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ARTICLES

Placeless Organizations: Collaborating for Transformation

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This article defines and discusses placeless organizations as sites and generators of learning on a large scale. The emphasis is on how placeless organizations structure themselves to carry out social transformation—necessarily involving intensive learning—on a national or global scale. The argument is made that place is not a necessary component of such activity and that lack of a sense of place may be beneficial to the work. The article is intended to contribute to elaborating the cultural-historical dimensions of activity theory by examining a social framework within which significant learning activity occurs.

Recent work in activity theory has been in the forefront of theorizing forms of organizational collaboration beyond the firm (Engeström, 2005; Engeström, Engeström, & Vähäaho, 1999; Hedestig & Kaptelinin, 2002; Miettinen, 1998; Nardi, Whittaker, & Schwarz, 2002; Schneider & Foot, 2005; Zager, 2002). Because *activity* rather than the firm is the unit of analysis, collaborations that occur outside of firms, or within firms in new forms, are more readily apparent.[1] By starting analysis with objects, rather than an assumed form of organization, new forms within which objects are constructed and instantiated become visible. The consequence of taking activity as the starting point of analysis is the discovery that within and beyond firms people are organizing themselves in new ways to transform practice. Although activity theory has been somewhat quiet in broadcasting its findings, the body of work contained in the aforementioned references is a significant contribution to investigating organizational change beyond the management and organization theory literatures.

This work has the potential to address a serious shortcoming in activity theory itself. The cultural-historical dimensions of activity have been undertheorized—recognized as critical, but much less elaborated than the formal principles. The work on social forms delineates specific cultural-historical forms within which activity takes place. This work begins to provide concepts and vocabulary for the "C" and the "H" of CHAT (cultural-historical activity theory).

[1]Lee and Cole (2003) critiqued the knowledge management literature for taking only the firm as the unit of analysis and suggested community instead.

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It is perhaps not surprising that activity theoretical work on social forms concerns transformation. Activity theory's principle of development and its optimistic, forward-looking philosophy (Engeström, 1987) guide researchers in seeking to understand change. Transforming practice has been theorized as *coconstruction*. Raeithel (1996), based on earlier work by Fichtner (1984), defined coconstruction as a redefinition of the object of collective activity. Coconstruction necessarily involves intensive learning as new practices are being devised, which itself requires learning, and the new practices are intended to be learned by others.

Coconstruction can be elaborated by considering both object *construction* and object *instantiation* (Kaptelinin & Nardi, 2006; Nardi, 2005). Object construction is formulating an object, that is, figuring out what it should be, whereas object instantiation is the work that goes into realizing a particular object, to achieving an outcome. This distinction is necessary because the two processes are not the same and it is easy to confuse them. Thompson (2004), for example, discussed the concept of an "emerging object of activity" (p. 583). But the meaning of this phrase could shift between referring to a change in the motivating object toward which an activity is directed, and referring to the emerging outcome of an object as people work toward accomplishing the object.[2]

Object construction takes place in many venues—meetings of visionaries, social movements, discussions in small groups of people who desire change, even a light bulb going off in the head of a single individual. The work of defining a new object is critical, but we must look also to its instantiation; if the object has no means of being instantiated, it will remain invisible, not part of any recognizable activity. Thus it is important to address both object construction and instantiation.

These concepts bridge Leontiev's (1974) work emphasizing the selection of an object motivating an activity, and Engeström's work (1987, 1990) emphasizing the production of an outcome in an activity. A notion of object instantiation includes identifying the actions taken to attain an object, as in classical activity theory, but also the definition of the social forms within which activity is carried out. Thompson (2004) argued that activity theory needs both low-level analysis of social acts characteristic of ethnomethodology and the higher-level analysis of social frameworks without which such acts lack meaning. In other words, drawing attention to object instantiation suggests that identifying the durable historical forms within which activity is located should be a task for activity theory. Addressing object instantiation calls attention to the particular cultural-historical ways activity is organized.

Organizations with transformative objects instruct others in transformative change. Through their objects, the organizations devise and teach new practices, attempting to effect learning in the venues they seek to influence. This article examines one way in which people structure themselves to generate learning on a large scale. Specifically, it examines "placeless organizations" as one such organizing framework.

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[2]The term "object" continues to bedevil activity theory. Students and colleagues report to me that in studying activity theory, they invariably become confused trying to understand it. Its meaning appears to change according to the context in which it is used. Efforts to clarify the term include Foot (2001), Nardi (2005), and Kaptelinin and Nardi (2006). There seem to be many points at which the term is ambiguous. Is an object a motive or is it a material object toward which activity is directed? Are there different kinds of objects, such as the "runaway objects" proposed by Engeström (2005)? The distinction between object construction and instantiation is one dimension of clarification I have tried to provide.

The article describes the characteristics of placeless organizations, analyzes patterns of communication and technology use, provides several examples, and compares placeless organizations to other social forms with which it has some commonalities. This work is intended to be generative in suggesting the importance of a new social form that effects learning on a large scale (i.e., within organizations operating on national or global scales), and in encouraging empirical work on social transformation using the tools of activity theory.

PLACELESS ORGANIZATIONS

Placeless organizations have the following characteristics:

1. Work is guided by a transformative object.
2. Participants come from multiple diverse organizations.
3. Work is conducted at multiple shifting sites.
4. The organizational structure is a hierarchy of nucleus + distributed vetted participants.
5. Key participants are not in a traditional relation of paid employment.

