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PUBLIC OPINION AND THE INTERNET

Abstract: The article considers the impact of the "world wide web" on the formation of public opinion. Public opinion in the form of peer opinion emerged as important in collegial societies in the eighteenth century. Editorial opinion became crucial in the context of the organizational societies of the late nineteenth and twentieth centuries. Web-driven opinion belongs to a "self-organizing" society. Such a society retains aspects of peer dialogue. It also incorporates forms of traditional network media built around the push technologies of broadcasting and centralized mass distribution. But it adds to this repertoire a new kind of technology—a pull technology—where user-driven searches of billions of self-published pages archived on the Web complement, and in part replace, both dialogic and centralized network media. The article considers how, under these conditions, opinion becomes less a matter of shaping peer belief or mass convictions than of shaping tacit collective "autopoietic" structures.

INTRODUCTION

The development of the "world wide web" has had a significant impact on the formation of public opinion in democratic societies. This impact, though, has not been exactly that predicted by early 1990s prophets of the Web, who expected a decentralization of traditional mass media. If anything, the easy accessibility of the web-enabled Internet (hereafter "the Net") has extended the audience reach of traditional network media. Despite this, the Net is fundamentally changing the nature of public opinion.

One should be wary of thinking of this change as a technology-enabled extension of the nineteenth-century liberal public. In the liberal view, the Net is a difficult-to-control free speech medium. It engenders a babble of voices devoted to persuading citizens and governments of the merits and otherwise of laws and policies. Because the Web's infrastructure of servers is global, dictatorial—or even legal—control of it is difficult to achieve. This is especially true for governments that want to encourage the pragmatic benefits of computer-mediated commerce.

Yet, to see the Net simply as a free speech medium does not do full justice to its nature. It began life as a powerful document delivery system, and, in important ways, its long-term impact on public opinion derives from that fact. The Web leveraged existing inter-networked computing to enable a new way of creating, collecting, storing, transforming, and disseminating documents and information objects. The frothy activity of instant commentary and interest group campaigning that the Net facilitates disguises the extent to which the logic of the public sphere is undergoing a long-term paradigmatic shift shaped by its origins as a document archive.

BACKGROUND

The architect of this dynamic document archive was Tim Berners-Lee (Berners-Lee, 1999; Naughton, 1999). In 1980, Berners-Lee began work as consultant at CERN, the international particle research body located near Geneva. CERN was a "city of turnover". Its principal social characteristic was a transient population. Visiting physicists who came and went did much of the center's experimentation. Scientists on average stayed two years. The problem that resulted was how to maintain good documentation tracking when staff turnover was so high. Berners-Lee set out to solve this problem.

His first attempt was to create a program called ENQUIRE (1980), which he dubbed a "memory substitute". He filled documents with words which, when highlighted, would lead to other documents. This was similar to the Apple Macintosh HyperCard. This application in its turn borrowed the hypertext concept from Ted Nelson (Nelson, 1992). Hypertext conceived information as connection or linkage. Berners-Lee adapted this idea to create the beginnings of a publicly accessible archive of documents. The archive was initially restricted to CERN. In 1989, however, Berners-Lee conceived a plan for a universal document system. Universal meant global. The idea was to use a mix of hypertext and networked computing to link all documents and information objects in the world. The idea of a universal system was a conceptual break-through. A universal system meant there would be no central control or source of information—whether in the sense of a centralized undemocratic hierarchy or else a democratic hub-and-spoke network. Universal also meant the potential integration of all information systems.

Berners-Lee had another powerful idea. He thought that a universal information system should mean not only universal access to and retrieval of documents but also the universal capacity to publish documents. He insisted (against the opposition of peers) that this should be a system in which anyone using a hypertext editor could publish a linked document. The hypertext editor was the forerunner of the HTML editor. Andries van Dam had created the first functional hypertext editor in 1967 at Brown University.

In 1990, Berners-Lee got support from CERN senior managers for what had been to that date virtually a private project. He created a program called a "browser" that provided a virtual "window" through which a user saw a web of linked resources on the existing "inter-net" (i.e., the existing inter-network of networked computers that had grown up since the 1970s). His small team also created a "web server", based on the client-server model. He envisaged a system in which information would be stored on networked computer servers. Client programs (browsers) running on other networked computers would access these servers.

