

Cultural-Historical Activity Theory: Exploring a Theory to Inform Practice and Research

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Introduction

In every profession, the ways in which people go about their work, how they build organizations, and how organizations interact with each other greatly affects the outcomes of the work. Interest in conceptual tools for thinking about the practices of social work is growing. A key demonstration of this is evidenced in the work of the Salisbury International Forum , (which developed into the International Network on Social Work Practice Research), on how social work practices can be better theorized and researched-- with the aim of providing a basis for improved those practices (International Network on Social Work Practice Research, 2013; Salisbury International Forum, 2009). Cultural-historical activity theory (CHAT) is one of several practice-based approaches that provides a robust framework for analyzing professional work practices, including social service provision (Julkunen, 2011, 2013). By offering a multi-dimensional, systemic approach that includes both psychological motives and all kinds of tools, as well as the always-present dynamics of power, money, culture, and history, CHAT enables researchers to analyze complex and evolving professional practices, and practitioners to engage in reflective research (c.f. Foot, 2013; Yliruka & Karvinen-Niinikoski, 2013).

As an illustration, consider an ill person's visit to a doctor who works in a healthcare clinic. The doctor's interactions with the ill person are framed by and set within multiple contexts--including legal, economic, cultural, and social-- that have been years in the making. The ill person views the doctor as a health expert, and the doctor views the ill person as a patient, and those reciprocal framings load their interactions with a myriad of historically-grounded, culturally- and legally-negotiated norms and scripts. The agency of each party, doctor and patient, (i.e. the actions they take in relation to each other and the patient's illness), are both enabled and constrained by many factors that are beyond either of their individual ability to unilaterally change. Although they may be alone in an examination room, their interactions are mediated by a host of other individuals and institutions, including the staff of the healthcare clinic, the state's medical licensing board, and the patient's insurance company.

There is significance in each word in the label cultural-historical activity theory. Cultural points to the premise that humans are enculturated, and everything people do is shaped by and draws upon their cultural values and resources. The term historical is used together with cultural to indicate that since cultures are grounded in histories, and evolve over time, therefore analyses of what people do at any point in time must be viewed in light of the historical trajectories in which their actions take place. The term activity refers to what people do together, and is modified by both cultural and historical to convey its situatedness. Theory is used in this label to denote a conceptual framework for understanding and explaining human activity.

CHAT centers on three core ideas: 1) humans act collectively, learn by doing, and communicate in and via their actions; 2) humans make, employ, and adapt tools of all kinds to learn and communicate; and 3) community is central to the process of making and interpreting meaning—and thus to all forms of learning, communicating, and acting (Vygotsky, 1978). The CHAT model of an *activity system* that is constantly evolving through collective learning actions, in response to systemic contradictions, enables multi-faceted analyses of the complex practices of professional work. The essential task of CHAT analysis is to grasp the systemic whole of an activity, not just its separate components. This makes possible the analysis of a multitude of relations within an activity system, both at a particular point in time, and as it evolves over time.

To elaborate, CHAT provides a framework for analyzing interactions between professionals and their clients that includes not only the interpersonal/communicative aspects of those relationships, but also the cultural, historical, political and economic dimensions. In addition to illuminating the interactions between individual doctors and patients, or social workers and clients, or any other professional dyad, CHAT has potential utility for analyzing healthcare and social service provider organizations as well— in relation to their cultural and historical contexts. To illustrate, Sandra Bloom

and her collaborators at the Center for Nonviolence and Social Justice have written extensively about the dis/stress and trauma which human service delivery organizations undergo, contending that better understanding of the impacts of chronic stress on such organizations is critical to their survival, much less their efficacy. In describing how trauma can beset human service provider organizations, the center's website explains:

“Our evidence supports that many sources of chronic workplace stress result in organizations that are chronically hyperaroused, have lost the capacity to manage emotions institutionally, and as a result fail to learn from experience. In this way, our organizations can develop learning disabilities accompanied by organizational amnesia. Under such circumstances, the most emotionally charged information becomes “undiscussable” and organizations develop “alexithymia”. Leaders are likely to become more authoritarian and punitive, workers respond with more aggressive and passive-aggressive behavior and the entire environment becomes progressively more violent and unjust. Despite this apparent deterioration, the likelihood is that chronically stressed organizations will simply continue to repeat the past, engaging in reenactment and as a result, steadily deteriorating.”¹

Analyzing a chronically and/or traumatically stressed social service organization as an activity system, and in particular employing the systemic contradictions that will be introduced below as analytical lenses, may help illuminate the extra-organizational dynamics that are causing or exacerbating stress and shaping interpersonal relations both within the organization and between service providers and their clients.

Although CHAT is not yet widely known in the U.S., it is being employed by scholar-practitioners across a diverse array of fields to advance ways of thinking about and shaping professional practices such as developing curricula and teaching at all education levels (Cole, 1996; Jonassen & Rohrer-Murphy, 1999; Roth & Lee, 2007), providing mental health care (Sundet, 2010), strategizing and managing organizational processes (Blackler, Crump, & McDonald, 1999, 2000), designing digital technologies (Kaptelinin & Nardi, 2006), tracing the computerization of architectural design (Groleau,

¹ <http://www.sanctuaryweb.com/organizations.php>

Demers, Lalancette, & Barros, 2012), developing public policy (Canary, 2007, 2010; Canary & McPhee, 2008), and analyzing work.

In the field of social work, a few U.S. scholar-practitioners are exploring CHAT and other forms of practice-based theorizing as ways to rethink and restructure graduate programs in social work. For example, Nancy Fire, a faculty development specialist at the University of North Texas, and Willa J. Casstevens, an associate professor of social work at North Carolina State University, employed CHAT to redesign a graduate course. Their intent was to “maximize opportunities for students to create (i.e., construct) new understandings that would include [core competencies and their] associated practice behaviors” (Fire & Casstevens, 2013, p. 42). In brief, by analyzing a graduate seminar as an activity system, they found CHAT to be a useful framework for helping MSW students better understand and engage some of the multi-level practices of social work.

