizations like the Creative Commons and Open Access Advocacy Groups such as The Open Knowledge Foundation associate wiki models of production with open licensing and citizen science outreach. Domains of citizen and participatory science,

deploy wiki infrastructures to invite participants to provide observations or classifications or, sometimes, to participate actively in research. In addition to volunteer geographical information systems (GIS), like OpenStreetMap, several other projects exist including several Wikipedia Science Portals. One of the most popular sites is Public Lab (Public Laboratory for Open Technology and Science).

Within areas of government, the wiki-logic addresses both issues around informational transparency and open-source governance and applications are being used in both mainstream and grass-roots social movements and information activism (e.g. The Occupy Movement) and have fed into numerous controversies. In some cases, wikis provide the platform for consultation on public documents or invite contributions that lead to the publication of collaborative documents (e.g. Future Melbourne, WikiPlanning San José). Closed wiki platforms, Intellipedia (with content created by 16 agencies of the United States intelligence community) and Diplopedia (a wiki of the American foreign affairs agencies with the State Department) have supported the United States government's mission that is guiding transparency and 'open source intelligence'. A popular wiki (initially editable by anyone, but since 2010 only by administrators) that has been used as source of counter intelligence is Wikileaks. Wikileaks has stirred up discussions about openness and transparency, signaling what Benker (2013) calls the 'networked fourth estate'. This has invited several scholarly work on information flows, information as risk, and is directing novel notions of collaboration between information activism and traditional news media to create a new form of watchdog journalism.

Novel community media genres and citizen journalism sites have been inspired by the wiki logic – with participation ranging from commentary on public pieces to fuller notions wiki-journalism with readers as editors (Lievrouw, 2011). Several sites exist using both social media and collaborative editing features, such as Wikinews (a Wikimedia Foundation project), while other sites adopt the wiki logic in a more liberal way (e.g. Ground Report and CNN's iReport platforms). What is more, Wikipedia's coverage of breaking news and current events frequently informs editor contributions and attracts reader attention (Lih, 2009).

In economics and in business studies, popular vocabularies such as Wikinomics point to the ways in which companies tend to share ideas while maintaining some degree of control (as in their treatment of critical patent rights), with the view that some 'public sharing' expands markets and brings products faster to market. It is assuming that this leads to more innovation – often by converting acquired knowledge – outside the boundaries of the firm, via users, into specific competences, capabilities and (economic) value (Tapscott and Williams, 2010). Some scholars argue that user-centered models of innovation can democratize policy processes and support the co-production of services and enhance citizen welfare.

In emphasizing too strongly the radical implications of openness and peer-production, the extent to which these notions may be co-opted into mainstream 'industrial' models of production may be overlooked. As noted earlier, the convergence culture occupies a contentious position between corporate or state interests and collective power, that is, the very power relations within large wiki worlds. Likewise, claims about the convergence culture are sometimes predicated on the assumed normativity of heterarchy and inclusivity associated with the network form of collaboration and co-production. Researchers do not always question whether the integration of open access or open artifacts within particular fields of education or government addresses structural inequalities or forces of commercialization that are embedded in these very systems (e.g. van Dijck, 2013). The next section turns to some of these perspectives.

Open content and open collaboration: persistent tensions and productive boundaries

Since wikis give access to dialogical and archival features —commonly known as meta-data or meta-media (talk and history pages)— several data intensive and mining methods such as

social network analysis or netnography are being deployed especially within large systems such as Wikipedia. As Lievrouw (2011: 208) notes, ‘Wikipedians’ preoccupation with transparency and statistics, editing histories and other metadata, has sparked something of a gold-rush in research with investigators bend on solving the mystery of how trustworthy information can be generated by legions of mostly anonymous and non-expert amateurs’.