How would the information be extracted from these servers? One option was to use existing technology such as TELNET or FTP. A second more powerful idea was that of the "inter-face". This concept came from the hypertext community. An inter-face was a "window" that displayed the structure of the virtual space of linked texts. Originally, node-link diagrams represented this structure. The first browsers were not graphical. Graphical interfaces came later. Marc Andressen's 1993 Mosaic browser was the first with the standard graphical interface of windows, graphics, and point and click functionality.

Berner-Lee's desire for universality meant that he had to ensure that public information on any networked computer anywhere in the world could be accessed

through the browser. To achieve this end, Berners-Lee devised a set of protocols by which different machines could talk to each other and exchange information. One protocol specified the location of information. It was like an IP address. A second protocol for information exchange between machines was modeled on FTP. This was the HTTP (Hypertext Transport Protocol). A third protocol established a uniform way of structuring documents: Hypertext Mark-up Language (HTML). HTML was based on SGML (Standard Generalized Mark-up Language) already used in the electronic publishing world. It provided conventions for attaching tags to pages.

CRITICAL ISSUES: FROM PEERS TO AUTOPOIESIS

The result of Berners-Lee's architecture was a cheap, quick, and reliable system for accessing, retrieving, and publishing documents. Any person with access to the Internet in principle could look at any document stored on a web server (unless it resided on a secure server where access was intentionally limited). A person with some web server space could publish any documents they liked on the Internet, as long as they had some simple knowledge of HTML page creation.

What followed from this were two major consequences for public opinion. The first was that anyone with a relatively simple set of tools could publish their own opinions. On the web, these opinions were accessible to anyone anywhere in the world with access to a computer and an Internet Service Provider.

Computer-mediated universal access and self-publishing created a new kind of public sphere. They also created a new set of justice and equity problems. Not everyone can afford access, and certainly not unlimited access, to the Internet. Indeed most of the world does not have a telephone connection, let alone a computer or an ISP account. But, then, also most of the world has never participated in public opinion

formation of any kind. In the still limited number of countries where there is a history of strong public spheres, programs sponsored by governments and private foundations emerged in order to overcome access inequalities. Widespread provision of computing by companies and educational institutions also facilitated access to the new digital public as well. "Stealing time" from institutions for public and private Net activity emerged in the well-endowed democracies as a "quasi entitlement"—creating dilemmas for organizations as to "when and where and how" to encourage or discourage such tacit activity.

In democratic societies with long-established publics, and a correlative strong propensity to create intellectual wealth, virtually all social groups and classes have directly or indirectly benefited from the increasing access to information made possible by the Net. At the other end of the political spectrum, the Net has posed significant dilemmas for dictatorial governments. Their first instinct has been to censor Web materials. However, censorship is difficult to apply to the Net, because material is published on thousands of web servers in hundreds of countries. Dictatorial states instead discourage access to computer hardware, the setting up of ISPs, and the local publication of sites. However, as the Net is also a major scientific and commercial medium, with implications for trade and military science, such controls also hurt a state's economic and technology performance.

In contrast to crude dictatorships, authoritarian states like China have sought to preserve the economic and scientific advantages of the Net, while discouraging free speech and restricting freedom of information. Such states encourage user accounts while maintaining a state monopoly over government documents, blocking access to a relative handful of politically sensitive international news and government sites, and closing down local opposition sites. These measures alone cannot prevent individuals

browsing critical materials. Thus authoritarian states have come to rely heavily on the strategy of self-censorship. They rely on the fear of web users that the government may find out about, and punish them, for visiting sites that the government disapproves of. Users are aware that it is difficult to erase all traces of such activity from a computer's hard drive. Packet sniffing, keystroke monitoring and inspection of logs allow systems administrators to audit unauthorized activity on network computers. But monitoring all Net activity would be insanely labor intensive, and thus self-defeating for any government. Therefore authoritarian states depend on their population using the Net for social communication (for chat) but not for political communication. A government might occasionally audit the immensely popular chat rooms, but so long as users avoid explicit political comment the state has no further interest in what is being said.