With this abstract depiction of placeless organizations, we can now ascend to the concrete, to examine some specific cases. Four cases are analyzed: the National Ecological Observatory Network (NEON), Doctors Without Borders, the World Trade Organization, and Free/Open Source Software (F/OSS) development projects. These cases were chosen to illustrate the concept of placeless organizations with familiar examples (the latter three examples), or, in the first case, because I had the opportunity to observe the organization firsthand. The material on the NEON organization is based on observations I conducted in 2005. The reports of Scacchi and his colleagues (Elliott, 2005; Jensen & Scacchi, 2005; Scacchi, 2004) are the basis for discussion of F/OSS development projects. The other two examples are provisional, intended to invite further empirical investigation.[3]

NEON

NEON is intended to transform the practice of ecology. Most current practice in ecology is characterized by relatively modest single investigator or small group studies conducted at limited spatial and temporal scales (Andelman, Bowles, Willig, & Waide, 2004; Michener, Brunt, Helly, Kirchner, & Stafford, 1997; National Research Council, 2003). Data are generally stored in local file systems, and methods to document and manage data are largely idiosyncratic. It is difficult to share or aggregate data from one study to another. Ecology's multiple subdisciplines have varying practices, terminology, and levels of collaboration and there are few instances of large-scale, shared instrument platforms.

NEON is an effort funded by the National Science Foundation (NSF) to radically transform these "small science" practices. Through the development and deployment of a continental-scale shared instrument platform consisting of a vast network of sensors and related cyberinfrastructure spanning North America, it is believed that ecology can begin to ask and answer much larger scientific questions (National Research Council, 2003). The NEON *Rationale,*

[3]François Cooren at the University of Montreal is undertaking a field study of Doctors Without Borders.

Blueprint, and Expectations document (Infrastructure for Biology at Regional to Continental Scales Working Group, 2003) states, "In this century, we must . . . learn how local processes can be scaled up to biomes or continents if we are to accurately predict changes in the composition, structure, and dynamics of the nation's ecosystems" (¶ 2).

The NEON leadership sees the development of NEON as a transformation to what it calls "big science," believing that the use of extensive new instrumentation will enable ecology to transform into a predictive science capable of forecasting events in areas of importance to society such as infectious diseases and invasive species (Senkowsky, 2003, 2005). At this time, the NEON network is a vision in the process of being turned into a detailed plan that can be submitted to the NSF for special funding. A formal Project Execution Plan (PEP) requesting about 500 million U.S. dollars from the NSF's Major Research Equipment and Facilities Construction program is being written.

NEON is composed of members from a variety of universities, research institutes, and government agencies, including NSF as a close partner. NEON participants share a collective object of transforming ecology through the NEON network. The NEON Design Consortium (NDC), a subgroup of about 160 people, was convened during 2005 to answer key scientific and technical questions about the network. My observations were conducted as a member of the Information Technology and Communication Subcommittee of the NDC. Analysis of NEON is based on my participation in NDC activities, reading NEON documents, and informal discussions with NEON leaders and NDC members.

The NDC received about 700 applications for membership. Participants were carefully vetted by a committee. The NDC represented about 150 different institutions, drawing expertise from a wide variety of institutions and disciplines including biological science, computer science, social science, and education. Three face-to-face meetings were held. The documents the group produced will be used as input to the PEP. NEON participants received a small stipend and travel expenses.

NEON has engaged participants from many diverse organizations. Its object was constructed by a small group of visionary leaders who have been working for over a decade to bring their vision to fruition. NEON is coordinated by the American Institute of Biological Sciences, a nonprofit agency in Washington, DC. NEON's nucleus is composed of the leaders and the support team at American Institute of Biological Sciences. Key scientific and technical work is conducted by dispersed participants with varied expertises, as for example in the NDC. The distributed participants can be thought of as "dancing points of energy" circling the nucleus like electrons. These electrons gain their definition from the nucleus, and yet they provide energy and shape to the "atom" as a whole.

Face-to-face meetings have been essential for NEON (both in the NDC and other aspects of NEON activity). The leadership believes that the NEON platform cannot come into being without intense face-to-face interaction. Part of the reason face-to-face communication is considered necessary is to allow people to instantiate the NEON vision in a truly transformative way, not to reproduce old ways of doing things. At NDC meetings, ordinary subcommittee work such as writing documents, proposing timelines, or considering various technologies, was punctuated, at intervals, by someone asking, "How would this [technology or practice] be transformational?" In the midst of the work, efforts to transform ecology were explicitly addressed. Although such interactions are possible in technology-mediated communication, they are much less likely, especially when participants do not know each other well.

Mediated communication is of course also essential to the NEON effort. NEON utilizes e-mail, a Web site, a wiki, online surveys, phone, fax, Fed Ex, and other standard communication technologies. Without these technologies, the work could not be accomplished.