Activity systems

Activity systems are multi-voiced in that they model collective activity undertaken by actors with differing roles, positions, and perspectives. They are also multi-layered, that is, they are comprised of conscious actions as well as unconscious, routinized operations. An activity system has six core components, each of which holds cultural and historical dimensions. The first three are a *subject* (or actor), an *object* (a focal entity and/or a desired outcome), and the *tool(s)* employed by the subject to act on the focal object or pursue the desired outcome. Tools can be either material or conceptual. Language, protocols, scientific methods and models, and other forms of cultural artifacts are just as much tools as are hammers, computers, and phones. CHAT views tools as crafted at a point in time and adapted over time-- their development is shaped by the needs, values, and norms of the culture(s) in which they are created and used. For example, in a culture (i.e. time, place, and value system), in which moving dirt manually is essential to survival and men do the work of shoveling, the typical length of

shovel handles will correspond to the average height of adult males in that culture, and the design of shovel blades will, over time, be optimized for that work.

The fourth component in an activity system, the *community of significant others*, consists of the people who share with the subject an interest in and involvement with the same object. The interactions between the subject and the community which engages a shared object can be thought of as the “communicative relations” of the activity (Engeström, 1999b, p. 32). Relations between the subject and the community are mediated by the last two components: a) the *rules* that regulate the subject’s actions toward an object, and relations with other participants in the activity; and b) the *division of labor*, understood as what is being done by whom toward the object, including both the relatively horizontal division of tasks and the vertical division of power, positions, access to resources, and rewards (Engeström, 1987, 1990). These six components are often depicted as nodes of intersection in a triangular figure depicting an activity system (see Figure 1). Although there are many dyadic and triadic relations between these six components, the analytical strength of CHAT is best leveraged when the activity system is understood as a single/whole unit. In other words, the CHAT framework prompts practitioners/analysts to move beyond whatever the most immediately apparent dyad of components is in a particular case (e.g. a doctor and a patient), and seek to identify how the other components are present and influencing the situation.

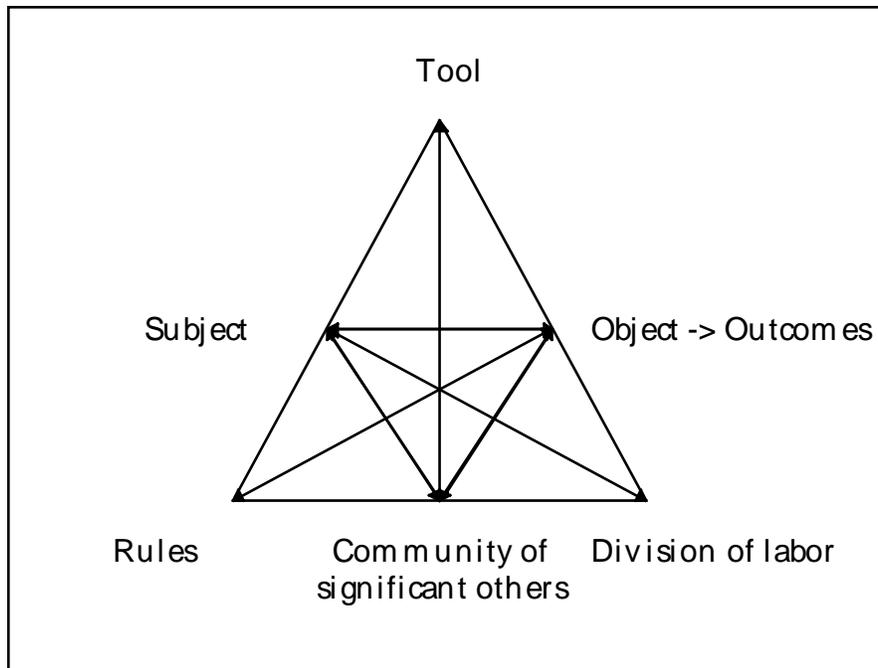


Figure 1: Model of activity system, by Engeström (1987 p. 78).

To illustrate these six concepts using the healthcare vignette introduced above, imagine a sick person bringing a written list of his symptoms to a doctor asking for help, and assume the sick person wants both a diagnosis of his illness and a cure. From the perspective of CHAT, as the sick person describes his symptoms to the doctor, he is in that moment the actor/subject, using the symptom list as a tool to mediate both his search for a diagnosis and cure (i.e. the multi-dimensional object that includes both the present illness as well as the desired future state, such as improved health) as well as his interactions with the doctor. In that moment the doctor, (along with the sick person's family, health clinic staff, and the sick person's insurance company), comprise at least some of the community of significant others for this interaction. When the doctor then examines the sick person she becomes the subject, viewing the sick person as a patient and employing several tools to mediate her examination of the person's body, attempts at a diagnosis, and the creation, appropriation, and/or adaptation of a treatment plan. As with the sick person, the doctor engages a multi-dimensional object that is

comprised of both the embodied and the current but-as-yet-unknown illness, and a hoped-for future of a cure.

The tools the doctor employs are likely to include both tools of her choosing, such as her favorite instruments and medical diagnostic guide, and tools that she is required to use by others in the community of this activity, such as a federally-mandated privacy policy disclosure form, or a treatment protocol or other form required by the patient's insurance company (e.g. to prove the necessity of a particular diagnostic test). Such requirements are viewed in CHAT as "rules" or norms stemming from not only the community of significant others for this particular activity, but also from the broader cultural, economic, and political context in which this doctor-patient interaction is taking place. Rules in an activity system primarily mediate what the subject does *vis a vis* the object of the activity (i.e. how the subject acts in relation to the object, including the tools employed and the ways they are used). The actions of a doctor are also usually embedded in well-established patterns of verbal and nonverbal behaviors that reflect professional and cultural norms, some of which are legally mandated (e.g. the doctor should use courteous language even if the patient curses, and the doctor should not disrobe, even if the patient does).

The "division of labor" construct in the activity system references the fact that who does what in relation to the object, (i.e. which members of the community engage in which types of actions using which tools), is typically mediated by sociohistorical power structures and patterns of relations both within the community and between a community and the larger culture/society of which it is part. To illustrate, a doctor's uses of tools in actions relating to a patient are both supported and constrained by the corresponding actions of the health clinic staff (who sterilize medical instruments, maintain patient records, assist physically in direct contact with the patient during some procedures, etc.). In many work settings, roles are strongly enforced and/or firmly held to, such as the differences in the work-related

actions between management and labor unions, professionals with different types of expertise/certification, or senior vs. junior employees.

