

COLLABORATIVE INTENTIONALITY CAPITAL: OBJECT-ORIENTED INTERAGENCY IN MULTIORGANIZATIONAL FIELDS

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INTRODUCTION

In this paper, I make an attempt at hybridization between three relatively separate fields of inquiry. These fields are (a) theories and studies of collective intentionality and distributed agency¹, (b) theories and studies of social capital in organizations, and (c) cultural-historical activity theory.

I will argue that employees' collective capacity to create organizational transformations and innovations is becoming a crucially important asset that gives a new, dynamic content to notions of social and collaborative capital. In philosophy, sociology, anthropology and cognitive science, such capacity is conceptualized as distributed agency or collective intentionality (e.g., Barnes, 2000, Meggle, 2002). The problem with theories of intentionality and agency is that they are seldom grounded in empirical observations or interventions in people's daily realities and practices at work.

Theories and studies of social capital in organizations, on the other hand, have largely focused on the value-generating potential of social ties, network relations, and trust (e.g., Lesser, 2000, Lin, Cook & Burt, 2001). Issues of agency and intentionality have remained marginal in this literature. Furthermore, this literature has also been quite separate from

¹ The discussions on collective intentionality and distributed agency are two fairly separate though overlapping fields themselves, collective intentionality being mainly a topic for analytical philosophy and cognitive science, and distributed agency being mainly debated by sociologists, anthropologists and social philosophers. Since a thorough review and comparison of these two fields is impossible within the scope of this paper, I take the liberty of moving across their boundaries without much warning.

issues of transformations in work and emergence of new organizational forms.

I will suggest that cultural-historical activity theory (e.g., Vygotsky, 1978, Leont'ev, 1978, Engeström, Miettinen & Punamäki, 1999) can serve as a challenging mediator between agency and intentionality on the one hand and social capital on the other hand. Intentionality and agency were central concerns already in the founding texts of the cultural-historical approach in the 1920s. For Vygotsky (1999, p. 64-65), voluntary action “probably distinguishes man from the animals which stand closest to him to a greater extent than his more developed intellect.” A number of recent studies inspired by activity theory have focused on problems of agency in organizational transformations (e.g., Blackler, McDonald & Crump, 1999, Blackler, Crump & McDonald, 2000, Engeström, 2000, Engeström, 2004, Uden & Engeström, 2004), as well as on the forms and formation of social capital (Engeström, 2001).

There is a good reason to bring together and hybridize the three fields. The task of this paper is to examine the possibility that current changes in work organizations may bring about historically new features of collective intentionality and distributed agency. The understanding of these new features is important if we are to give viable content to the emerging notion of collaborative capital, or as I will suggest, *collaborative intentionality capital*.

I will build my argument in six steps. First, I will briefly introduce the notions of emergent interactive intentionality and distributed agency, as they have been recently put forward by a number of scholars. Secondly, I will present five principles of cultural-historical activity theory as potential enrichments, or perhaps challenges, to the existing literature. Thirdly, I will take up the historicity of agency, focusing in particular on historical changes currently visible in work organizations and asking what might be the contours of agency in new network- and amoeba-like organizational forms. Fourthly, I will analyze a fictional example of distributed agency, namely a recent detective novel by Tony Hillerman. Fifthly, I will analyze some data and findings from my own fieldwork in health care settings. And finally, I will sum up the outcomes of the analyses, proposing the notions of ‘object-oriented interagency’ and ‘collaborative intentionality capital’ as tentative characterizations of

certain important aspects of agency and intentionality currently taking shape in work organizations.

EMERGENT INTERACTIVE INTENTIONALITY AND DISTRIBUTED AGENCY

Searle's (1990) notion of 'we-intentions' has served as a springboard for interesting attempts to conceptualize collective intentionality. The recent philosophical arguments of Bratman (1999) and Tuomela (2002) are two prominent examples. The two also exemplify the difficulties of overcoming cognitivism and individualism. Bratman practically equates intentions with plans, while Tuomela prefers to see intentions in terms of goals.

In contrast to these views, Gibbs (2001) argues that intentions are emergent products of social interaction. The interaction may take place between multiple humans or between a human actor and his/her tools and material environment. People assign meanings, intentions, goals and plans to their ongoing inter-actions as they occur. Thus, actions are not primarily results of privately held, internalized mental representations. In a similar vein, Fogel (1993, p. 124-125) discusses the development of intentionality in terms of 'participatory future' and 'anticipatory directionality': "direction is not a static initial condition, not an executive giving orders that guide action, it is a fluid part of a dynamic perception-action system."

In sociological studies of agency, a similar move may be observed. Barnes (2000, p. 55) points out that the successful execution of routine collective practices always involves the continual overriding of routine practices at the individual level. An orchestra playing a familiar work serves as an example: "Any description of these activities as so many agents each following the internal guidance of habit or rule would merely describe a fiasco." What is needed is constant mutual adjustment and alignment, agreement out of difference.

Pickering (1995, p. 21-22) characterizes intentionality in human practice as 'dance of agency', or 'dialectic of resistance and accommodation'. "As active, intentional beings, scientists tentatively construct some new machine. They then adopt a passive role, monitoring the performance of the machine to see whatever capture of material agency it might effect.

Symmetrically, this period of human passivity is the period in which material agency actively manifests itself. Does the machine perform as intended? Has an intended capture of agency been effected? Typically the answer is no, in which case the response is another reversal of roles (...)."

Gell (1998, p. 21) pushes this argument further.

"Anti-personnel mines are not (primary) agents who initiate happenings through acts of will from which they are morally responsible, granted, but they are objective embodiments of the *power or capacity to will their use*, and hence moral entities in themselves. I describe artefacts as 'social agents' not because I wish to promulgate a form of material-culture mysticism, but only in view of the fact objectification in artefact-form is how social agency manifests and realizes itself, via the proliferation of fragments of 'primary' intentional agents in their 'secondary' artefactual forms."

Gell (1998, p. 23) adds the important observation that the concept of agency implies "the overcoming of resistance, difficulty, inertia, etc." That, however, should not be confused with control.

Ciborra (2000) points out that in organizations, agency is typically framed in terms of control. But we live in a runaway world (Giddens, 1991) in which the technologies and organizations we create keep drifting, generating unintended, sometimes monstrous consequences. This calls for a notion of distributed agency not obsessed with control: "What if our power to bring to life sophisticated and evolving infrastructures must be associated with the acceptance of the idea that we are bound to lose control? And that any attempt to regain top-down control will backfire, lead to further centrifugal drifts, and eventually impede our making sense and learning about how to effectively take care of the infrastructure?" (Ciborra, 2000, p. 39-40) Ciborra suggests a reframing of agency in terms of drift, care, hospitality and cultivation.

Perhaps the most radical accounts of distributed or 'fractured' agency are to be found in the works of Deleuze and Guattari's (1977, 1987) and Latour (1993, 1996, 2004). Schatzki (2002, p. 205) provides an eloquent summary of these 'posthumanist' views.

"Consider the practice-order bundle that is the day trading branch office. This complex of traders, managers, technicians, rooms, computers, computer network, power system, potted plants, and day trading, managerial, repair, and other practices converts electricity, computer graphics, trader savvy, and money into (1) commissions that subsidize expansion of the firm, (2) greater visibility or notoriety for

the branch office in the firm, and (3) waste products such as used paper, burnt-out wiring, and carbon dioxide. If such actions as making commissions, projecting an image, and producing waste are grouped together, the actor that performs them, that is to say, the substance to which they are attached, is the practice-order bundle (the branch office). More precisely, the actor that performs these actions is this bundle treated as a unit. If, by contrast, such actions as scanning a computer screen and keeping a diary, or such doings as straining a trader's eyes and crashing, are grouped together, the actors involved are the traders or computers, respectively. These agents, too, are networks taken as units. For Latour and Callon, consequently, an ascription of agency, as in Deleuze and Guattari, is an instantaneous apprehension of multiplicity. By considering different congeries of action, moreover, agency can be seated in any component of a network, as well as in the network as a whole."