Doctors Without Borders

Doctors Without Borders—*Médecins Sans Frontières* (MSF)—was established in 1971. Through volunteers, MSF delivers "emergency aid to victims of armed conflict, epidemics, and natural and man-made disasters, and to others who lack health care due to social or geographical isolation" (MSF, 2005). Before MSF, no single organization specialized in using volunteers to provide first-rate medical care in situations of crisis or disaster. The collective objects of MSF are transformative, including direct delivery of medical care to those most in need, as well as a broad social agenda of creating awareness of the needs of the populations they serve. "We are by nature an organization that is unable to tolerate indifference. We hope that by arousing awareness and a desire to understand, we will also stir up indignation and stimulate action" (MSF, 2005, ¶ 5).

MSF draws on expertise from a variety of medical professionals, humanitarian relief workers, and operations experts. It has offices in several countries, with headquarters in Geneva. Volunteers go where needed to "fields of intervention" all over the world.

MSF is perhaps an early precursor of placeless organizations in the modern context. It has been widely recognized for the efficacy of its efforts, earning many international awards including the Nobel Peace Prize in 1999. Its field volunteers include health professionals, administrators, and logistics staff who generally stay in the field for about 6 months.

Obviously, face-to-face interaction is central to MSF in the work conducted in fields of intervention. But a great deal of face-to-face communication is also utilized for recruiting, training, and logistics. For example, the Web site provides a list of countries in which MSF has offices and tells those interested in volunteering

> If you do not live in any of these countries, it is unlikely that MSF will be able to provide you with information about volunteering. This is *because it is MSF policy that all potential field volunteers be interviewed face-to-face before being considered for a mission*. (MSF, 2005; original emphasis)

Face-to-face recruiting meetings are held to educate potential volunteers about the organization and the work. Much important work is carried out in regional offices in 19 countries. As with NEON, technologically mediated communication is also vital. For example, the extensive MSF Web site contains FAQs, press releases, reports, links, and other documents. The U.S. version of the MSF Web site includes e-mail contacts and means for donations online or via a free telephone number.

The Geneva headquarters is the nucleus of MSF. The work of serving those in need of medical and humanitarian services worldwide is conducted by carefully selected professionals, distributed to shifting areas of crisis.

World Trade Organization

The World Trade Organization (WTO), composed of 148 member countries, works out agreements to promote world trade. Established in 1995, the agenda of the WTO is nothing less

than the transformation of the conditions under which global capitalism operates. Member governments send representatives and generally abide by the agreements made at the meetings. Despite fierce protests and scathing critiques from many quarters, the WTO continues to exert enormous power.

The WTO has the authority to discipline members, according to member-defined rules, applied through a process of negotiation. As the Web site explains:

> When WTO rules impose disciplines on countries' policies, that is the outcome of negotiations among WTO members. The rules are enforced by the members themselves under agreed procedures that they negotiated, including the possibility of trade sanctions. (WTO, 2005)

The WTO maintains headquarters in Geneva. The highest authority is the Ministerial Conference, which, according to WTO regulations, must take place at least every 2 years. The Ministerial Conference moves around the globe: Singapore, Geneva, Seattle, Doha, Cancún, and in 2005, Hong Kong. The General Council, the next level down, normally meets in Geneva. At the lowest level of the organization are a series of smaller, more "informal" meetings in which significant work is accomplished:

> Important breakthroughs are rarely made in formal meetings of these bodies, least of all in the higher-level councils. Since decisions are made by consensus, without voting, informal consultations within the WTO play a vital role in bringing a vastly diverse membership round to an agreement. (WTO, 2005)

These meetings take place worldwide. For example, representatives from a broad range of WTO members, representing 30 countries, met in Dalian, China, in July, 2005. This meeting was the fourth informal meeting of WTO ministers held in 2005 in preparation for the Hong Kong meeting (International Trade Canada, 2006).

The distributed nature of the WTO is further emphasized on the Web site:

> The work of the WTO is undertaken by representatives of member governments but its roots lie in the everyday activity of industry and commerce. Trade policies and negotiating positions are prepared in capitals, usually taking into account advice from private firms, business organizations, farmers, consumers and other interest groups. (WTO, 2005)

The WTO meetings at all levels take place face-to-face. Some meetings in "capitals" and discussions with farmers and so on are also face-to-face. It goes without saying that technologically mediated communication is essential to the WTO, such as the extensive Web site with an impressive archive of documents, as well as the e-mail, phone communication, and so on needed to organize and coordinate between meetings.

WTO members are carefully vetted through a four-stage application process (see www.wto.org). In a startlingly chatty tone, the Web site explains that the steps to membership in the WTO are:

1. Tell us about yourself.
2. Work out with us individually what you have to offer.

3. Let's draft membership terms.
4. The decision. (WTO, 2005, ¶ 35)

Of course, behind the scenes, intense and sometimes protracted negotiation takes place in the implementation of "the decision," as, for example, when China joined the WTO in 2001. The structure of the nucleus and its distributed, vetted participants, is apparent for the WTO. The Geneva headquarters is critical to WTO's mission. But it could not instantiate its object without distributed, vetted participants engaged in WTO-related activities worldwide.

F/OSS Development Projects

The transformative object of F/OSS development is to populate the world with software that is available to anyone to copy, study, modify, and redistribute (Stallman, 1999). The use of proprietary software such as Microsoft Windows, which no one can copy, study, modify, or redistribute, is a practice F/OSS practitioners wish to eliminate, replacing it with a free and open process.[4] The spirit in which "freedom" is invoked in Open Source is captured in the popular phrase "Think free speech, not free beer" (Elliott, 2005, p. 14).