A deeper look at activity and object

Now that the six components of an activity system have been introduced, a fuller explanation of the nature of activity in a CHAT framework is possible. But first it must be noted that discussion of the components of an activity system and their relationships to one another is challenging for Western, especially English-speaking, audiences. The most obvious problems arise because of differences between lexicons, translations, and cultural concepts. The English language has no direct translation for the concepts “activity” or “object” as they are used in Russian or German, the languages in which activity theory was first articulated.

The CHAT concept of activity connotes several things at once that the English notion of activity (as task) generally does not. In CHAT, the idea of activity centers on human collectives rather than individuals. It involves people operating jointly in a persistent system of relations with other people and institutions as well as with the natural world. Activity is not “behavior” in the sense of the focus of the study of Western psychology. Activity is a process-as-a-whole, rather than linear sequence of discrete actions. Therefore, an activity system is conceptualized as a indivisible, molar unit of analysis, not an additive one that could be disaggregated (Leont'ev, 1978). For example, analyzing only what actors do with their tools does not constitute analyzing an activity system. As a unit of analysis, an activity system fulfills the following demands: it is representative of the complexity of the whole, it is analyzable in relation to multiple dimensions (i.e. cultural, historical, economic, etc.), it is specific to human beings by being culturally mediated, and it is dynamic rather than static (Engeström, 1987; Vygotsky, 1978). There is similar complexity in the CHAT concept of object.

Activities are specific, each one answering a definite need of the subject, directed toward an object of this need, extinguished as a result of its satisfaction, and produced again, perhaps in other

conditions. The main thing that distinguishes one activity from another is the difference in their objects (Leont'ev, 1978, p. 50), therefore understanding an activity system requires understanding its object.

Three terms comprise the facets of an object in the CHAT framework, as the illness/health vignette helps illustrate. First, an object is a thing-to-be-acted-upon, (e.g. an illness). Second, is it an objectified motive (the search for a cure) (Christiansen, 1996). Third, it is a desired outcome (e.g. restored health). In CHAT, each object has all three of these facets, and any of these facets may be constructed or perceived differently by various members of the community. For example, patients view illness, cure, and restored health differently than doctors.

The process of object formation within an activity system arises from a state of need on the part of one or more actors. The need state, which is usually unconscious and thus not clearly definable, precipitates a set of object search actions (Engeström, 1999d, p. 381), during which any number of potential things-to-be-acted-upon may be encountered. These may be in ideal or material form, or simultaneously both. The subject(s) orientation toward one of these “things-to-be-acted-upon” is influenced by both personal experiences of the subject(s) and their cultural-historical experience. A motive for change emerges out of a linkage between the need and an object, and this is when the need begins to be consciously recognized.

The construction of any object involves interaction between aspects of the subject’s personal experience, his/her relationship to the community of significant others with whom the object is pursued, and cultural-historical properties of the object. An individual subject (or even a collective subject) cannot arbitrarily define or construct the object of an activity. A subject’s perception of an object is both facilitated and constrained by historically-accumulated constructions of the object (Lektorsky, 1984). That is, in an activity that persists over long periods of time, such as the provision of healthcare, the various ways that generations of people involved in healthcare—whether as providers or receivers—construct what healthcare is (and is not) influences how any individual subject at a particular

point in time constructs the object of healthcare provision. The historical layers of object-constructions both enable and constrain the subjects' perception of and engagement with the object, in both ideational and material ways (Engeström, 1990). To illustrate, in times and places where the emphasized facet or layer object of healthcare provision is the curing of illness, tools that support that diagnosis and intervention will be developed. In contrast, when and where the emphasized layer of healthcare is the prevention of illness, tools that help people stay well will be more likely. Furthermore, at any point in time, participants in an activity may be at different stages in the reciprocal processes of need-consciousness and object-formation, thus differing in their abilities to perceive and articulate the object of the activity in which they are engaged.

To illustrate the process of object formation, Christiansen (1996) elaborates some of the personal components that shape an individual police detective's formulation of the detective work activity, differentiating the detective's perspective from those of her teammates :

Besides the interplay with other activities, the formation of the objectified motive by an investigator will in general depend on the person's level of expertise; the political and power relations within the team, in the headquarters, or in Parliament; the division of labor within the team and the section; the specific conditions of the actual case; and the objectification due to personal preferences (p. 181).

In other words, the individual subject's past professional experience, position in the power structure, role within the team and idiosyncratic characteristics of each particular case influence each detective's construction of the object of the activity.

The object gives an activity system a determined direction, a horizon toward which it orients—but just as a horizon is never reached, an object is never fully accomplished (Engeström, 1999d). The object of an activity-- as it grows in intensity as a motivating force-- shapes and directs the activity. An activity system constantly generates actions through which the object of the activity is enacted and reconstructed in specific forms and contents. The creative potential of the activity is closely related to the participants' capacity to construct and redefine the object (Engeström, 1999d, pp. 380-381).

Activity, actions, and, operations

CHAT distinguishes between activities and the actions and operations that comprise them. Actions are conscious, goal-oriented, and facilitated by tools whereas operations are routinized and unconscious components of actions and are subject to concrete conditions (Leont'ev, 1978). Kuutti (1996) explains the relationship between activities, actions, and operations in the following way.

Activities are longer-term formations; their objects are transformed into outcomes not at once but through a process that typically consists of several steps or phases. There is also a need for shorter-term processes: activities consist of actions or chains of actions, which in turn consist of operations. (p. 30)

To illustrate the distinction between activity, action and operation, consider how people learn to use digital technology. For most Internet users (at least for those over age 30!), there was a moment when they sat at a computer for the first time and learned how to send and receive electronic mail. This process required many conscious, tool-mediated actions for those who had never used a computer previously. With practice, sending email became an operation comprised of actions that had become automatic, and thus condensed and unconscious. For example, one could wonder whether sending e-mail is itself an activity. The answer depends on what the aim of sending electronic messages is: tossing electronic messages into cyberspace is not typically an aim in and of itself, but can serve many different ends— thus the sending of email is not an activity. However, for someone learning how to use an email application for the first time, the aim or object could very well be simply to send and receive messages. Therefore, learning to use email would, temporarily, be an activity composed of the actions and operations mentioned above. As the novice's emailing skills increase, email becomes a tool in any number of other activities.