Some studies within the social sciences and social informatics focus on how community dynamics are influenced by contributors’ behaviours, roles and identity structures, or on the ways in which social norms and performance (or expertise) structures influence coordination, creative conflict or consensus. Particular fields of Web Science are often linked to a body of research in the communications field that examines the semantic structures influencing the ways that subjects and media ontologies evolve (in terms scope and scale, depth) in Wikipedia and other large scale wikis or social network platforms– often linked to particular events and contentious topics, but also to geographical coverage of editions and topics. Political and social web scientists within established research centers at the Massachusetts Institute of Technology and Oxford University are studying ‘Big Data’ (in platforms including Wikipedia and large scale wikis) to address longstanding questions that have hitherto been impossible to investigate concerning the emergence and representation of large political movements, like Occupy, and to uncover social and geographical patterns of influence and conflict in contested spaces.

Within the education field, wikis are being examined for their inscribed potential to foster active learning: a) through socialization; b) as mechanisms for creativity and informational literacy; and c) in relation to co-designing curricula. The pedagogical benefits are, however, ambiguous in formal educational settings and some point to sharing and co-creation coming into conflict with the structures of formal accreditation. Issues of trust, authorship/ownership attribution, etiquette, confidence, and group cohesion, as well the boundaries between anonymity and reward are among the most productive and problematic issues raised by wikis in this context.

Informed by a large body of research within informatics, computer science and communication studies exploring the boundaries of open collaboration, some integrative studies have reviewed aspects that influence the sustainable design and success of collective artifacts (in terms of scale, depth, longevity or user acceptance). They point to features that support: a) accessible conditions for participation (e.g. low barriers for entering and exiting), b) design for socialization and deliberation, and c) persistent, yet malleable social structures, including credit and reward systems (Forte and Lampe: 2013).

Several key dimensions refer to the design of socio-technical features that may condition communal participation in wiki projects. The discussion draws attention to persistent themes (and tensions) regarding quality and credibility, and the processes and structures of participation.

Quality and Credibility

While shared goals can be pre-defined and reassessed in the process of a collaborative content development project, the criteria for the assessment of quality are often drawn from comparable genres. In the case of Wikipedia, for example, several studies have been conducted to compare the accuracy, form and style of specific articles in comparison to established encyclopaedias or similar outlets. Often the metrics are based on internal characteristics such as the quantity and diversity of contributions, or editorial strength or longevity. Likewise, issues of scope, representation and completeness are often assessed in comparison to similar outlets, or by comparing the ways in which content gaps or controversial topics are dealt with across different language editions.

Issues surrounding Wikipedia's credibility and subsequent responses to spin have sparked numerous press accounts and scholarly research. Some empirical studies have found that articles are perceived as being more credible by reviewers who have expertise in particular topic areas as compared to non experts. Some studies report cases of vandalism – incorrect information deliberately inserted – and rapid responses to repair, pointing to effective mechanisms of safeguarding and coordination. Other studies provide evidence that openness and popularity references by the mainstream media (including citations in the mainstream press) can increase participation and raise quality as more users scrutinize or contribute content (Lih, 2009). Other features like audience ratings and sections where explicit peer review takes place (e.g. featured articles) are also seen as drivers that increase quality, credibility and completeness.

Participatory architectures, motivations and literacies

One of the persistent arguments about the wiki participatory architecture and the participatory architectures of other web 2.0 tools is that they support low barriers to enter and exit in a public enterprise.

As mentioned earlier, research and scholarship on open source and content communities has uncovered a diverse range of motivations that include a combination of 'civic virtue' (Benkler and Nissenbaum, 2006) and generosity (Shirky, 2010) which are often mobilized by an ideological commitment to open access and public goods or by instrumental goals of professional development and reputation building, enjoyment, personal development and social capital (e.g., Reagle, 2011; Budhathoki and Haythornthwaite, 2013). Nonetheless, learning about how to participate in wiki collaborative systems is also conditioned by the development of particular writing skills and collaborative or networked literacies, the nurturing of which depends upon the degree to which a socio-technical system supports socialization and deliberation.