It is necessary to distinguish between the Free Software Movement (FSM) and Open Source Initiative (OSI) on the one hand, and the actual production of Free and Open Source software, on the other. FSM and OSI are classic broad-based social movements (Elliott, 2003, 2005). They have a transformative agenda and reach out to anyone who can participate in any way, such as volunteers working on Web pages at the main office (the modern equivalent of licking envelopes). But the actual production of F/OSS software occurs in placeless organizations in which participants and their contributions are carefully vetted.

There are few detailed ethnographic studies of F/OSSD, but Scacchi and his colleagues at the University of California, Irvine have conducted careful investigations of several projects. Their work examined the production of games (Scacchi, 2004), GNU[5] software (Elliott, 2003), and software produced in the Mozilla, Apache, and NetBeans organizations (Jensen & Scacchi, 2005). Lee and Cole (2003) and Moon and Sproull (2000) have also provided analyses of F/OSSD.

As is well known, F/OSS software developers come from around the world, volunteering their efforts for free. Motives for participation include a belief in the importance of free software, socializing, and gaining experience useful for finding paid work (Elliott, 2005; Scacchi, 2004). F/OSSD uses a sophisticated suite of digital tools including e-mail, chat, listservers, Web sites, newsgroups, blogs, version control systems (e.g., Concurrent Versions System [CVS]), content management systems, databases, development environments, application servers, and project registration systems such as SourceForge (Jensen & Scacchi, 2005). Digital communication happens daily but phone contact is rare (M. Elliott, personal communication, 25 September 2005).

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[4]Elliott (2005) observed that whereas FSM and OSI have somewhat different philosophies and emphases, Microsoft is something they completely agree on.

[5]GNU is a recursive acronym for "GNU's Not UNIX," a project launched in 1984 to provide a free Unix-like operating system.

In Linux kernel[6] development, the digital tools work well in part because volunteers summarize weekly or biweekly communication in e-mail, chat by topic, and make them available at their Web site (www.kernel-traffic.org; M. Elliott, personal communication, 25 September 2005). These summary digests are enormously useful in helping developers keep up with the fast pace of change in F/OSSD. Contributors are a mix of long- and short-term participants, creating a constant need for updating and informing both old and new members.

More than any of our other examples of placeless organizations, F/OSSD projects are virtual enterprises, relying on electronic means of coordinating globally dispersed development efforts. Is there also a role for face-to-face communication in F/OSSD projects? Elliott reported that some projects, such as GNU_e (GNU Enterprise, a project within the larger GNU effort) are nearly completely virtual, whereas others, such as Apache, which is supported by IBM, involve significant face-to-face interaction (M. Elliott, personal communication, 25 September 2005). GNU_e developers try to meet at Linux conventions (held annually, one on the East Coast and one on the West Coast), but because these developers are not paid, most do not travel. Even the group of nine core developers for GNU_e meet only rarely, as they are scattered worldwide, in countries as far-flung as New Zealand, Croatia, Spain, and the United States (M. Elliott, personal communication, 25 September 2005).

However, there are other conferences, such as those sponsored by the O'Reilly Press, that offer places for developers to meet, so it cannot be said that F/OSSD is completely virtual, even for unpaid participants. Both the Linux and O'Reilly groups have also started international conferences suggesting that face-to-face interaction may increase in importance.

Control of F/OSSD software is explicit and strict. The nucleus of each F/OSSD project is a group of "core developers who act as peers at the top echelon" (Scacchi, 2004, p. 63). These developers "mobilize, coordinate, control, and assure the quality of . . . development activities" (p. 63). Scacchi observed, "[F/OSSD is] logically centralized while physically distributed in an autonomous and decentralized manner" (p. 63).

Examining artifacts such as e-mails and documents, Lee and Cole (2003) described the development of the Linux kernel as a "two-tier structure" with four categories of developers. At the first tier was a single leader and 121 "maintainers." At the second tier were developers and bug reporters.[7] In an earlier analysis Moon and Sproull (2000) observed, "There is no confusion about who has decision authority in this project. Torvalds [the inventor of Linux] manages and announces all releases—all 569 of them up to May, 2000."

Jensen and Scacchi (2005) reported the means by which developers are vetted in F/OSSD projects. For example, in the Mozilla project, to gain "commit access" enabling the contribution of source code, a developer must "repeatedly demonstrate competency and dedication, writing useful code within a section of the source" (p. 102). To become a "super-reviewer," a developer must show:

> superior faculty for discerning quality and effect of a given section of source on the remainder of the source tree. If a reviewer believes that s/he has done this appropriately, s/he must convince an existing super-reviewer of such an accomplishment. This super-reviewer will propose the candidate

[6]Although Lee and Cole (2003) reported that there were 2,605 developers and 1,562 bug reporters, the overlap between these two categories was significant. They did not give precise numbers, but my estimate, based on an interpretation of their data, is that there were probably no more than about 3,500 at the second tier.

[7]The kernel allows for communication between hardware and software in an operating system.

> to the remainder of the super-reviewers. Upon group consensus, the higher rank is bestowed on the reviewer. (Jensen & Scacchi, 2005, p. 2)

The other projects examined by Jensen and Scacchi (2005) have similar mechanisms; for example, they noted, "as in advancement in the Mozilla community, Apache membership is by invitation only" (p. 104).