To sum up the relationship between activity systems and actions: activity systems are comprised of interlinked, tool-mediated actions through which actors engage, enact and pursue an object or outcome. The relationship between the goal of an action and the object of the activity in which it is

pursued can take three forms: catalytic, co-existent without benefit or hindrance, or contradictory, in which case the pursuit of one detracts from the pursuit of the other.

To better understand the relationship between object and goals, activity and actions, imagine a now-experienced email user—a social worker who wants to participate in a professional conference by leading a workshop in her area of expertise. If she composes and sends an email to the organizers, proposing her workshop for the conference, it can be assumed that her desired form of conference participation is what motivated her emailing actions. Alternatively, in order to accomplish her object of leading a workshop, the social worker may instead carry out actions that are not explicitly or directly aimed at getting her workshop accepted by the conference organizers, but instead are indirect. For example, publishing a high-profile report on the aspect of social work on which she wants to lead a workshop, just before the conference program is decided. In the latter strategy, the aim of persuading the conference organizers to allow her to lead a workshop was achieved indirectly by the social worker's actions. Thus, the object that motivated her activity related to leading a conference workshop and the goal of publishing a report were not identical.

A single action may accomplish various activities and may transfer from one activity to another, demonstrating its relative independence (Leont'ev, 1978) . Expanding upon the conference workshop example even further in order to illustrate this new point, the action of publishing a report may not only satisfy the social worker's desire to be included in the program of a professional conference, but also gain the respect of her colleagues.

The opposite is also true, that a single object is concretely expressed in multiple goals and thus elicits multiple actions. In addition to publishing a high-profile report, the social worker's commitment to the object of improving the practice of social work may also prompt her to recruit several others in her field to come to the conference, or to employ a particular approach in their work.

To summarize this discussion of activity thus far, in CHAT an activity system is the unit of analysis for understanding a larger flow of human life. In the analysis of a social milieu, separate, specific activities can be isolated according to the criteria of objects and the motives that elicit them. Once an activity has been singled out, actions-- the processes that are subordinated to conscious goals-- can be isolated and analyzed. Finally, the operations that directly depend on the conditions of attaining concrete goals can be identified for careful study.

Tool-mediated actions

In CHAT, the actions that comprise an activity system are tool-facilitated. As mentioned above, tools can be either material or conceptual, and in every activity system, participants draw upon existing tools and use cultural-historical resources to create new tools with which to engage, enact and pursue the object of their activity. Kuutti (1996) offers an explanation of the mediating role of tools in an activity:

Thus the (reciprocal) relationship between the subject and the object of activity is mediated by a tool, into which the historical development of the relationship between subject and object thus far is condensed. The tool is at the same time both enabling and limiting: it empowers the subject in the transformation process with the historically collected experience and skill 'crystalized' to it, but it also restricts the interaction to be from the perspective of that particular tool or instrument only; other potential features of an object remain 'invisible' to the subject. (p. 27)

One aspect of Kuutti's argument in this passage is that tools provide a historical record of the relationship between actors and the object of their activity. That is, each tool employed in an activity system reveals something about the relationship between actors and their object-concept at the point in time in which the tool was appropriated or created. This concept of tools as historical records is not unique to CHAT. It is foundational to the field of archaeology, wherein the ways that people interacted with the natural world in prior generations, and even sociocultural relations, are inferred from careful analyses of artifacts. Another aspect of Kuutti's argument is that tools simultaneously enable certain forms of action, and constrain others. Camera lenses can be used to illustrate this aspect of the

mediational role of tools. Each different lens provides the photographer (the subject) with a particular way of framing and focusing on the scene to be captured on film (the object). Each lens consists of properties which both enable and constrain the uses to which it can be put. That is, since it is relatively small and heavy, it might be considered a good projectile-- but since it is relatively expensive, it is not likely to be thrown (away). Its glass center makes it good for looking through, but not very effective as a hammer. The lens is a reification of decades of accumulated expertise in the practice of photography, and thus is empowering to the photographer. On the other hand, any single lens frames the scene to be photographed in one way-- rendering other potential "frames" invisible. A similar argument can be made for any tool, whether material like a camera lens, or conceptual, like categories of risk behaviors by adolescents.

Many kinds of tools are employed in a complex activity system. Wartofsky's (1979) three-tiered hierarchy of tools enables the identification of the large and diverse array of tools in an activity system such as social service provision. In this schema, primary tools are relatively simple-- those used mostly unconsciously for basic operations, such as a pencil and paper, or notes on clients' needs. Secondary tools are representations of primary tools (i.e. pictures or models of primary tools). Secondary tools can also include such discursive constructs as expectations, hypotheses, and explanatory models (Engeström, 1990). These tools, while not directly representing primary tools, mediate how actors employ primary tools. For example, in social work the notions of professionalism, expertise, and objectivity may function as secondary artifacts that influence how social workers employ primary tools such as protocols and reports.

In Wartofsky's hierarchy of tools, abstractions (e.g. epistemological paradigms, ideologies, and socio-political visions) are tertiary tools. These tools influence the overall shape and direction of an activity system. Tertiary tools shape the identity of an activity system, and provide a perspective for understanding the system (Engeström, 1990, p. 174).

There is no inherent characteristic of an artifact (i.e. a human-constructed instrument, in either material or conceptual form) that determines its role and function as a tool in an activity system. Artifacts, depending on how they are employed in an activity, can function as rules that govern the subject's interaction with members of the community, in addition to or instead of functioning as tools. This shift in the function of an artifact from tool to rule takes place typically when the artifact is perceived by the subject as an "administrative demand" (Engeström, 1990, p. 90) designed and/or enforced by those with power over the subject to satisfy a requirement of one or more community members, rather than as an instrument useful to the subject for engaging the object of the activity. For instance, from the perspective of a doctor, a mandatory treatment protocol developed by an insurance company (to advance its aim of controlling costs) may function as a rule that governs the doctor's actions, rather than a tool the doctor chooses to employ to help her patient get well. The variability in the function(s) of an artifact within an activity system is why Engeström (1987) argues that the key question concerning artifacts is *when* is one a tool, rather than *what* is a tool.