The success of the strategy of self-censorship has been one of the reasons that the Net has not proved to be the kind of libertarian force that its prophets in the mid-1990s expected it to be. However, authoritarian state strategies are not the only reason for this. A lot of the Net's supposed power to shape public opinion is overstated. Take the much-touted ability of Net users to post opinions on the Web. Anyone in a democratic state with modest resources and motivation can publish more or less what ever they like, more or less where-ever they are, and at any time. The popularity of blogs (web logs), video postings, threaded discussions, relay chat, and so on are testament to this. However, often this means little more in practice than that the Net is a powerful expressive medium. It allows no-holds-barred statements of opinions and views. Other Net users, though, can just as easily ignore these. Cohorts involved in threaded discussions typically have difficulty sustaining dialogues. It is striking how minimally interactive much supposed interactive discussion actually is (Davies, 2003:

37-38). Expression on the Net is often mistaken for discussion. This phenomenon has significant implications for the Net as a medium of public opinion.

Net citizens, or netizens (Hauben, 1997), have difficulty sustaining arguments with political opponents. They quickly drift off topic. They don't engage with each other. History can help us understand why this is so. Peer-based formation of public opinion emerged in the eighteenth century (Habermas, 1991; Gouldner, 1976). It arose out of face-to-face debates that had been released from the constraints of traditional social hierarchies. Coffee houses and the houses of parliament in London were crucial to this development. In this setting, we see public opinion formed through the arguments of peers. Peers have no social authority to compel others to agree with their opinions. As in a jury room, they have to garner agreement by reasoning. In eighteenth-century England, newspapers recorded the debates of peers. Thanks to existence of an effective postal service, the reports of these debates could be sent to the provinces. Debate between peers meant that public opinion was shaped by feedback. Statements were made, and others responded to them. Responses in turn were responded to, as the pitch of debate increased.

It is an illusion to think that the Net functions like this. It has many powerful tools to facilitate interactive responses—from discussion boards to email. But the ability of these tools to reach anyone with an email address also means that the technology contradicts the small-scale logic of peer debates. The greatest extent of one's peers is around 150-200 people. Yet the Net allows everyone in the world to be one's peer. Peer-style feedback cannot function meaningfully on that scale. Cybernetic models of feedback may work for machine self-regulation (Weiner, 1948) but not for opinion articulation.

The world scale of the Net is the result of a longer historical process in which the small scale of peer debate has been subsumed by larger-scale processes of public opinion formation. From the mid-nineteenth century, telegraphic (and later telephony) networks permitted news services to transmit opinion samples to news organizations with great speed and "from anywhere to anywhere" served by these networks. Correspondingly, newspapers developed editorial formula to communicate with a mass audience, in place of peer audiences. The rise of the organization society and its generic ideologies—such as liberalism and socialism—abetted this development. Communication became a professional activity. With the development of radio and television networks, formula-driven reports could be instantly transmitted to a mass audience. The public opinion that developed in this context was formed through the gatekeeping of competing news organizations. How opinions were collected, edited, and redistributed through networks of public broadcasters and private media companies was crucial to their eventual shape.

The third, most recent, stage of public opinion emerged with the Web in the 1990s. Gatekeeper publishing organizations have a strong presence on the Net. Peer-to-peer forums and tools are also widely available and well supported. However, the key innovation of the Net is that virtually anyone with a basic skill set and modest resources can publish their own material. They can "post" material to a URL (Universal Resource Location) address. Each byte of data in a computer memory has a numeric address. Addresses allow data to be located. The model of the Net as an addressable medium was initially derived from Von Neumann's computer architecture (Bolter, 1984; Floridi, 1999). The idea of the numeric addressing of space ultimately derives from Descartes. Long before computing, it underpinned the modern concept of a postal service with its numeric street addresses and zip codes. When

Berners-Lee adapted this "reading, writing, addressing, and posting" technology, what we ended up with was individuals being able to "post" a document to a public computer address that anyone could browse. As long as a person was motivated to search for the document that might be located at any of millions of addresses, and as long they had some search skills and tools, they could locate the document.