PLACELESS ORGANIZATIONS AND OTHER SOCIAL FORMS

Several social forms have much in common with placeless organizations. We compare placeless organizations with distributed teams, virtual organizations, hierarchies, knots, communities, and social movements. What makes placeless organizations distinctive is the special quality of the dancing points of distributed energy in which the "electrons" of the organization have autonomy and expertise, and are drawn by the nucleus into the organization in carefully managed ways. It is these dancing points of energy that enable the work of coconstruction by providing specialized expertise and commitment to the project of coconstruction.

Table 1 summarizes the characteristics distinguishing different types of organizations.

Distributed Teams

Placeless organizations and distributed teams are similar in that they cannot locate the expertise they need in a single geographical location. But distributed teams are *teams*: that is, they are fairly small groups within a traditional hierarchical organization (Jarvenpaa & Leidner, 1999). Participants enter into traditional employment relations of work for pay.

Virtual Organizations

Virtual organizations draw members from different organizations to collaborate on instantiating a common object (although usually not a transformative one). Alliances and business

TABLE 1
A Comparison of Social Forms

	Placeless Organization	*Distributed Team*	*Virtual Organization*	*Corporate Hierarchy*	*Knot*	*Community of Practice*	*Social Movement*
Participants from diverse organizations	+	−	+	−	+	+ −	+
Nucleus + distributed vetted participants	+	+	+	+	−	+ −	−
Paid employment	−	+	+	+	+−	+−	−
Autonomy of subnodes	+	−	+	−	+	+ −	+ −
Loosely coordinated	−	−	−	−	+−	+−	+
Multiple shifting sites of work	+	−	+ −	−	−	+ −	+
Transformative object	+	−	−	−	−	+ −	+

partnerships (Wildeman, 1998) are classic virtual organizations. A virtual organization has no separate nucleus. The arrangement is one directly between organizations that act as one, as Lethbridge (2001) observed, rather than a nucleus organization (such as NEON) drawing participants from other organizations for activities only loosely related to those organizations. Lethbridge (2001) described virtual organizations:

> A virtual organization is formed by agreement of separate organizations to collaborate, to share knowledge and expertise, in order to achieve a common purpose. A virtual organization is a group of companies, or a group of legally separate entities, that act as though they were one. (p. 17)

Virtual organizations come together to accomplish some work they agree needs to be done, such as research and development efforts shared among several companies, or a library consortium, where a group of libraries band together to accomplish a goal. Participants are employees of the organizations involved.

Hierarchies

A placeless organization is a type of hierarchy: The nucleus is the root node. Below it are *n* levels of organization. For example, Scacchi (2004) characterized F/OSSD projects as having five levels of hierarchy: elder, leader, regular, novice, visitor (see Figure 1). The WTO has four basic levels: the Ministerial Conference, General Councils, Councils, and Council subcommittees (WTO, 2005).

Placeless organizations differ from corporate hierarchies in that power does not flow top-down. Energy and power are in the subnodes. It is the autonomy and voluntarism of the subnodes that give the placeless organization its vitality. In a corporate hierarchy, each node has authority over nodes below it, typically maintained through the monetary control of the employment relation.

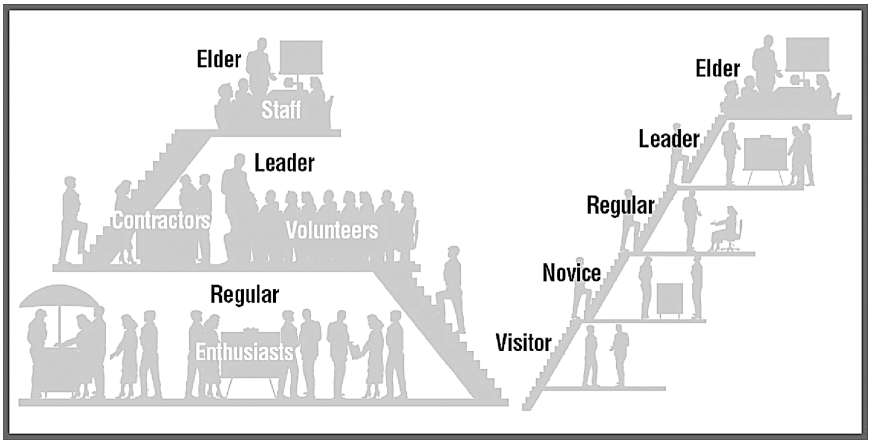

FIGURE 1 Role hierarchy in Open Source software development projects (from Jensen & Scacchi, 2005, used with permission).

In a placeless organization, because of a shared transformative object, the subnodes voluntarily contribute expertise and participation. Members may make contributions of monetary value. For example, the WTO derives most of its budget from member contributions. F/OSSD developers produce code that may go into marketable products. NDC members contributed scarce expertise that would have been expensive on the open market.

Some members of placeless organizations may be paid: for example, staff members at the central organization for whom participation is a conventional job rather than a transformative activity. Other participants may also be paid, as are some F/OSSD developers on certain projects. Volunteers in MSF receive a modest stipend. Some, such as physicians, provide services worth much more than they are recompensed.