A distinctive aspect of activity theory that is particularly important for analyzing complex social practices is that it acknowledges contradictions, conflict, and breakdowns in coordination as inevitable in the functioning of any system. Kuutti (1996) explains:

Because activities are not isolated units but are more like nodes in crossing hierarchies and networks, they are influenced by other activities and other changes in their environment. External influences change some elements of activities, causing imbalances between between them. Activity theory uses the term contradiction to indicate a misfit within elements, between them, between different activities, or between different developmental phases of a single activity. Contradictions manifest themselves as problems, ruptures, breakdowns, and clashes. Activity theory sees contradiction as sources of development; activities are virtually always in the process of working through contradictions. (p. 34)

The internal contradictions within an activity system are the forces which precipitate its development. Contradictions reveal opportunities for creative innovations, for new ways of structuring and enacting the activity.

In brief, the analysis of contradictions in an activity system provides an understanding of its developmental trajectory. Contradictions can be seen as the “places” in an activity system from which innovations emerge. The evolution of an activity system occurs when participants act to resolve or transcend the system’s contradictions. This development of an activity system emerges in a pattern that Engeström (1990) calls an “expansive cycle” and appears in the form of the “construction and resolution of successively evolving tensions or contradictions in a complex system” (Engeström, 1999d, p. 384).

Contradictions are present in every collective activity and indicate emergent opportunities for the activity’s development. They are lenses through which participants in an activity can reflect on the developmental trajectory of the activity system and understand its dynamics. Contradictions are a sign of richness in the activity system (not weakness) and of mobility and the capacity of an activity to develop rather than function in a fixed and static mode. Contradictions reveal the growing edges of the activity system-- the places where “growth buds” are able to form and expansive development take place.

Contradictions are not points of failure or deficits in the activity system in which they occur. They are not obstacles to be overcome in order to achieve goals. Rather than ending points, contradictions are starting places. They are not “problems” to be “fixed,” and they cannot be quickly transcended through technical solutions. In other words, throwing more money at a contradiction, establishing a new division of labor, or creating new tools will not make them go away. In actuality, such interventions may very well result in the aggravation of existing contradictions or the emergence of new ones.

Contradictions can be understood as *illuminative hinges* that can open new vistas of understanding (Foot, 2001). The way in which contradictions resemble hinges has to do with a hinge’s function in connecting a fixed entity, a door frame, with a mobile entity, a door. Similarly, contradictions link the “fixed” entity of an established activity system, with the mobile entities of its potential

expansions and contractions. In this way contradictions link an historically formulated activity with its “zone of proximal development”, that is, the area between an activity system’s present and foreseeable future (Engeström, 1999c; Vygotsky, 1978). More fully, the zone of proximal development may be:

depicted as [an] ... area between actions embedded in the current activity with its historical roots and contradictions, the foreseeable activity in which the contradictions are expansively resolved, and the foreseeable activity in which the contradictions have led to contraction and destruction of opportunities (Engeström, 1999c, p. 67).

By exposing new facets of an activity, and by linking the fixed, historically formed activity system with its mobile future structure, contradictions function as illuminative hinges in the analysis of activity systems. The kind of hinge known as a “concealed hinge” is affixed in such a way that on a closed door its two metal planes lie parallel to one another-- at first glance nearly indistinguishable from each other. When set in motion the planes of a concealed hinge move in divergent directions, revealing their distinction from one another. The space between them increases, exposing not only their inner surfaces, but also whatever lies beyond the hinge plane in the now-expanded frame of sight. Similarly, a contradiction in an activity system consists of two figurative planes or forces which coexist, unnoticed most of the time, and are linked together in a single entity. Like hinges, the “planes” of a contradiction pressed into motion will move in diverging directions, exposing new facets and dynamics of the activity, and revealing possible directions for the future development and transformation of the activity. According to Blackler (1992), CHAT’s attention to the contradictions, conflicts and breakdowns within an activity system is the reason it can be a helpful tool for social as well as institutional and organizational change

Learning actions and the expansive cycle

As explained above, activity systems develop as actors engage in object-oriented, contradiction-provoked actions. Mapping the cycle of learning actions in an activity system, and identifying the internal contradictions of the system that have catalyzed development, can provide a collective mirror for those involved in the activity, helping them to identify the sites or sources of the breakdowns in

coordination, and suggesting potential avenues for expansive change. The typical sequence of learning actions in an expansive cycle is:

1. *questioning* criticizing or rejecting some aspects of the accepted practice and existing wisdom;
2. *analyzing* the situation in order to identify causes or explanatory mechanisms by tracing its origin and evolution (historical-genetic analysis), or by constructing a picture of its inner systemic relations (actual-empirical analysis);
3. *modeling* the newly found explanatory relationship in some publicly observable and transmittable medium;
4. *examining the model* in order to grasp its dynamics, potentials, and limitations;
5. *implementing the model* through practical applications, enrichments and conceptual extensions;
6. *reflecting* on and evaluating the process;
7. *consolidating* its outcomes into a new, stable form of practice.

These seven action steps for increased understanding are described by Engeström (1999d) as phases of an outwardly expanding spiral, but multiple kinds of actions can take place at any time. The phases of the model simply allow for the identification and analysis of the dominant action type during a particular period of time. These learning actions are provoked by contradictions, as will be explained below.

The CHAT-based theory of expansive learning by an organization in which activity systems are transformed is an integral, but underutilized, part of the CHAT framework. Each cycle of development in an activity system is contingent upon, and somewhat overlapping of the previous cycle. The expansive cycle is an “ideal type” of an activity’s development, as any process of development includes contractions as well as expansions. For example, chronically and/or traumatically stressed social service organizations could be analyzed in terms of an expansive learning cycle where a stressed organization’s

recent and longer term collective activity and contradictions are documented as a way to identify the organization's options (i.e. its zone of proximal development). Moreover, CHAT could be used to identify the specific kinds of actions that will be more or less likely to catalyze the kinds of organizational development that are desired. To analyze any activity system's development, close attention to contradictions is critical, because by working out the tensions and interactions between the elements of the system it becomes possible to explain and foresee the development of the system (Engeström, 1999d).