While I endorse the general thrust expressed in these multiple strands of theorizing, I also feel that they are often relatively vague and partial. For instance, talk about 'practice-order bundles' seems more metaphorical than analytically rigorous. Above all, as a student of real work practices and organizations, I wonder how one might use such conceptualizations in detailed empirical field studies and interventions. Thus, I will try and spell out a few key principles of cultural-historical activity theory as a potential contribution toward increased systematicity, and also as a challenge to some possible limitations or gaps in the approaches mentioned above.

THE CONTRIBUTION OF ACTIVITY THEORY

If intentions are emergent and not reducible to individually held mental representations of goals and plans, how do we explain the persistence and durable guiding power often associated with collective intentions? Shweder (1991, p. 74-76) attempts to explain this with the notions of 'intentional worlds' and 'intentional things'. However, the explanation is somewhat circular: "Intentional things are causally active, but only by virtue of our mental representations of them. Intentional things have no 'natural' reality or identity separate from human understandings and activities. Intentional worlds do not exist independently of the intentional states (beliefs, desires, emotions) directed at them and by them, by the persons who live in them." (p. 74-75) This leads Shweder to maintain that there is no logical requirement that the identity of things remain fixed across intentional worlds. Shweder seems to conceive of intentional worlds and intentional things mainly as situated achievements without much historical inertia and dynamics of their own.

Understanding the durability of collective intentions seems to require a historical concept of object. Vedeler (1991) points out that infant intentionality may be best explained as striving after external objects, as object-directedness. In a larger scale, Knorr-Cetina (2001) discusses the tremendous motivating power of incomplete but durable epistemic objects – such as markets-on-the screen - for entire professional groups. In these views, objects do have historical dynamics and trajectories of their own. These trajectories and dynamics stem from the fact that objects are constructed by much more multi-layered, temporally and spatially distributed actors and forces than just the human participants observably present in a given situation.

In cultural-historical activity theory, Leont'ev (1978) distinguished between goal-oriented individual or group actions and object-oriented collective activity. The latter is a product of division of labor. Leont'ev's classic example is a tribal hunt in which some individuals chase the animals while others wait in ambush and kill them. The action of chasing the game away makes no sense if separated from the overall activity and its object. Leont'ev argues that there is no activity without an object. The object carries or embodies the true motive of the activity. Activities are systemic formations which gain durability by becoming institutionalized. But activities only take shape and manifest themselves through actions performed by individuals and groups.

In complex activity systems such as today's work organizations, it is difficult for practitioners to construct a connection between the goals of their ongoing actions and the more durable object/motive of the collective activity system. Objects resist and bite back, they seem to have lives of their own. But objects and motives are hard to articulate, they appear to be vague, fuzzy, multi-faceted, amoeba-like and often fragmented or contested. The paradox is that objects/motives give directionality, purpose and meaning to the collective activity, yet they are frustratingly elusive. The activity of health care is a case in point. Without the object of illness there would be no hospitals and health professionals. But despite its pervasive presence, illness is very hard to define, it does not obey the mental representations of professionals and patients, and it certainly does not disappear no matter how well one does one's work (Engeström, 1995; Engeström, Puonti & Seppänen, 2003).

In practical actions, objects and motives are stabilized, temporarily ‘closed’, by means of auxiliary artifacts – tools and signs. Vygotsky described this artifact-mediated nature of intentional action as follows.

“The person, using the power of things or stimuli, controls his own behavior through them, grouping them, putting them together, sorting them. In other words, the great uniqueness of the will consists of man having no power over his own behavior other than the power that things have over his behavior. But man subjects to himself the power of things over behavior, makes them serve his own purposes and controls that power as he wants. He changes the environment with the external activity and in this way affects his own behavior, subjecting it to his own authority.” (Vygotsky, 1997, p. 212)²

Vygotsky (1997) pointed out that voluntary action has two phases, a design phase in which the mediating artifact is (often painstakingly) constructed, and an execution phase which typically looks quite easy and almost automatic. Classic examples of mediated intentionality include the use of an alarm clock to wake up early in the morning, to master the conflict between motives of work and rest. Mediating artifacts such as an alarm clock typically serve as signs which trigger a consequential action. They are mediators of action-level decisions. But humans also need and use mediating artifacts to stabilize future-oriented images or visions of their collective activity systems. Language and various semiotic representations are needed to construct and use such ‘tertiary artifacts’, as Wartofsky (1979) called them. Human agency gains unusual powers when the two, future-oriented activity level envisioning and consequential action-level decision making, come together in close interplay (Engeström, Engeström & Kerosuo, 2003).

In activity theory, contradictions play a central role as sources of change and development. Contradictions are not the same as problems or conflicts. Contradictions are historically accumulating structural tensions within and between activity systems. The activity system is constantly working through tensions and contradictions within and between its elements. Contradictions manifest themselves in disturbances and innovative solutions. In this sense,

² Vygotsky’s examples of voluntary action are focused on individual actors. This must not be interpreted as neglect of collective intentionality. According to Vygotsky’s famous principle, higher psychological functions appear twice, first interpsychologically, in collaborative action, and later intrapsychologically, internalized by the individual. The interpsychological origins of voluntary action – and collective intentionality – would be found in rudimentary uses of shared external prompts, reminders, plans, maps, etc.

an activity system is a virtual disturbance- and innovation-producing machine.

The primary contradiction of activities in capitalism is that between the use value and exchange value of commodities. This primary contradiction pervades all elements of our activity systems. The work activity of general practitioners in primary medical care may serve as an illustration. The primary contradiction, the dual nature of use value and exchange value, can be found by focusing on any of the elements of the doctor's work activity. For example, instruments of this work include a tremendous variety of medicaments and drugs. But they are not just useful preparations for healing - they are above all commodities with prices, manufactured for a market, advertised and sold for profit. Every doctor faces this contradiction in his or her daily decision making, in one form or another.

Activities are open systems. When an activity system adopts a new element from the outside (for example, a new technology or a new object), it often leads to an aggravated secondary contradiction where some old element (for example, the rules or the division of labor) collides with the new one. Such contradictions generate disturbances and conflicts, but also innovative attempts to change the activity. The stiff hierarchical division of labor lagging behind and preventing the possibilities opened by advanced instruments is a typical example. A typical secondary contradiction in the work activity of general practitioners would be the tension between the traditional biomedical *conceptual instruments* concerning the classification of diseases and correct diagnosis on the one hand *and* the changing nature of the *objects*, namely the increasingly ambivalent and complex problems and symptoms of the patients. These problems more and more often do not comply with the standards of classical diagnosis and nomenclature. They require an integrated social, psychological and biomedical approach which may not yet exist.

Contradictions are not just inevitable features of activity. They are "the principle of its self-movement and (...) the form in which the development is cast" (Ilyenkov, 1977, p. 330). This means that new qualitative stages and forms of activity emerge as solutions to the contradictions of the preceding stage of form. This in turn takes place in the form of 'invisible breakthroughs', innovations from below.

"In reality it always happens that a phenomenon which later becomes universal originally emerges as an individual, particular, specific phenomenon, as an exception from the rule. It

cannot actually emerge in any other way. Otherwise history would have a rather mysterious form.