Hierarchies in placeless organizations are neither rigid nor authoritarian. The hierarchy provides an orienting frame within which to accomplish certain kinds of work in orderly ways with procedures that may be quite flexible. Even that bastion of global capitalism, the WTO, has built informal meetings into its process. As the WTO Web site says:

> These smaller meetings have to be handled sensitively. The key is to ensure that everyone is kept informed about what is going on (the process must be "transparent") even if they are not in a particular consultation or meeting, and that they have an opportunity to participate or provide input (it must be "inclusive"). (WTO, 2005)

Within the procedures of a hierarchy, then, there is room for negotiation, judgment, and interpretation (see Béguin & Clot, 2004; Emirbayer & Mische, 1998; Taylor, 1985). Placeless organizations suggest the diverse manifestations of hierarchies.

Knots

Knots bring together people from diverse sources in temporary collaborations (Engeström et al., 1999). In knots, "combinations of people, tasks, and tools are unique and of relatively short duration" (Engeström, 2005; Engeström et al., 1999) observed that, "In knotworking, collaboration between the partners is of vital importance, yet takes shape without strong predetermined rules or central authority" (Engeström, 2005). Knots and placeless organizations are similar in drawing participants from diverse sources.

Unlike knots, placeless organizations have clear rules and a nucleus that gives determined shape to the activity of subnodes. Control in knots and placeless organizations is more distributed than in traditional hierarchies. For example, WTO is a consensus-based organization requiring lengthy negotiations to move forward. The F/OSSD super-reviewers are a distributed authority arranged in varying levels of authority to judge contributors. At NDC meetings, leaders emphasized that once decisions were collectively made, they would not be revisited.[8] The need to provide input to the PEP on a strict schedule meant that the process had to keep moving forward or important NSF deadlines would be missed and there would be no NEON. MSF emphasizes the need for face-to-face interviews to ensure that participants understand the nature of the work and will be able to function effectively as members of MSF.

[8]I observed discussions at NEON meetings in which I felt that participants brought up points that did very much need revisiting. The leadership listened politely but said that the decisions had already been achieved through collective discussions and would not be reconsidered.

Without a set of clear expectations and rules, it would be difficult to manage the dancing points of energy. With a shared object and clear procedural guidance, progress can be sustained in placeless organizations without the power of a strong central authority.

Communities

If ever there was a one size fits all term, "communities" is it. In 1955, Hillery (1995) found at least 94 different definitions of community in the sociology literature. The only point of agreement among them was that communities involve people. The situation is scarcely better today as the term is used for everything from social movements (Gläser, 2004) to "communities" of people who own specific products (e.g., "the Saab community," "the iPod community").[9]

Despite the vagueness of the notion, community is a self-referential term invoked by members of at least some placeless organizations, including the WTO and Open Source developers. Clearly the term does important rhetorical work and its use by participants in placeless organizations requires further study.

Wenger (1998) defined a *community of practice* as a group comprised of members who share common understandings including shared vocabulary, jokes, and lore. Community of practice is an extremely variable form, making its dimensions difficult to pin down (see Table 1). Placeless organizations are not communities of practice because they are too diverse to have the intimate common bonds Wenger described for groups, such as the insurance clerks working together in an office he studied (Wenger, 1998).

Social Movements

Social movements are collective enterprises to establish a new order of life (Blumer, 1969). They include, for example, the labor, environmental, women's, civil rights, and antiglobalization movements. Placeless organizations are similar to social movements in being transformative, in working to coconstruct activity.

Broad-based inclusive movements constantly seek new adherents; they are continually reaching out to recruit new members. To belong, new members need only agree with the tenets of the movement and take some relevant action. The boundaries of a broad-based social movement are difficult to ascertain. By contrast, placeless organizations are exclusive, recruiting and inducting only those with certain expertise or power. They are specific organizations with known membership, unlike the indeterminate membership of mass movements.

Placeless organizations may grow out of, or interface with, social movements, as in the case of F/OSSD. Placeless organizations may have broad social agendas beyond their specific activities, as does MSF, which hopes to change hearts and minds as well as to accomplish specific work in fields of intervention.

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[9]Google searches bring up countless examples of the use of the term community to describe people who share an interest in some product.

DISCUSSION

The term "placeless organization" denotes that place is not important for the organization. It obviously does not mean that activity takes place without a place. As with any term, "placeless" can connote certain things but not others. We speak of "virtual teams," for example, without supposing that they are composed of ghosts or exist in an immaterial realm.

"Placelessness" calls attention to a situation in which work and learning are accomplished without being tied to a particular place, where sites of activity shift (as with MSF, NEON, and WTO) or are invisible to the organization (as with programmers in F/OSSD). The geographies in which placeless organizations work are not random, but they are unpredictable and constantly changing.

In reviewing the sociological literature on place, Gieryn (2000) reported that a large body of research suggests that place:

> stabilizes and gives durability to social structural categories, differences and hierarchies; arranges patterns of face-to-face interaction that constitute network formation and collective action; [and] embodies and secures otherwise intangible cultural norms, identities, memories. (p. 471)

In placeless organizations these functions are not tied to "a unique spot in the universe" (p. 463), as Gieryn called place. They are globally distributed. The sites of distribution do not secure cultural norms, identities, and memories because they cannot; as work moves from one place to another, or occurs in invisible venues, there is no opportunity for such norms, identities, and memories to take root in a specific place. MSF workers arrive in situations of chaos and disruption that are new to them, and in which they can hardly be said to have memories or stable patterns of interaction and collective action. NEON and WTO meetings take place in corporate hotels engineered to operate interchangeably anywhere on the globe.[10] F/OSS programmers need only an Internet connection, a requirement that does little to establish place (even Antarctica has Internet access).