Role of contradictions in learning actions

The economic concepts of use value and exchange value are foundational for understanding contradictions in CHAT. Use value can be understood as the direct benefits of an activity's outcomes for the activity's participants, whereas exchange value denotes the worth of something when it is exchanged for something else. CHAT holds that due to the commodification of work (and workers) in capitalist economic systems, internal contradictions between the use value of an activity and its exchange value exist within each of the six nodes of the activity system triangle: subject, tool/artifact, object, rules, community, division of labor (Engeström, 1987, pp. 84-85).

In addition to this primary contradiction between use value and exchange value within each node of the activity triangle, there are three other levels of contradiction in an activity system (Engeström, 1987). The four levels of contradiction in CHAT and the relationships between them are challenging to grasp but important to understand because they are what enable multidimensional analyses of complex activity systems such as those entailed in the provision of human services. The focus of this section is on how contradictions provoke learning actions that, in turn, exacerbate contradictions as activity systems develop and evolve (Foot & Groleau, 2011).

Kuutti (1996) explains that “Activity theory uses the term contradiction to indicate a misfit within elements [of an activity system], between them, between different activities, or between different developmental phases of a single activity” (p. 34). Each of the elements of this explanation corresponds with a different level of contradiction. In order to better understand how, when, and why an activity system develops, close attention to all four levels of contradictions is essential. Engeström’s use of the terms layers or levels to characterize contradictions emphasizes the inter-relatedness and functional correspondence between the four. However, Foot and Groleau (2011) argue that there are also substantive differences between them, thus they should also be explained in distinction from each other.²

In CHAT, the primary contradiction in activity systems reflects the fundamental tensions in capitalist societies that stem from the opposition between use value and exchange value. In each of the six nodes of an activity system, tensions arise from the dual construction of everything and everyone as both having inherent value and being an exchangeable commodity within market-based socioeconomic relations. For example, doctors working within health clinics in the United States experience the primary contradiction as they provide treatment to their patients both as a means to heal those who are ill as well as a source of income for themselves. To elaborate, most doctors do their utmost to relieve pain and heal sick people. However, in the U.S. they practice medicine within a socioeconomic system which exchanges this service for a financial compensation that enables the clinic to sustain its (increasingly costly) operations. Thus the object of a typical U.S. health clinic’s activity system is inextricably dual: fostering health and increasing revenue.

This fundamental tension, conceptualized as a primary contradiction, keeps the activity system in constant tension, it surfaces in everyday contexts, in various forms and in other levels of

² Doctor-patient relations have been used to illustrate CHAT concepts by many scholars, beginning with Leont'ev (1978). The doctor/clinic vignette in this section incorporates a classic example articulated in Engeström (2000) to illustrate the primary contradiction. Foot and Groleau (2011) developed the vignette further to illustrate the whole set of contradictions.

contradiction. The primary contradiction is not only continually present, it also serves as a foundation for other levels of contradiction. Even if attempts to resolve the other levels of contradictions are temporarily successful, the primary contradiction remains.

The secondary, tertiary and quaternary levels of contradiction form a sequence that explains a process of cyclical development. Secondary contradictions take place when two nodes of the activity system conflict with one another (e.g. tools and rules). Returning to the doctor-patient vignette, one plausible example of a secondary contradiction can be seen between the cultural norms (i.e. rules) that constrain a doctor from asking questions about a patient's sexual behaviors, and a diagnostic protocol (i.e. a tool) that requires questions about sexual behaviors. In this example there is no clear relationship between the secondary contradiction and the underlying primary contradiction between use and exchange value. However, other types of secondary contradictions prompt the latent primary contradiction in the activity system to surface and take the form of a specific problem as tension builds between different parts of an activity. For example, the primary contradiction caused by the dual motive of doctors to earn a living as well as cure patients might be exacerbated in the current healthcare setting through the imposition of a rule that allows doctors to spend only 15 minutes per patient— to ensure that doctors see the number of patients necessary to pay for the expenses related to running a medical clinic. In this situation, the primary contradiction is translated into a secondary contradiction in which the rule and the treatment dimensions of the object are in opposition to one another. While in this example the source of change that precipitates a secondary contradiction within the activity system is the doctor's income needs/expectations, the trigger for change could also be external to the central activity system (e.g. insurance company reimbursement policies designed to control costs). Regardless of the source, the pressure of this aggravated contradiction might lead these doctors to rethink their practice to alleviate the tension it creates (e.g. by establishing boutique medical practices with fewer patients who pay an annual fee to belong to the practice).

It is important to note that secondary contradictions exist *a priori* to and independently of tertiary contradictions. Tertiary contradictions within an activity system arise when the object of a more “culturally advanced” activity (Engeström, 1987) is introduced into that system.³ The motive for introducing a new object to an activity system is typically to find relief from one or more secondary contradictions and the tensions stemming from them. The introduction of a new object can also trigger the developmental phase through which the activity system will be redefined and reconfigured.

When the object from another activity system is introduced by one of the actors within the activity system, this sets in motion a very different dynamic in which power relations become central (Groleau et al., 2012; Groleau & Mayère, 2009). More specifically, power relations (as manifested in the division of labor) within the activity system determine whether the alternative object catalyzing a tertiary contradiction results in a change in the central activity system.

Returning to the healthcare example, one way to solve the secondary contradiction would be if the clinic doctors all agreed that they should hire a nurse to help them assess their patients’ situation before they meet the patients. As an example of a tertiary level contradiction— imagine if the nurse hired to help keep the doctors’ time with their patients to 15 minutes had had prior experience in another clinic that was more oriented toward providing equitable access to healthcare than to providing efficient healthcare as defined by insurance companies. If she talked positively about equitable healthcare access to staff at the clinic, the possibility of equitable healthcare access as an alternative to the current object of providing efficient healthcare could precipitate a tertiary contradiction between the existing object and the new possibility, perhaps resulting in rifts among clinic staff who wanted to retain the status quo and those interested in a change.

³ See Engeström (1999a, pp. 34-35) for further explanation of his concept of how activity systems assess cultural advancement.