Existing participatory expertise, socio-technical literacies and time availability (e.g. in writing, software code, in open communities) are likely to play a role in shaping trust and lead, eventually, to higher status in a community. Early negative experiences also condition further participation and are perceived as barriers to sustained participation. In Wikipedia, territorialism, the invocation of rules and inhospitality to epistemic experts are often seen as participatory barriers. Feedback mechanisms around writing and policy invocation are seen as persistent factors in ensuring positive experiences of contributors.

Another body of scholarship has deployed perspectives deriving from communities of practice approaches and from activity theory to describe how processes of enculturation may lead to individual and collective knowledge building.

Divergent forms of participation imply that to be sustainable, open collaboration systems need to attract and socialize enough participants, and to attract and support participants who specialize in different types of activities (including administration and curation). Building a mentoring system that may encourage collaboration to improve the quality of a project, by building upon reputation systems, is a significant object of research and discussion within information studies and open education. Successful implementation of wikis in the formal education context also requires a clear articulation of the purpose of particular projects. Many studies have found that carefully constructed tutor moderation and guidance are needed, particularly at the start before students gain a sense of control, ownership of the space and a collective sense of community (Leinonen et al., 2009).

Recognizing and 'rewarding' certain types of 'wiki work', particularly in large systems such as content curation, administration and subject inclusion, including sourcing of content, debating technical and content issues or how to cover gaps, are other aspects that point to issues of governance and community culture. Although the power law of participation (a

minority of contributors do the bulk of the work) is widely cited (e.g., Orgeta et al, 2008), other participatory power disparities, including gender imbalance among contributors, are frequently cited in public debates and research.

Deliberation and governance

Several studies have examined the governance of large collaborative communities such as Wikipedia, pointing to leadership and deliberation structures and constantly evolving social dynamics and policies as important issues (Reagle, 2011). Questions about distributed leadership are prominent with some research providing evidence that, while novel hierarchies and privilege are important, reward and recognition structures influence the sustainability of contributions. Referring to the ways in which Wikipedia defines its community, Bruns (2008: 140) points to well-evidenced depictions as ‘a mix of anarchic, despotic, democratic, republican, meritocratic, plutocratic and technocratic’.

There is a prevailing sense that wikis promote consensus democracies (Mejitas, 2013). Normative models for handling conflict in the collaborative spaces of the digital network are combined with pragmatic approaches that seek to promote diversity of opinion and consensus. According to its principal policies, Wikipedia enjoins contributors to adopt a neutral point of view (NPOV), “representing fairly, proportionately, and as far as possible without bias, all significant views that have been published by reliable sources.” This is intended to promote an environment where a bias expressed by one user motivates another user to challenge it, or try to reframe it, by substantiating it with facts. The outcome of these mechanisms is a text where all differences of opinion can be managed through what is aspired to as ‘equal representation’. The question then is whether such environments create the opportunity for differences and grievances to be openly expressed or whether there is an endemic bias (towards creating consensus and eliminating grievances through the management of dissent) because this creates information and environments that are more efficient and easier to use. Certainly wiki-style consensus is not necessarily a model for representative democracy and wikiworlds are not necessarily inclusive of all perspectives. In fact, open content communities allow users, who find themselves mired in controversies about conventions and points of view, to copy the result of their collaborative efforts and work on it in a different setting (i.e., fork). The resulting project may be more or less open and, in time, may fork again. Citizendium is a project that forked from Wikipedia, due to the lack of consensus about anonymity and the role of expert contributions, but contains only a small fraction of articles. Several others exist, differing in terms of scope and policy and with varied attributes of humor and strength.

SEE ALSO Web 2.0, social media, online activism and social movements, citizen media and journalism

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With a background in media and communications her research and teaching at the universities of Sussex, London School of Economics and the OU has addressed the intersections of technology, knowledge, learning and culture. She has published work addressing the cultural politics of technology in open education, community media and information systems, pointing to tensions on participation, expertise and creativity. Her forthcoming monograph, *The Web of Knowledge: Encyclopaedias in the Digital Age*, will be published by Polity Press in 2014.