Thus, any new improvement of labour, every new mode of man's action in production, before becoming generally accepted and recognised, first emerge as a certain deviation from previously accepted and codified norms. Having emerged as an *individual exception* from the rule in the labour of one or several men, the new form is then taken over by others, becoming in time a new *universal norm*. If the new norm did not originally appear in this exact manner, it would never become a really universal form, but would exist merely in fantasy, in wishful thinking." (Ilyenkov, 1982, p. 83-84)

Activity systems take shape and get transformed over lengthy periods of time. Their problems and potentials can only be understood against their own history. History itself needs to be studied as local history of the activity and its objects, and as history of the theoretical ideas and tools that have shaped the activity. Thus, medical work needs to be analyzed against the history of its local organization and against the more global history of the medical concepts, procedures and tools employed and accumulated in the local activity.

To sum up, five principles of cultural-historical activity theory seem relevant for the study of collective intentionality and distributed agency. These may be called (1) the principle of object-orientation, (2) the principle of mediation by tools and signs, (3) the principle of mutual constitution of actions and activity, (4) the principle of contradictions and deviations as source of change, and (5) the principle of historicity. The last one, historicity, requires that I now turn briefly to the changing landscape of agency in work organizations.

AGENCY IN HIERARCHIES, MARKETS, NETWORKS, AND BEYOND

Many recent attempts to analyze historical change in work organizations (e.g., Powell, 1990) have condensed the current landscape into three major forms: hierarchy, market, and network. In this view, organizations in capitalist society have been built either along the principles of centralized hierarchy (for example large vertically integrated corporations and big bureaucracies) or along the principles of the market (typically more agile companies seeking to exploit new opportunities). Hierarchies are strong in securing standardization needed in traditional mass production, but they are limited by their rigidity. Market organizations are strong in their flexibility, but they are limited by their excessive competitiveness which tends to exclude collaboration and reciprocity.

In a simplified form, we might characterize the nature of agency in hierarchies with the imperative ‘Control and command’ for the management, and with the imperative ‘Resist and defend’ for the workers. In an ideal market organization, this dualism melts into one overriding imperative: ‘Take advantage and maximize gain’.

Powell and many others point out that these two classic forms of organizing work in capitalism are increasingly being challenged or even replaced by various forms of networks in which different organizations or organizational units seek new innovations by means of collaboration across traditional boundaries. In network organizations, the imperative would be: ‘Connect and reciprocate’.

The rate of alliance and partnership formation in work organizations has exploded in recent years. Firms no longer compete as individual companies, they compete as rapidly changing constellations of companies that cooperate to succeed. Across virtually all sectors of the economy, alliances have reshaped the interactions of companies. While partnerships and alliances are clearly spearheads toward the future, they are also full of tensions and thus extremely difficult to sustain and manage (Spekman, Isabella & MacAvoy, 2000).

Partnership and alliance formation typically takes place in multiorganizational fields (Scott & al., 2000). In activity-theoretical terms, these may be called distributed multi-activity fields or terrains, bound together by partially shared large-scale objects. The mastery and/or cultivation of such ‘runaway objects’ urgently requires new forms of distributed and coordinated agency.

In a series of recent studies (Engeström, Engeström & Kärkkäinen, 1995, Engeström, Engeström & Vähäaho, 1999, Hasu & Engeström, 2000), we have encountered numerous examples of work organization in which collaboration between the partners is of vital importance, yet takes shape without strong prederminded rules or central authority. I call such forms of collaborative work *knotworking*. The notion of knot refers to rapidly pulsating, distributed and partially improvised orchestration of collaborative performance between otherwise loosely connected actors and organizational units. Knotworking is characterized by a movement of tying, untying and retying together seemingly separate threads of activity.

The tying and dissolution of a knot of collaborative work is not reducible to any specific individual or fixed organizational entity as the center of control. The locus of initiative changes from moment to moment within a knotworking sequence. Thus, knotworking cannot be adequately analyzed from the point of view of an assumed center of coordination and control, or as an additive sum of the separate perspectives of individuals or institutions contributing to it. The unstable knots themselves need to be made the focus of analysis.

The concept of network is somewhat problematic as a framework for understanding knotworking. A network is commonly understood as a relatively stable web of links or connections between organizational units, often materially anchored in shared information systems. Knotworking, on the other hand, is a much more elusive and improvised phenomenon. Knotworking is similar to the 'latent organizations' described by Starkey, Barnatt and Tempest (2000, p. 300) in that it "persists through time as a form of organization that is periodically made manifest in particular projects," remaining dormant until market or user demand presents an opportunity or necessity for the organization to reanimate itself as an active production system. However, Starkey, Barnatt and Tempest (2000, p. 300) argue that latent organizations "come to exist when a central broker reconstitutes the same creatively unique set of agent partners on a recurring project basis." This is clearly not the case in the knotworking settings we have analyzed. As pointed out above, in these settings the center just does not hold.

Authors like Howard Rheingold (2002) have begun to prophesize 'smart mobs' as radically new forms of organization made possible by mobile technologies. Initial conditions of such 'swarm' or 'amoeba' organizations were nicely captured by Rafael in an essay where he discusses the overthrowing of President Estrada in the Philippines in 2001.

"Bypassing the complex of broadcasting media, cell phone users themselves became broadcasters, receiving and transmitting both news and gossip and often confounding the two. Indeed, one could imagine each user becoming a broadcasting station unto him- or herself, a node in a wider network of communication that the state could not possibly even begin to monitor, much less control. Hence, once the call was made for people to mass at Edsa, cell phone users readily forwarded messages they received, even as they followed what was asked of them.

Cell phones then were invested not only with the power to surpass crowded conditions and congested surroundings brought about by the state's inability to order everyday life.

They were also seen to bring a new kind of crowd about, one that was thoroughly conscious of itself as a movement headed towards a common goal.” (Rafael, 2003)

Clearly such a ‘smart mob’ has no single, permanent center. Mobile technologies make it possible that each participant is potentially a momentary center. Rafael’s example underlines the importance of a shared goal. But the emphasis on goal also implies the problem. Since goals are relatively short-lived, also ‘smart mobs’ seem to be very temporary organizational forms.

However, there are amoeba-like organizations which are not limited to the pursuit of short-term goals. Two quite resilient examples are the activities of birding (e.g., Obmascik, 2004) and skateboarding (e.g., Borden, 2001). These might be also called ‘wildfire activities’ as they have the peculiar capacity to disappear or die in a given location and suddenly reappear and develop vigorously in a quite different location, or in the same location after a lengthy dormant period. While participants in these activities commonly use mobile technologies to communicate with one another and to broadcast information about their objects (rare birds, good skating spots), these activities are much older than mobile phones and the Internet. Birding has a history of several hundred years, and skateboarding dates back at least to the early 1970s. Two additional features need to be mentioned. Both birding and skateboarding are peculiar combinations of leisure, work, sport, and art. And they both have consistently defied attempts at full commercialization, offering ample opportunities for entrepreneurship but not becoming themselves dominated by commercial motives.

What might be the nature of collective intentionality, or distributed agency, in knotworking and amoeba-like organizations? I will now turn to cases, first a fictional one, to examine this question.

A FICTIONAL CASE: HILLERMAN’S *THE SINISTER PIG*

The classic mystery novel concentrates intentionality and agency into the individual master detective (e.g., Poirot, Maigret), often supported by a slightly shadow-like sidekick (e.g., Holmes and Watson) and working on an equally individual master criminal or crime. The historical evolution of

the genre has led to increasingly complex configurations and plots, yet the focus on an individual or dyadic central agent has stubbornly remained.

Tony Hillerman's mystery novels, located in the Navajo Reservation of New Mexico, demonstrate the evolution of detective mysteries in a nice way. Hillerman's first three books had a senior Navajo tribal police officer, Joe Leaphorn, as their central hero. The next three books lifted a junior officer, Jim Chee, into the position of central agent. In the subsequent books, Leaphorn and Chee worked together, in an often uneasy alliance. In his memoir, Hillerman muses on this as follows.