Triggered by a ripple effect from efforts to remediate a tertiary contradiction, quaternary contradictions arise between the central activity and its neighboring activity systems when a new form of practice is employed based on a reformed and/or expanded object. In other words, transformation of the object of the central activity system creates disturbances in that system's relations with the other activity systems with which it interfaces. Such disturbances may be especially significant between the central activity and other activity systems that relate to the object of the central system in some way, such as a system whose own object is intertwined with the object of the central activity system. To illustrate, imagine again the activity system of a U.S. health clinic (which is the central activity in this analysis), this time in its relations with a health insurance company (an activity system whose object of profit-making via healthcare is intertwined with the health clinic's evolving object). Assume the clinic has received better than average terms from the health insurance company due to its compliance with the 15-minute rule and correspondingly the large number of patients being treated. But over several months, the nurse that was hired to help resolve the secondary contradiction between the doctors' 15-minute rule and the patients' expectations for more in depth consultations succeeds in persuading the health clinic doctors to decide to remediate the tertiary contradiction by reorganizing the clinic as a non-profit-- in order to use its resources to provide basic healthcare for a greater number of uninsured patients. This transformation of the clinic's object, from prioritizing efficiency to prioritizing equitable access, leads to substantive changes in the clinic's relations with the insurance company: as the proportion of uninsured patients grows at the clinic, it loses its favored status with the insurance company. This disruption of relations between the clinic and the insurance company exemplifies a quaternary contradiction.

In sum, quaternary contradictions can emerge between a central activity system and any/all of its neighbors. One way to identify quaternary contradictions is to analyze how a change in the object or outcomes of the central activity system creates disturbances in that system's relations with the activity

systems that receive the output of the central activity system or are otherwise affected by its outcomes. To illustrate, consider what could happen if, due to budget cuts, the foster care system in the U.S. lowered the age at which children lose foster care services from 18 to 16 years old. Relations between the foster care system and other types of social service providers (i.e. activity systems) would likely be strained by such a change, because the outcomes of that change in the foster care system would impact other activity systems that serve 16-18 year olds, such as schools, homeless shelters, recovery centers, and juvenile detention facilities.

There is a distinct set of relationships between the learning actions that constitute an expansive cycle (introduced above), and the contradictions through which activity systems evolve (Engeström, 1987). As noted in Figure 2, each of the four contradiction levels corresponds to particular learning actions that reflect different characteristics in each phase of the development cycle. To review, the sequence of learning actions in an expansive cycle includes: 1) *questioning*: criticizing or rejecting some aspects of the accepted practice and existing wisdom; 2) *analyzing* the situation in order to find out causes or explanatory mechanisms; 3) *modeling* the newly found explanatory relationship in some publicly observable and transmittable medium; 4) *examining the model* in order to grasp its dynamics, potentials, and limitations; 5) *implementing the model* through practical applications, enrichments and conceptual extensions; 6) *reflecting* on and evaluating the process; and 7) *consolidating* its outcomes into a new, stable form of practice.

Levels of Contradiction	Characteristics of Contradiction Levels	Corresponding Learning Action(s)
Primary	Occurs between the use value and exchange value of any corner of an activity system.	Questioning
Secondary	Develops between two corners of an activity system.	Analyzing Modeling

Tertiary	Arises when the object of a more developed activity is introduced into the central activity system.	Examining model Implementing model Evaluating process
Quaternary	Occurs between central activity and neighboring activities, triggered by tertiary contradiction.	Consolidating new practice Questioning

Figure 2: Levels of contradictions and corresponding learning actions, adapted from Foot & Groleau (2011).

The characterization of these actions as learning phases does not imply that they are purely cognitive. To the contrary, as collective actions, they are necessarily constituted in and through communication and may take material forms, such as through the creation of new tools. Multiple kinds of actions may take place at any time; this set of learning actions simply facilitates the identification and analysis of the dominant type of action during particular phases of activity. More specifically, since activity systems are multi-voiced and multi-layered, there may be many other types of actions being undertaken by other actors within the activity system at the same time. In fact, as each of these learning actions is initiated by some set of actors, actions of resistance on the part of some other actors may be occurring simultaneously. Power relations within the activity system often influence actions that promote change or resistance.

Each cycle of development in an activity system is contingent upon, and somewhat overlapping with the previous cycle. Primary contradictions precipitate the action steps of questioning, and, when aggravated, lead to the emergence of each of the other types of contradictions. Secondary contradictions provoke analyzing actions among participants in the activity system. Emerging with the implementation of a new model of the activity, tertiary contradictions help to stimulate the examination

of the new model and evaluation of the process. Quaternary contradictions often emerge in the process of consolidating the practice of an activity and precipitate a new round of questioning actions (Foot & Groleau, 2011).

Historicity and the analysis of activity systems

Although the essential task of CHAT analysis is to grasp the systemic whole of an activity, not just its separate components, the triangular activity system model with its six nodes makes possible the analysis of multiple relationships within an activity system at a particular point in time and over time. In activity theory terms, one or more members of a group engaged in collective activity at any given moment may be viewed as a subject engaging the object of the activity through a particular action. Those who are part of the group oriented toward the same object, but are not engaging in that specific action, are viewed as members of the community within the activity system. Thus throughout the course of an activity, the actual persons constituting the subject(s) and members of the community may interchange their “roles” frequently. The documenting of these relations in order to identify their dynamics often requires multiple kinds of data that are acquired over an extended period of time. The fact that qualitative methods of inquiry are favored in CHAT-framed research and practice reflects the tradition’s commitment to grounding analyses in culturally and historically situated action.

Analysts need to keep historical trajectories in mind as they analyze activity systems, in order to take into account the particular cultural-historical contexts within which activity systems form and the evolution of activity systems over time. For instance, Fire and Casstevens (2013) note that the CHAT framework:

incorporates ‘historicity’ that, in a social work context, includes the history of the social work profession, the history of the MSW graduate program, and the histories of the learners and faculty involved in the course. According to CHAT, student learning results from the students’ interactions with the knowledge and professional tools of social work, their personal histories related to their chosen profession, the course community of students and future colleagues, and concurrent social work courses and field experiences (Engeström, 2001; Fire, 2009; National Association of Social Workers, 2008)” p. 48).

When analyzing the development of an activity system (e.g. a graduate course, an organization, or any other type of activity), an historical perspective is invaluable. However, developmental analyses of activity systems are rare, even in studies which employ activity theory, since such analyses “are difficult... because institutions and people in power often dislike concrete analyses of their activities and their histories” (von Cranach, 1988, p. 155, as cited in Engeström 1999a, p. 23). In essence, an analysis of the historical formation of an activity system helps to identify the preconditions and precipitating causes of the key actions that have shaped the system to date and may catalyze future development.