We might refer to placeless organizations as "distributed," which indeed they are. But this term has come to be associated with distributed teams. Placeless organizations leverage the flexibility of not being tied to a particular place in several ways: recruiting subnodes from diverse sources, being able to work at multiple shifting sites,[11] and taking the work where it is needed to generate the learning the organization desires. In distributed teams, by contrast, it is an unfortunate circumstance that the team cannot be together in one spot.

Gieryn (2000) asked: "What does place do?" We ask a similar question: What does placelessness do? Why is it that we find examples of placeless organizations in widely disparate arenas? One answer (and it is necessarily preliminary) is that placelessness is responsive to (a) scale and (b) diversity.

Placeless organizations seek transformation at national or global scale. NEON documents and discourse often use the phrase "national or continental scale," distinctly marking the

[10] At the NDC meeting in Estes Park, Colorado, in the Rocky Mountains, some participants grumbled that the meeting might as well have been held in a more convenient location given that work went on all day and into the evening, leaving no time to enjoy the mountains. The other two meetings were in faceless corporate hotels; an easy ride from accessible airports.

[11] Imagine, for example, if the WTO Ministerial Conference always met in the same place. Protesters would become more and more adept at planning disruptions tailored to the locale.

spatial extent of NEON's object. The WTO's very name announces its intended reach. MSF—Doctors Without Borders—chose a designation that emphatically denies a specific emplacement. F/OSSD is a creature of the Internet—placeless, by Gieryn's analysis, which holds that, "Place is [not] to be found in cyberspace.... Web sites on the Internet are not places in the same way that the room, building, campus, and city that house and locate a certain server [are] place[s]" (Gieryn, 2000, p. 465).

Placeless organizations demand diversity of ideas, skills, and power. The WTO must engage power brokers from the entire world—diverse by definition. F/OSSD is open to programmers of varying levels of skill and from all over the world. The process of vetting the code ensures that good ideas from anywhere can make their way into the software. Work in the NDC required a diversity of skills from widely varying professionals. (That they were truly diverse was apparent in the occasional confusions and dislocations that ensued from lack of shared background.) The extreme demands of MSF work, the variety of crises it responds to, and its need for a heterogeneous mix of medical professionals, humanitarian relief workers, and support staff mean that wide recruitment is optimal for the organization. The needed diversity cannot be found without searching on a large scale.

The diversity of placeless organizations is a key part of what makes them distinctive. In reflecting on other organizations that seem to have something in common with placeless organizations, the missionary efforts of the Catholic Church over the last several centuries come to mind. Characteristics listed (3–5) in the second section (p. 3) describe these efforts quite well—multiple sites of work, nucleus plus distributed vetted participants, and lack of paid employment. However, the friars and other clergy were recruited from amongst those already deeply committed to the church, not from multiple diverse sources. The more stringently and uniformly the missionaries hewed to doctrine, the more suited they were to the work. Setting off for places unknown, utterly cut off from a previous existence, to begin and then sustain a life of danger, isolation, and poverty, would seem to demand a devotion to a spiritual community in which one's similarity to others would be a necessary source of solace and strength. Rather than seeking new and constantly changing ideas, negotiated in consensus driven forums, missionary work required the sustenance of one burning idea. In the modern context, the activities of Al-Qaeda appear to be similar. Strict hierarchies dictate activity; object instantiation is less subject to the unpredictabilities of autonomous, creative subnodes.

Although placeless organizations have a collective object, the object is instantiated in particular ways, determined by a more diverse array of inputs than in a traditional hierarchy. For example, NEON's object is to transform ecology by making it into a "big" science through the deployment of an immense sensor network. But the precise ways in which that will happen—for example, which scientific questions will be given top priority—are shaped in important ways by input from subnodes. MSF relies on the autonomy and experience of professionals from diverse backgrounds. F/OSSD is entirely open to the unpredictable, creative efforts of programmers. The WTO continually negotiates the demands of fractious participants. A topic for further study is the exact ways in which the nucleus of a placeless organization manages to move the organization toward a collective object while at the same time drawing resources from creative, autonomous subnodes.

In all social forms discussed in the third section, communication technologies play a critical role in people's activities. Technology is used as an internal resource for coordination, as well as a means to disseminate information externally about the organizations. For NEON and F/OSSD,

the relationship to technology is deeper, and is recursive; technology supports the creation of technology. The development of NEON and F/OSS certainly uses technology for coordination and dissemination, but the objects of these organizations are technical projects. NEON intends to transform the discipline of ecology through technology, while F/OSS is a resource for firms and other groups, to escape reliance on proprietary software. In these contexts, learning is deeply embedded in, and expressed through, technology. This article cannot provide a deeper analysis of this phenomenon; future empirical work is needed to understand these relationships more fully.