"Luck, for example, caused me to put Chee and Leaphorn in the same book. I was on a book tour promoting the third of the books in which Jim works alone. A lady I'm signing a book for thanks me and says:

'Why did you change Leaphorn's name to Chee?'

It took a split second for the significance to sink in. A dagger to the heart. I stutter. I search around for an answer, and finally just say they're totally different characters. 'Oh,' says she, 'I can't tell them apart.'

I am sure there are writers self-confident enough to forget this. What does this old babe know? But that was not to be for me. Like what St. Paul called his 'thorn in the flesh,' it wouldn't go away. I decided to put both characters in the same book to settle the issue myself. I tried it in *Skinwalkers*. It worked so well I tried it again in *A Thief of Time*. Hurrah! It was the breakout book!" (Hillerman, 2001, p. 298-299)

An author's encounter with a reader, such as the one described by Hillerman, does not have to be characterized as luck. It may also be thought of as a relatively probable and common opportunity for knotworking – a point Hillerman himself seems to imply when he writes that he's sure that "there are writers self-confident enough to forget this." In terms of distributed agency, we might say that this step in Hillerman's writing resulted from knotworking between the fictional subjects of Joe Leaphorn and Jim Chee and the real (?) subjects of the lady and Tony Hillerman.

The latest book, *The Sinister Pig* (2003), steps radically beyond this dyad. The field of actors developed in the book may be diagrammatically depicted as in Figure 1. In the diagram, the unbroken two-headed arrows indicate relatively strong relationships of collaboration, while the broken two-headed arrow implies a weak collaborative relationship. Lightning-shaped two-headed arrows indicate hostile relationships. Letters A, B and C signify that the actors represent three different law enforcement

agencies³, namely the Navajo tribal police, the Border Patrol, and the Bureau of Land Management, respectively. Gray triangles signify ‘unofficial’ actors who represent no institutional agencies.

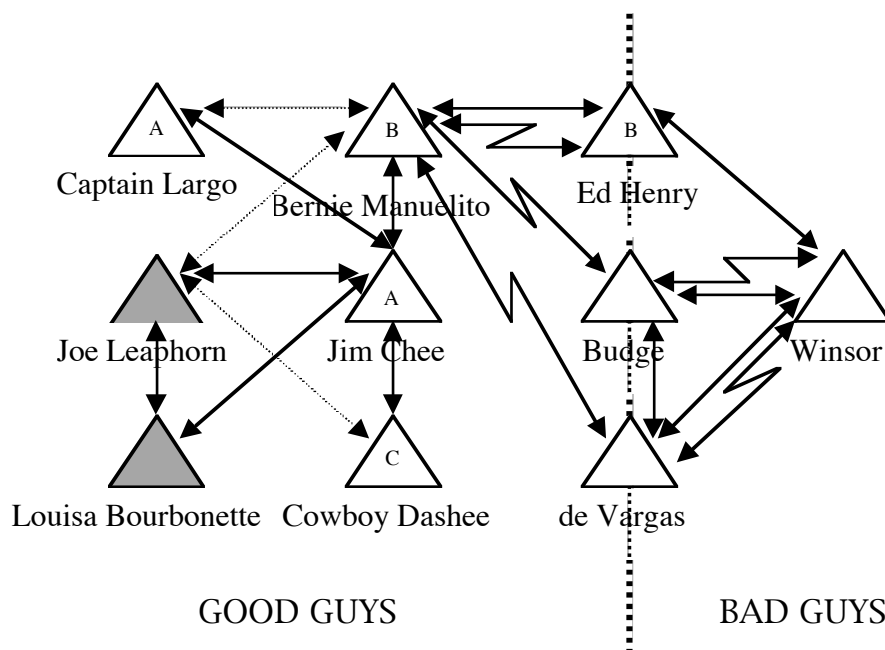


Figure 1. Network of distributed agency in *The Sinister Pig*

A few interesting features are immediately evident in Figure 1. First, the good guys are not a group in which everyone collaborates with everyone else. There are two very different hubs among the good guys: one frontline-oriented around Bernie Manuelito, the other more distant-from-action around Jim Chee and Joe Leaphorn. These two hubs are connected through a strong relationship between Chee and Manuelito, a weak relationship between Manuelito and Leaphorn, and weak mediation by Captain Largo. Secondly, there are three relationships which are both collaborative and hostile, indicating a radical switch in the nature of the interaction at some point. Thirdly, three actors are placed on the boundary between the good and the bad, indicating serious ambiguity and

³ The term ‘agency’ appears here interestingly in its formal institutional sense. One of the central points of Hillerman’s novel is that such official agencies gain real agency only through the often deviating actions of flesh-and-blood people.

uncertainly. Fourthly, three different law enforcement agencies are involved. And finally, along with official representatives of different agencies, also individuals without an official status are involved in the work.

From the point of view of activity theory, what kind of agency and intentionality is involved in the Hillerman book? To answer this, I will examine *The Sinister Pig* with the help of the five principles of activity theory presented earlier.

The first principle, *object-orientation*, calls attention to the object of the activities under scrutiny. In criminal investigation, the object is a suspected crime. In *The Sinister Pig*, the crime is highly distributed in time and space. Initially the focus is on a murder case. But it gradually drifts to suspected smuggling of narcotics over long distances across the Mexico-US border through abandoned oil pipelines. This widely distributed and highly ambiguous nature of crime as object is not at all unrealistic. My student Anne Puonti recently published her dissertation on collaboration between authorities in the investigation of economic crimes. She points out that whereas a ‘traditional’ crime always takes place at a certain time and place, economic or white-collar crime is typically committed over an extended period of time, and nobody can point to an exact time at which the boundary between legal and illegal was crossed. Nor can an exact place for economic crime be determined: the perpetrator may have a permanent residence in one location, the company domicile may reside somewhere else, and company property may even be located in other countries (Puonti, 2004).

The second principle, *mediation by tools and signs*, asks us to look into the artifacts involved in the activities under scrutiny. The sinister pig itself turns out to be a crucial artifact, a mobile module originally used to clean oil pipelines, now converted into a container for the illegal drugs. The pig is a tool for the bad guys, but it also serves as a boundary object, an emblematic semiotic mediator by means of which Leaphorn begins to formulate a theory of the crime.

(...) Chee shook his head. “I’m way behind you on that connection.”

Louisa had poured their coffee, a mug for herself, had joined them at the table, but had politely refrained from getting into this discussion. Now she cleared her throat.

“Of course he’s behind, Joe. Who wouldn’t be? Tell him about your pig theory.” She smiled at Chee. “As Joe sees this situation these are very sinister pigs.”

Leaphorn looked slightly embarrassed.

“Pig is the name pipeline maintenance people use for a device they push through the pipes to clean them out. (...)” (Hillerman, 2003, p. 153)

For both the bad guys and the good guys, the functioning of the central artifact of the pig is dependent on a constellation of supporting artifacts, primarily mobile phones and maps (on tool constellations, see Keller & Keller, 1996).

“When we get about an hour from El Paso, I’m making some calls,” Winsor said. “You take care of dealing with getting my plane parked. I’ll meet a man I need to talk to at the administration building. You brought your cell phone?”

“Always. And the pager.” (Hillerman, 2003, p. 146)

“There’s more I want to explain,” Leaphorn said. “I want you to take a look at an old map I dug up.”

Now Chee snorted. “A map! Have I ever discussed anything with you when you didn’t pull a map on me?” (Hillerman, 2003, p. 150)

The third principle, the *mutual constitution of actions and activity*, prompts us to inquire into the relationship between situated consequential decisions and future-oriented visions. In *The Sinister Pig*, the coming together of activity-level envisioning and action-level decision making is vividly described in two subsets of encounters. The first one is that between two bad guys, Budge de Baca and Diego de Vargas.