What the "public post" model is geared to is not peer-to-peer communication but archival transmission. It is not governed by the judgment of professional editorial gatekeepers but by self-publishers. This begs the question: how is public opinion formed in the age of addressable media?

One answer to this question is that addressable media do not support the type of collective public opinion typical of the age of large media organizations. Partly this is because of the reduction in the influence of editorial filtering mechanisms that can shape such an opinion. Partly this is because collective opinion is simply less important to democratic functioning in a cybernetic society in contrast to the growth of self-regulating systems. One of the most important examples of a self-regulated system is the Net itself. What counts is not its capacity for broadcasting opinion, or for stimulating mutual dialogue. What is crucial is its capacity to post, archive, and retrieve opinion in a self-regulating way. The Net makes us re-think the very nature of opinion.

The Net is a self-organizing or autopoietic system. The classic example of such a system is the city (Johnson, 2001; Murphy, 2001, 2003; Jacobs, 1985). For example, the way that traffic flows in a city exists independently not only of each driver's desires but even of the intentions of the most foresighted planner. Little that happens in cities is explicitly legislated, yet city life is shaped by powerful patterns well understood by its denizens. Scale, symmetry, proportionality, and economy

generate many of these anonymous forms. They can last for generations. Some of the patterns of Rome, for example, have persisted for over 2,000 years. Such patterns often prove highly palatable to city dwellers. They make good use of them to generate their own incremental additions to city life.

The Net operates much like a city. We can begin to understand why this is so if we look again at Berners-Lee's original design for the Web. He designed it to archive documents. Its purpose was to transmit science documents over time. Scientists who left CERN could archive their papers so that they would be readily available to incoming researchers. The model of this was neither the debating forum of scientific peers, nor was it the office newsletter. What emerged from the initial design of the web was a giant Alexandrine-like archive. The things that characterize the archive are:

1. It is driven by the self-publishing and self-organizing efforts of its contributing parts. No contributing part (individual, group, or organization) has much influence measured against the whole of the Net. No contributing part can be a gatekeeper for the whole. There is not an editorial "ghost in the machine" to regulate the system. Likewise, the archive has no peer bodies (for example, a Senate or Dr. Johnson-style clubs) where public opinion is decisively shaped.

2. In self-organizing systems what counts is the long-term transmission of pattern and structure. Generations come and go, endless changes are made, and yet through all of the changes

certain patterns persist. The contribution of each part belongs to a larger scheme of things.

3.   Each part has difficulty comprehending the whole of the archive, but each contributor nonetheless still understands something of its tacit architecture.

4.   This architecture, like all great architecture, is simple. With a few elementary pattern-ideas, beginning in the case of the Net with a few protocols, a complex structure is created.

5.   Other patterns emerge spontaneously—like the Zipf distributions or "power law" of the Net;

6.   Like a city, sight and sound and movement are as important to the Net as text is. Correspondingly, opinion that lasts is as much characterized by its composition and design as by its peer standpoint or its generic ideology.

7.   Such an autopoietic system allows millions of persons to contribute to it. The nature and meaning of the system remains independent of the intentions, beliefs or opinions of any and all of the contributors. Like a city, the autopoietic archive has a character separate from its makers.

CONCLUSION

Peer opinions emerged as important in the collegial societies of the eighteenth century. Editorial opinion became crucial in the context of the organizational societies of the late nineteenth and twentieth centuries. As it entered the era of the archive, opinion assumed the time-scale of autopoietic systems. This is "the thousand-year

scale of the metropolis" (Johnson, 2001, p. 99). The future lasts a long time. The power of such an archive is transmissive rather communicative (Debray, 2000; Vandenberghe, 2007). The thing that matters is not the communicative interaction of peers, or mass communication, but transmission across time.

Transmissive power is measured in decades, centuries, and even millennia. The medium of the Net has exceptional capacity to instantly send, retrieve, and self-publish material. Yet the ultimate logic of the Net is to preserve and transmit those documents and objects over time. An understanding of large-scale transmissive systems, and their role in shaping autopoietic societies, is still sketchy. It remains a key topic for future research.

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