Placeless organizations utilize both mediated and face-to-face communication. For NEON, MSF, and WTO, face-to-face communication is central to coconstruction. This is not surprising as a long tradition of communication research has shown that conversation is efficient for clarification, updates, brainstorming, interpretation, critiquing, and elaboration of complex ideas. These are exactly the actions needed for coconstruction for organizations that rely on consensus and negotiation.

The work of F/OSSD is "loosely coupled" to use Olson and Olson's (2000) term. Individual participants take on discrete tasks of software development, and then send the results for evaluation by others. Necessary discussions about the quality of the software involve consensus and negotiation, but the discussions can occur electronically, as the concerns are much more limited than the wide open spaces of shaping global capitalism or the unknowns of selecting a volunteer to serve in a dangerous, chaotic field of intervention during a time of crisis.

Drawing expertise and power from multiple distributed participants, placeless organizations can create change with surprisingly small investments of people and money. Lee and Cole (2003) estimated that the Linux kernel—an F/OSSD project—was developed with only a few thousand people over a period of 5 years. Given the huge impact of Linux, both as a functioning system and as an idea, this is an enormous achievement. NEON is attempting to transform the entire discipline of ecology with a few hundred people. The WTO is widely criticized for exerting global influence, with power invested in only a handful of the 6 billion people affected by WTO policies. MSF has attained great influence with a small organization and a modest budget. This is not to say that paid employment is absent in placeless organizations; NEON has paid administrative staff, as do MSF and WTO in Geneva. F/OSSD projects can be associated with corporate enterprises. The WTO employs economists and policy experts. The members of WTO are its heart, and they are not paid, but instead pay to keep the organization going. The amount of unpaid, high-level expertise brought to bear in placeless organizations is immense and is, I believe, unique to these organizations.

As with all social forms, placeless organizations are a product of certain cultural-historical conditions and can be expected to develop and change as conditions change. So, while at this time NEON is a placeless organization, its future lies in becoming a hierarchy in which place is important. The sensors are a finite resource; they will not be panoptic. Certain regions will be instrumented and others will not. Once actual sensors are embedded in earth, water, plants, and animals, place will assert itself. A key way in which place will be important to NEON is the specific locations of about 20 planned centers of network operation. The locations of these centers are under discussion and, not surprisingly, are a point of contention. The resources that will flow to places awarded a network center will be considerable. Scientists located near the centers will have easier access to the network, including more opportunity to conduct experiments configuring the sensors in particular ways suited to their research.

Other emplacements will shape NEON's future. During a break-out discussion at an NDC meeting, a scientist complained that most of the technology proposed to support the study of a particular scientific question was "above the canopy": to an ecologist, the world is divided into spheres descriptive of plant and animal communities at different levels of granularity: for example, biomes, such as mountain, tundra, taiga, desert, or deciduous forest. Within biomes are places an ecologist thinks of as beneath the soil, above the canopy, and so on. Such emplacements will become more salient as the network is specified and particular sensors are embedded in particular ecologies, moving NEON beyond its current form as a placeless organization.

CONCLUSION

Placeless organizations seek to teach their constituencies new practices. Technology is critical to these efforts. Although digital technology permits the fast pace of change and growth in modern placeless organizations, they are not impossible without it, as Doctors without Borders, established in 1971, shows. Future research is needed, to look more precisely at how technology is used in placeless organizations to sustain and expand their activities. More fine-grained empirical accounts of the role of technology in collaborative learning in placeless organizations will deepen our understanding of the means by which placeless organizations instantiate their objects without place. Is learning coordinated through the nucleus of the organizations, or does it take place in a distributed fashion, primarily at the subnodes? Is learning at the site of the nucleus different from learning in the subnodes? In what particular ways are technologies deployed to support collaborative learning activities? Placeless organizations provide an opportunity to investigate the powers and limits of digital technologies in collaborative learning as organizations take on projects involving large-scale transformation without the supports of place that Gieryn (2000) enumerated.

Placeless organizations accomplish work at the scale of a large firm, but in entirely different ways—instantiating transformative objects with minimal paid labor, flexible hierarchies, and small numbers of participants. It is tempting to think of placeless organizations as catalysts of a special kind of transformative change toward a kinder, greener, freer, more open world. But the form serves agendas of all kinds. For example, placeless organizations may resist corporate power (F/OSSD), or promote it (the WTO). Nonetheless, placeless organizations appear to be a mode of organizing in which large-scale change is possible outside of corporate hierarchies or government bureaucracies.

In placeless organizations, object instantiation, though shaped by hierarchy, is affected through the *dancing points of energy* of subnodes, each with the autonomy and creativity necessary for the development of the organization; the points of energy are distinctively diverse, bringing with them new points of view and access to powerful expertises. Placeless organizations attract skilled participants without a traditional relation of paid employment, and create change at national or global scale, with small groups of people dedicated to transformative change.

This article identifies characteristics of placeless organizations, placing them in a larger framework of social forms characteristic of activity in modern arenas. The analysis suggests that geographical place is not a necessary and intrinsic aspect of activity. One aim of the analysis is to fulfill activity theory's mission as a cultural-historical theory, by defining sociocultural forms

that support collaborative learning activity. The article suggests that placeless organizations effect learning by being responsive to scale and diversity. The next step along this trajectory is to understand more deeply the increasing frequency and prominence of placeless organizations, and why they are important in the current historical context.

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