“I don’t know what he thinks. But I think that if we kill her, he has it figured out so he’ll get away with it. But if he has it figured right, she is a federal cop. The federals will catch us, wherever we go. Not give up until they do. And then they either kill us or we die in a federal prison somewhere. And, of course, that’s exactly the way he hopes its will work out. He wouldn’t want us around anymore.”

Diego sighed. “Yes,” he said. “It would be true also among those where I’ve always worked.”

“The way it happens in Washington, my patron is rich and powerful, and his roomful of lawyers and very important friends let the police know that our rich and powerful boss is innocent. He just came out here to shoot an African antelope for his trophy room. And he had me put his special trophy hunting rifle back there in the storage place to show them evidence that that’s the truth. And then he says he was betrayed by two low-class scoundrels who already are wanted by the police.”

“Yes,” he said. “That sounds like it would be in Mexico too.”

“I think there is a way out of this for us,” Budge said.

“Tell me,” Diego said. (Hillerman, 2003, p. 187-188)

“What’s the trouble?” he asked. “Worried, or is it love sick?”

“Worried,” Chee said. “How am I going to get Bernie to quite this damned Border Patrol job and come on home?”

“That’s easy,” Cowboy said.

“Like hell,” Chee said. “You just don’t understand how stubborn she is.”

(...)

“If you want her to come home, you just say, ‘Bernie, my sweet, I love you dearly. Come home and marry me and we will live happily ever after.’”

“Yeah,” Chee said. (Hillerman, 2003, p. 191-192)

These two exchanges of future-oriented envisioning move at the level of activity systems. In the first one, Budge and de Vargas, anticipating the critical action assigned to them, envision their future fate as members of the criminal activity system led by Winsor. The envisioning leads toward a preliminary commitment to new action – but due to interruption an action plan is never formulated and the new action is subsequently improvised. In the second example, Chee and Dashee, also anticipating critical actions ahead of them, envision Chee’s future life activity. In this case, the very actions of seeking out officer Manuelito are driven by the activity-level envisioning – which itself is articulated only as the critical actions unfold.

The fourth principle, *contradictions and deviations as source of change*, invites us to examine systemic tensions in the activities under scrutiny. The two excerpts just cited exemplify also the key contradictions operating in Hillerman’s novel. The first contradiction is embedded in the criminal activity system which depends on unquestioning obedience from subordinates but at the same time puts the subordinates at unacceptable risk in demanding violent actions from them. This is of course the classic contradiction that has made it possible for law enforcement to use lower level members of organized crime as informants. The tension pushes Budge and de Vargas to take actions that radically deviate from the script devised by their boss.

The second contradiction is embedded in the professional activity systems of officers Chee and Manuelito. This is the equally classic tension between crime as invasive object and the pursuit of personal happiness. Much of today’s crime drama and fiction is built around this tension between the

official and the personal in police work. In Hillerman's story, the contradiction pushes Jim Chee to deviate radically from the rules of his institutional agency. In effect, his quest to solve the crime melts together with his personal quest to find Bernie Manuelito. This drives him to move far beyond his jurisdiction, with the help of a friend, Cowboy Dashee.

The fifth principle, *historicity*, tells us to explore the successive and intersecting developmental layers, including the emergent new ones, in the activities under scrutiny. Hillerman provides a lot of material for this, and his previous books set a historical stage for viewing changes at work in law enforcement. Joe Leaphorn, the legendary individual, is retired and stays in the background. Jim Chee is not in the center of frontline action, either. The focus drifts to the female officer Bernadette Manuelito, and eventually the climax takes place without a clear individual or dyadic hero, largely facilitated by unanticipated actions of the two bad guys, Budge and de Vargas. All in all, the center does not hold. Different actors put their spoons in the soup, none of them having the whole picture or complete information about what the other actors are doing. Historically, this is amplified in the image of the multiple institutional agencies involved.

(...) and she missed the arrival of an SUV occupied by Drug Enforcement Agents, and the resulting dispute over which of the agencies had jurisdiction, which was eventually resolved by the arrival of someone representing Homeland Security, who declared himself in charge of the FBI, the DEA, the Border Patrol, the Department of Land Management, and the Navajo Tribal Police. (Hillerman, 2003, p. 220-221)

So what do we learn about distributed agency and collective intentionality from these five exercises?

In Hillerman's story, there is no fixed and stable center of control and command, individual or collective: the center does not hold. Yet the job gets done, and various individuals and subgroups contribute to the achievement in an intentional and deliberate manner. Moreover, it does not seem satisfactory to characterize the process simply as an accidental aggregation or combination of individual and subgroup efforts. There is a strong attempt among all participants to grasp and resolve the complex whole, even though it seems hopelessly beyond the limits of each participant's own horizon of understanding and capability.

In the story, the job gets done by means of numerous seemingly separate or quite weakly connected strings of actions that take place over an extended period of time and far apart from one another in geographical space. But again, they are not completely disconnected either. Partial connecting information, or hints and clues, do circulate and connect the various actions. Although often inefficiently, partially and belatedly, the different actors do seek interconnections and they do reciprocate.

The intention, or the goal, or the idea of what is actually being accomplished, emerges in bits and pieces spread among the dispersed actors over the course of the events, to become fully and jointly articulated only after it is all over. This after-the-fact articulation and stabilization applies also to control and command, as is made evident in the last excerpt above.

But why bother about a mere fictional detective story? I submit that fiction is often more sensitive to the changing landscape of societal life than are our everyday descriptive accounts or scientific analyses. The change in Hillerman's fiction provides one window into thinking of change more generally. Let me now try and open another window, this time grounded in longitudinal and interventionist field research in health care organizations.

AN EMPIRICAL CASE: KNOTWORKING IN THE CARE OF CHRONICALLY ILL PATIENTS IN HELSINKI

Can distributed, networked agency be purposefully cultivated? What kinds of tools and collaborative arrangements are needed to facilitate it? How does it manifest itself in situations of collaborative decision making and problem solving? I will devote this section of my paper to these questions, using examples from a series of longitudinal intervention studies we have conducted in the multi-activity field of health care in the city of Helsinki in Finland (see Engeström, Engeström & Kerosuo, 2003).

Scott and his co-authors (2000, p. 355) conclude that “much of the interest and complexity of today's healthcare arena, compared with its condition at mid-century, is due not simply to the numbers of new types of social actors now active but also to the multiple ways in which these actors have become interpenetrated and richly connected.” Medical work is not anymore only

about treating patients and finding cures. It is increasingly about reorganizing and re-conceptualizing care across professional specialties and institutional boundaries. This challenge of 'clinical integration' is not easily accomplished. As Shortell and his colleagues (2000, p. 69) state, "overall, clinical integration for the management of people with chronic illness is still largely a promise in search of performance."

In other words, the shape and implications of spatio-temporally distributed work and expertise are still fragile and open, literally under construction. When professionals perform such work and discourse, they also give shape to it. Thus, a methodology is needed that allows us, in an anticipatory manner, to explore and make visible the potentials and problems of constructing and performing this emerging type of work.

To meet this challenge, we recently arranged a series of joint 'laboratory sessions' for medical professionals involved in the care of chronic patients with multiple illnesses in the city of Helsinki. For such a session, one of the participating physicians was asked to select a patient and prepare a presentation of the patient's care trajectory. The patient attended the session, along with physicians and nurses representing different specialties and clinics involved in the patient's care. The session was aimed at improving coordination and collaboration among the parties. The physician presenting the case was asked to prepare drafts for (a) a care calendar summarizing the important events in the patient's care trajectory, (b) a care map depicting the key parties involved in the care, and (c) a care agreement summarizing the division of responsibilities among the caregivers involved. We gave the physician simple one-page templates for each one of these representations, but the participants were invited to modify and redesign them according to their preferences.

This procedure generated two kinds of data. First, the physician preparing the case usually invited the patient to a consultation where they discussed the patient's care to prepare for the presentation. Sometimes the physician invited a key colleague from another clinic to join in this consultation, or arranged a separate meeting with one or more relevant colleagues. A researcher from our group videotaped the preparatory consultation and collected copies of the documents used or prepared in it. The researcher was also available if the practitioners or the patient wanted to discuss the arrangements of the forthcoming laboratory session. Secondly, we videotaped the laboratory session itself, and collected copies

of the documents presented or produced in the course of the session. Here are three examples from discussions in three different laboratory sessions, each attached with a short analysis.

EXAMPLE 1

- Heart specialist Who in your opinion should from the point of view of the care of the heart deficiency take the initiative with regard to producing the care plan? Who is responsible, who makes it or sees to it that it is made?
- Administrator physician As I see it, it is still the expertise of the cardiology clinic to make the plan.
- Heart specialist Yes, it should be, but there must be a specified person in the cardiology clinic...
- Administrator physician Yes.
- Heart specialist ... a man or a woman who does it. The clinic as such doesn't do anything.
- Administrator physician No, it doesn't. I'm getting there, I am of course looking at the only one who is present here, with burning eyes...
- [laughter]
- Researcher You've been put in charge of quite a lot, you know.
- Administrator physician And then it's Mary, too, in that this is kind of pressure, if Mary is indeed the personal physician...
-
- Administrator physician Yes, it is so that the personal physician is here under the pressure that the plan will be made. ...

The first example illustrates the importance of *contradictions*. It contains an attempt to assign initiative and responsibility to identifiable participants. The patient has a serious heart deficiency and the discussion has led to a point where the participants realize that this condition is not properly under anyone's care responsibility. The heart specialist represents Cardiology Clinic, but he has not treated this particular patient and due to the constant rotation of physicians at his clinic, he is uncertain if he will ever have a chance to deal with this patient. So the first contradiction surfaces: Cardiology Clinic has the needed expertise, but as the heart specialist says, they need "a man or a woman who does it. The clinic as such doesn't do anything." The specialist can offer no continuity of care.

To answer the patient's need for continuity of care, the focus shifts to the patient's personal physician, a general practitioner (GP) in the local primary care health center: "the personal physician is here

under the pressure that the plan will be made.” This brings up the second contradiction: the personal GP has the required continuity of care, but little authority and often limited competence in matters of specialized medicine.

EXAMPLE 2

- Chief physician: So, will you be first, as the physician responsible for her at the primary care health center, and then we will add...
- Consulting physician Here we are kind of documenting what is already in place, but *if we had a similar case* where these contacts had not yet been created, *this would serve as sort of a model* from which other patients could benefit.
- Chief physician It would be very important *if we had a situation* where the patient’s personal physician is changed, the previous doctor would go on a leave, and the next doctor would come for half a year. *In such cases this has great importance*, so that the doctor knows...
- [the patient’s primary care GP signs the care agreement and starts to hand it back to the chief physician]
- Chief physician Please let the patient also sign it, while you are at it. From the signatures one sees that there are several people involved....

The second example illustrates the importance of *mediating artifacts* as well as the *coming together of activity-level visions and action-level decisions*. It contains a situation in which the laboratory session has led to drafting of a shared care agreement for a patient. The different professionals involved in the care of this patient, and the patient herself, are now ready to sign the care agreement – they are controlling their own behavior with the help of an external tool they have created. While signing the crucial artifact, the professionals discuss it. In the excerpt, I have identified segments of future-oriented activity level envisioning by using italics. These envisioning segments are formulated by means of hypothetical language: “if we had a similar case”, “if we had a situation”. At the same time, the participants are making consequential action-level decisions: “So, will you be first”, “Please let the patient also sign it”. The last decision, realizing that the patient also needs to sign the agreement, illustrates the importance of *object-orientation*. This small but extraordinary realization was

possible because the patient – the embodiment of the object of medical work – sat in as a knotworking partner with the medical professionals.

EXAMPLE 3

- Researcher 2 What are we going to do with this agreement, what will be done with it now?
- Researcher 1 Isn't it so that O [the GP] will follow the situation at this point...
- Researcher 2 ...Yes but this...
- Researcher 1 ...because there aren't clearly identified partners yet, before these are cleared up, these ongoing examinations and tests and their results.
- GP Yes, we still miss the signatures, so...
- Researcher 2 Well.
- Researcher 1 Or what do you have in mind?
- Researcher 2 Well, I just asked, what do you think, now that such a document has been prepared, so...
- Researcher 1 Or all this groundwork, yes.
- Researcher 2 Groundwork, what will be done with it. And now that O [the GP] refers R [the patient] to different places, would it be good if those different places to which she sends her for a specific problem, if they got to know about this whole picture in which this specific is...?
- GP Well, do I understand correctly, that I'd attach to it [the referral] this whole bundle, if someone there wants to quickly glance through it. How much would it then...? If I'm completely honest, having worked as a replacement for a specialist at one time, I sense that the less extra [paperwork] one got beyond one's own specialty the happier most colleagues were. So what is the standpoint of the seniors here...?
- Researcher 1 This is an interesting question when there is so much material coming from the personal physician.
- GP Does it make a difference for how the process gets started in that end [in specialized hospital care]? Because if one learns this, [...] so that one just learns to use this tool, then one just does it. Surely at some point this will be moved from paper-and-pencil over to the other type...
- Researcher 1 ...Soon, over to Pegasos... [computerized medical records system currently being implemented in the primary health care system of Helsinki]
- GP ...yes, so surely it will be much easier in there ...or somehow to pick it up from there. Or maybe some aid might do it there, or something like that...
- Nephrologist But in my opinion, when someone has done this work, this will be useful for all.
- Researcher 1 There is no reason not to send it all with a small statement, telling that 'here is background information which may be helpful, and I am ready to discuss if needed', something like this.

- Researcher 3 I think H [researcher 2] was thinking ‘why not attach this care agreement to the next referral’.
- GP Yes, but in my opinion it would also require these care calendars.
- Researcher 3 Aha, those should be added to it, yes.
- Researcher 1 Those calendars were clearly very important tools for you when you sorted through all of this.
- GP Yes, that’s how I started to make sense of the reality in which the lady had lived the years before returning to Finland and after it.
- Researcher 1 Yes.
- GP It was not easy in the first consultation. I kind of thought when I was writing down those calendars that if I only had had this kind of a tool then. So that I would have been able to arrange these issues at once according to some jointly agreed-upon model. I experienced this as very good.
- Researcher 1 Right, yes.
- GP I mean, the first contact is heavy because there are so many things, and they have to be sorted, and that takes time. But it pays off in the longer run.
- Researcher 1 Excellent, well, let’s quickly sum this up. Surely it is like you A [nephrologist] said, when such a work has been done, there is no sense in keeping it to one’s self. [...] And it will be nice to hear what kind of feedback you’ll get on your referrals. [...]
- GP I could include an attachment, or an attachment to a referral I already sent.
- Nephrologist May I say something?
- Researcher 1 Yes.
- Nephrologist Now before this work is completed, it may be that somebody kind of, not gets aggravated but wonders, if these care agreements begin to come in, before this practice has been officially fixed and its implementation announced.
- Researcher 1 Right, so in this case...
- Nephrologist ...So this is at an early stage. So I think that if we now send it, surely the physician who receives the referral is glad to get as much information as possible. But it may require a small explanation.
- Researcher 1 Just so.
- GP Yes.

This lengthy excerpt may be used to demonstrate the utility of all the five principles of activity theory in the analysis of emerging forms of distributed agency at work. First of all, the principle of *object-orientation* guides us to ask: What is actually the object here? What are they talking about and trying to accomplish? In the excerpt, the talk is focused on the use and development of tools. This is triggered by the initial question of Researcher 2: “What are we going to do with this agreement, what will be done with it now?” In effect, the tools seem to have become the object here. We have

analyzed such object-tool shifts in other contexts (Engeström & Escalante, 1995, Hasu & Engeström, 2000) and found them very problematic. Often the tool actually replaces the original object and becomes a substitute object, creating a hermetic bubble of design for the sake of design. The object (the client, the patient, the illness) is excluded from the discourse. Is this what is happening in the excerpt?

Early on in the excerpt, Researcher 2 specifies her initial question by bringing in the patient: “And now that O [the GP] refers R [the patient] to different places...” A little later the general practitioner brings in the patient with an identity situated in time and place: “Yes, that’s how I started to make sense of the reality in which the lady had lived the years before returning to Finland and after it.” And shortly after that, the general practitioner takes up the object of patients with multiple simultaneous illnesses in a more general sense: “I mean, the first contact is heavy because there are so many things, and they have to be sorted, and that takes time. But it pays off in the longer run.” These references to the object indicate that the object-tool shift in this case may not lead to the formation of a self-sufficient substitute object.

The second principle, *mediation by tools and signs*, asks us to look into the potentials of artifacts as means of eliciting or triggering voluntary action. As I mentioned earlier in this paper, rudimentary prompts may be regarded as early forms of mediated collective intentionality. The discussion in the excerpt focuses on the creation and implementation of such a rudimentary prompt. Researcher 1 states that “There is no reason not to send it all with a small statement, telling that ‘here is background information which may be helpful, and I am ready to discuss if needed’, something like this.” The general practitioner agrees and suggests that “I could include an attachment, or an attachment to a referral I already sent.” Finally the experienced nephrologists refines the idea: “But it may require a small explanation.” This is an example of the design phase of mediated collective intentionality.

The third principle of *mutual constitution of actions and activity* calls attention to the relationship between decision-making and envisioning. The excerpt shows how activity-level envisioning began to approach and resemble action-level decision making. The participants were working on a future-oriented model: “this is at an early stage.” Yet they were also working out a here-and-now decision: “I could include an attachment.” What was

particularly future-oriented about this decision was that the participants agreed that not only would the new mediating artifacts (care agreement, care map, care calendar) be attached to the referrals of this patient – they would also be introduced by a short note that explains to the receiving specialist what these new documents are all about. Such an introductory note was to have a standard text, prepared by the researchers and signed by the respective managing physicians of the primary care and the Central University Hospital. Yet, this general note was to be prepared quickly, so that this particular physician would use it in the particular referrals for this particular patient. In other words, the particular decision was simultaneously a general vision.

The fourth principle directs our analysis to *contradictions and deviations as source of change*. In the excerpt, the initial questioning of Researcher 2 led to the surfacing of a contradiction between administrative efficiency and patient-oriented quality of care. This tension was crisply articulated by the general practitioner: “How much would it then...? If I’m completely honest, having worked as a replacement for a specialist at one time, I sense that the less extra [paperwork] one got beyond one’s own specialty the happier most colleagues were.” The decisive push to resolve the dilemma in an expansive manner came from the nephrologist who in a succinct way pointed out that the work done by the general practitioner should not go wasted. This statement was a significant deviating action in that it came as if from the other side of the fence, from a leading hospital specialist whose position would normally suggest a very different script of reasoning.

The fifth principle, *historicity*, prompts us to ask what historical type of work and collaboration is actually being performed in the excerpt. The excerpt, and more generally all the three examples from laboratory sessions presented above, represent an attempt to break out of the confines of medical care divided horizontally in strictly bounded functional specialties and vertically in separate levels of expertise. The conscious aim in those sessions was to achieve negotiated knotworking between practitioners and patients. It is not yet clear what it will take to make such knotworking sustainable, or indeed whether it will even be possible in the near future. These sessions may thus be regarded as spearheads, microcosms that anticipate possible future developments in health care.

CONCLUSION: TOWARD CONCEPTS OF OBJECT-ORIENTED INTERAGENCY AND COLLABORATIVE INTENTIONALITY CAPITAL

Various attempts have been made to categorize different dimensions of agency. For example, Patricia Mann (2002, p. 128) proposes a three-dimensional theory of agency which “involves inquiring not merely about one’s desires, but also one’s sense of responsibility, as well as one’s expectations of recognition and reward in taking a particular action.” Mustafa Emirbayer and Ann Mische (1998) also suggest that agency should be analyzed in terms of three dimensions or elements: the iterational element, the projective element, and the practical evaluative element. While interesting, these categorizations have some serious weaknesses from the point of view of activity theory. They explicitly or tacitly take the individual as the foundational agent, and they display little if any historicity, and thus little potential for understanding change.

The five principles of activity theory sketched and used above may offer a somewhat more differentiated framework for analyzing agency. Most importantly, these principles do not assume that the foundational agent is an individual. To the contrary, all the five principles, most obviously the principle of mutual constitution of actions and activity, the principle of contradictions as source of change, and the principle of historicity call for a serious examination of the social constitution and institutional embeddedness of agency.

The fictional case of Hillerman’s *The Sinister Pig* and the empirical material from our fieldwork in medical settings point to the possibility that agency and collective intentionality may be taking on interesting new qualities in the context of network and post-network organizations. Earlier I suggested that the nature of agency in network organizations may be condensed in the imperative ‘Connect and reciprocate’. Now this does not seem sufficient anymore. First of all, both in the fictional and the empirical examples I have discussed above, the connecting and reciprocating are done *focused on and circling around a complex object*. Secondly, the connecting and reciprocating are done in fields of multiple, often severely divided activity systems. Reaching beyond and across the dividing boundaries and gaps between the activity systems needs to be acknowledged as a foundational feature of this type of agency – thus I prefer to talk about *interagency*. These reasons seem sufficient to put

forward a tentative concept of object-oriented interagency. This notion is above all a call for further studies of the formation and execution of collective intentionality in distributed activity fields. Tentatively, the imperative of this type of agency might be formulated as ‘Dwell in the object, connect and reciprocate across boundaries’.⁴

Formations such as the agentic collaboration between actors in *The Sinister Pig* or the knotworking between practitioners and patients in the laboratory sessions are valuable assets for the organizations involved. They perform a dual job in that they solve very complex problems and also contribute to the reshaping of the entire way of working in their given fields. They are very cost-efficient in that they do not require the establishment of new positions or new organizational centers. Indeed, these formations tend to reject such attempts. Rejection and deviation from standard procedures and scripted norms are foundational to the success of such amoeba-like formations. Their efficacy and value lie in their distributed agency, their collective intentionality. In this sense, I suggest the notion of *collaborative intentionality capital* as an emerging form of organizational assets.

Obviously object-oriented interagency and collaborative intentionality capital are not mature concepts or solutions that can be easily implemented. These concepts are meant to open up a field for further theoretical work and experimentation in organizational fields with complex runaway objects.

⁴ By ‘dwelling in the object’ I refer to a longitudinal dialogical relationship with the object that goes beyond ‘focusing on’ or ‘appropriating’ the object.

REFERENCES

- Barnes, B. (2000). *Understanding agency: Social theory and responsible action*. London: Sage.
- Blackler, F., Crump, N. & McDonald, S. (2000). Organizing processes in complex activity networks. *Organization*, 7, 277-300.
- Blackler, F., McDonald, S. & Crump, N. (1999). Managing experts and competing through innovation: An activity theoretical analysis. *Organization*, 6, 5-31.
- Borden, I. (2001). *Skateboarding, space and the city: Architecture, the body and performative critique*. Berg.
- Bratman, M. E. (1999). *Faces of intention: Selected essays on intention and agency*. Cambridge: Cambridge University Press.
- Ciborra, C. (2000). A critical review of the literature on the management of corporate information infrastructure. In C. Ciborra & al., *From control to drift: The dynamics of corporate information infrastructures*. Oxford: Oxford University Press.
- Deleuze, G. & Guattari, F. (1977). *Anti-Oedipus: Capitalism and schizophrenia*. New York: Viking.
- Deleuze, G. & Guattari, F. (1987). *A thousand plateaus: Capitalism and schizophrenia*. Minneapolis: University of Minnesota Press.
- Emirbayer, M. & Mische, A. (1998). What is agency? *The American Journal of Sociology*, 103, 962-1023.
- Engeström, Y. (1995). Objects, contradictions and collaboration in medical cognition: An activity-theoretical perspective. *Artificial Intelligence in Medicine*, 7, 395-412.

Engeström, Y. (2000). Activity theory as a framework for analyzing and redesigning work. *Ergonomics*, 43, 960-974.

Engeström, Y. (Ed.) (2001). *Activity theory and social capital*. Helsinki: Center for Activity Theory and Developmental Work Research, University of Helsinki. Technical Reports No. 5.

Engeström, Y. (2004). The new generation of expertise: Seven theses. In H. Rainbird, A. Fuller & A. Munro (Eds.), *Workplace learning in context*. London: Routledge.

Engeström, Y., Engeström, R. & Kerosuo, H. (2003). The discursive construction of collaborative care. *Applied Linguistics*, 24, 286-315.

Engeström, Y., Engeström, R. & Kärkkäinen, M. (1995). Polycontextuality and boundary crossing in expert cognition: Learning and problem solving in complex work activities. *Learning and Instruction*, 5, 319-336.

Engeström, Y., Engeström, R. & Vähäaho, T. (1999). When the center does not hold: The importance of knotworking. In S. Chaiklin, M. Hedegaard & U. J. Jensen (Eds.), *Activity theory and social practice: Cultural-historical approaches*. Aarhus: Aarhus University Press.

Engeström, Y. & Escalante, V. (1995). Mundane tool or object of affection? The rise and fall of the Postal Buddy. In B. Nardi (Ed.), *Consciousness in context: Activity theory and human-computer interaction*. Cambridge: The MIT Press.

Engeström, Y., Miettinen, R. & Punamäki, R-L. (Eds.) (1999), *Perspectives on activity theory*. Cambridge: Cambridge University Press.

Engeström, Y., Puonti, A. & Seppänen, L. (2003). Spatial and temporal expansion of the object as a challenge for reorganizing work. In D. Nicolini, S. Gherardi & D. Yanow (Eds.), *Knowing in organizations: A practice-based approach*. Armonk: Sharpe.

Fogel, A. (1993). *Developing through relationships: Origins of communication, self, and culture*. Chicago: The University of Chicago Press.

Gell, A. (1998). *Art and agency: An anthropological theory*. Oxford: Clarendon Press.

Gibbs Jr., R. W. (2001). Intentions as emergent products of social interactions. In B. F. Malle, L. J. Moses & D. A. Baldwin (Eds.), *Intentions and intentionality: Foundations of social cognition*. Cambridge: The MIT Press.

Giddens, A. (1991). *Consequences of modernity*. Cambridge: Polity Press.

Hasu, M. & Engeström, Y. (2000). Measurement in action: An activity-theoretical perspective on producer-user interaction. *International Journal of Human-Computer Studies*, 53, 61-89.

Hillerman, T. (2001). *Seldom disappointed: A memoir*. New York: HarperCollins.

Hillerman, T. (2003). *The sinister pig*. New York: HarperCollins.

Ilyenkov, E. V. (1977). *Dialectical logic: Essays in its history and theory*. Moscow: Progress.

Il'enkov, E. V. (1982). *The dialectics of the abstract and the concrete in Marx's 'Capital'*. Moscow: Progress.

Keller, C. M. & Keller, J. D. (1996). *Cognition and tool use: The blacksmith at work*. Cambridge: Cambridge University Press.

Knorr-Cetina, K. (2001). Objectual practice. In T. R. Schatzki, K. Knorr-Cetina & E. von Savigny (Eds.), *The practice turn in contemporary theory*. London: Routledge.

Latour, B. (1993). *We have never been modern*. Cambridge: Harvard University Press.

Latour, B. (1996). On interobjectivity. *Mind, Culture and Activity*, 3, 228-245.

Latour, B. (2004). *Politics of nature: How to bring the sciences into democracy*. Cambridge: Harvard University Press.

Leont'ev, A. N. (1978). *Activity, consciousness, and personality*. Englewood Cliffs: Prentice-Hall.

Lesser, E. (Ed.) (2000). *Knowledge and social capital: Foundations and applications*. London: Butterworth-Heinemann.

Lin, N., Cook, K. S. & Burt, R. S. (Eds.) (2001). *Social capital: Theory and research*. New York: Aldine de Gruyter.

Mann, P. S. (2002). Health-care justice and agency. In R. Rhodes, M. S. Battin & A. Silvers (Eds.), *Medicine and social justice: Essays on the distribution of health care*. New York: Oxford University Press.

Meggle, G. (Ed.) (2002). *Social facts and collective intentionality*. London: Fouque London Publishing.

Obmascik, M. (2004). *The big year: A tale of man, nature, and fowl obsession*. New York: The Free Press.

Pickering, A. (1995). *The mangle of practice: Time, agency, and science*. Chicago: The University of Chicago Press.

Powell, W. W. (1990). Neither market nor hierarchy: Network forms of organization. *Research in Organizational Behavior*, 12, 295-336.

Rafael, V. L. (2003). The cell phone and the crowd: Messianic politics in the contemporary Philippines. *Public Culture*, 15 (3).

Rheingold, H. (2002). *Smart mobs: The next social revolution*. Cambridge: Perseus.

Schatzki, T. R. (2002). *The site of the social: A philosophical account of the constitution of social life and change*. University Park: The Pennsylvania State University Press.

Scott, W. R., Ruef, M., Mendel, P. J. & Caronna, C. A. (2000). *Institutional change and healthcare organizations: From professional dominance to managed care*. Chicago: The University of Chicago Press.

- Searle, J. R. (1990). Collective intentions and actions. In P. R. Cohen, J. Morgan & M. E. Pollack (Eds.), *Intentions in communication*. Cambridge: The MIT Press.
- Shortell, S. M., Gillies, R. R., Anderson, D. A., Erickson, K. M. & Mitchell, J. B. (2000). *Remaking health care in America: The evolution of organized delivery systems*. 2nd edition. San Francisco; Jossey-Bass.
- Shweder, R. A. (1991). *Thinking through cultures: Expeditions in cultural psychology*. Cambridge: Harvard University Press.
- Spekman, R. E., Isabella, L. A. & MacAvoy, T. C. (2000). *Alliance competence: Maximizing the value of your partnerships*. New York: Wiley.
- Starkey, K., Barnatt, C. & Tempest, S. (2000). Beyond networks and hierarchies: Latent organizations in the U.K. television industry. *Organization Science*, 11, 299-305.
- Tuomela, R. (2002). *The philosophy of social practices: A collective acceptance view*. Cambridge: Cambridge University Press.
- Uden, L. & Engeström, Y. (Eds.) (2004). *Activity theory for organisational development and management*. Special issue of *International Journal of Human Resources Development and Management*, 4(1).
- Vedeler, D. (1991). Infant intentionality as object directedness: An alternative to representationalism. *Journal for the Theory of Social Behaviour*, 21, 431-448.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.
- Vygotsky, L. S. (1997). *The collected works of L. S. Vygotsky. Vol. 4. The history of higher mental functions*. New York: Plenum.
- Vygotsky, L. S. (1999). *The collected works of L. S. Vygotsky. Vol. 6. Scientific legacy*. New York: Kluwer/Plenum.
- Wartofsky, M. (1979). *Models: Representation and scientific understanding*. Dordrecht: Reidel.