The objects of some kinds of activities, such as manual labor, are relatively easy for analysts to discern and articulate, because they are observable. In contrast, the objects of other types of activities can be harder to identify:

It is much more difficult to envision and define the objects of such activities as trade, administration, play, recreation, or scientific research. A closer look at any such activity reveals the slippery and multifaceted character of its objects. Yet it is clear that those activities are oriented toward something and driven by something. This something-- the object-- is constantly in transition and under construction, and it manifests itself in different forms for different participants of the activity (Engeström & Escalante, 1996, p. 360).

An object may have, at any time, multiple manifestations for the various participants engaged in the activity, both individually and collectively. This phenomenon is demonstrated empirically by Holland and Reeves (1996) who employ the term “perspective” as a conceptual tool for identifying how teams, as collective subjects, construct differing conceptions of their object in relation to a given set of expectations.

One key consideration for analysts employing CHAT is that the constructions of the object by the actors/subjects need to be viewed as dialogical, both with one another and with the historically accumulated meanings of the activity. A second consideration is that the identification of objects often requires a complex process of analysis over time, since even participants in an activity are not always conscious of the motives that underlie their activity or the contradictions that provoke their actions and

attempts at resolution. A third complication and thus consideration in the identification of objects lies in the possible presence of multiple ends/objects. However, the presence of multiple objects indicates either that an activity is just beginning to coalesce, or that one activity is about to decompose into multiple activities, or that two or more objects are “temporarily merged.”(Kaptelinin, (1996, p. 58),

The identification of the ends served by a particular action can be challenging in any context (Schatzki, 1995, p. 150). This is especially true in the multi-voiced structure of an activity system, therefore analysts employing CHAT need to acquire multiple perspectives in order to understand the activity under consideration:

Activity system as a unit of analysis calls for complementarity of the system view and the subject's view. The analyst constructs the activity system as if looking at it from above. At the same time, the analyst must select a subject, a member (or better yet, multiple different members) of the local activity, through whose eyes and interpretations the activity is constructed. This dialectic between the systemic and subjective-partisan views brings the researcher into a dialogical relationship with the local activity under investigation. The study of an activity system becomes a collective, multi-voiced construction of its past, present, and future zones of proximal development (Engeström & Miettinen, 1999, p. 10).

A particularly cogent example of an analyst’s construction of an activity through multiple viewpoints is found in Christiansen’s (1996) study on a department of detectives within the Danish police force:

Taken as paperwork, the object of police investigation could be seen as the report material piling up until the final summary is presented in court. From society's point of view, however, represented, say, by Parliament and government, the outcome of police investigation may be justice, preservation of private property, or crime prevention. For the person on the street, it may be apprehending criminals, thereby creating a feeling of security. Since neither the minister of justice nor the person on the street participates in detective work, such conceptualization has only the quality of contributing to building the activity as a cultural frame, offering itself to the police officers entering the profession.

The police detectives working in the field take-- depending on personal history and capacity-- something from this cultural frame and something from the local culture within the team they are working with [sic]. They merge this with their personal experience, and from all this [analysis] their activity/objectified motive emerges. They

may not be very explicit about it, but it is reflected in their professional attitude, their priorities, and their choice of tools. (p. 180-181)

Christiansen considers conceptions of the object of detective work from the perspectives of a person on the street and a minister of justice, and explains how these conceptions contribute to, but do not dictate the construction of the activity by the detectives themselves. Rather, the detectives, as subjects in the activity, incorporate elements of this “frame,” along with the perspective of their local working team and aspects of their individual experiences, in their conceptualization of what it is they do and why.

To summarize, an object that is embedded-in-activity can be understood as a complex, multi-faceted, organizing principle of an activity that evolves over time. An object is conceptualized, engaged and enacted by participants in the activity in diverse ways, resulting in differing object-concepts within the same activity system. Thus the identification of an activity’s object requires careful observation from multiple viewpoints within the activity system.

Conclusion

To conclude, CHAT is a practice-based and practice-oriented theoretical framework that focuses on tool-mediated actions by collective actors as well as socioeconomic relations within and between institutional contexts over time. These foci contrast with the foci of traditional Western social science that more typically features the point-in-time actions and/or attributes of individuals (or sets of aggregated individuals) without reference to culture, history, economics, or material things. To say that a theoretical framework is practice-based and practice-oriented is to emphasize the essential connection between its interpretive lens and the collective human practices in which it is situated and to which it is applied. In many professional and academic realms, the concept of communities of practice introduced by Lave and Wenger (1991) has been taken up as a way of understanding how people jointly engage in and construct their collective work. Moreover, since it is now well-evidenced that strategic planning within organizations is enabled and constrained by both organizational and larger scale societal practices, the importance of analyzing multiple levels of practice is being noted by experts in strategic

planning (Vaara & Whittington, 2012). Viewing strategizing itself as a practice enables “important insights into the tools and methods of strategy-making (practices), how strategy work takes place (praxis), and the role and identity of the actors involved (practitioners)” (Vaara & Whittington, 2012, p. 285).

Within both professional and academic research, there is a growing interest in practice-based learning, research, and theorizing— and correspondingly in employing middle-range practice-based theory as frameworks for not only teaching but (re)shaping professional and academic practices. In the realm of social work, Nordic scholars are leading the way by leveraging the affordances of CHAT to help illuminate the complexities of social service practices, as well as by interrogating CHAT in relation to other approaches to practice research (c.f. Julkunen, 2013; Marthinsen & Julkunen, 2012; Yliruka & Karvinen-Niinikoski, 2013).

Cultural-historical activity theory (CHAT) reflects an approach to practice-based theorizing that aims to employ practice-based insights in the shaping of future practices and to develop social theory (i.e. understanding and explanation of social phenomena) from actual human practices rather than from abstract ideas or normative ideals or standards. One benefit of employing CHAT to analyze professional practices is that the CHAT framework provides ways of using practice-based theory to reflect on one’s previous, current, and anticipated practices, and the multilevel sociocultural, political-economic, and institutional contexts of one’s field of practice. A second benefit is its usefulness in developing new ideas about how to improve future practices. For example, Norwegian psychologist Rolf Sundet, who is engaged in both clinical psychology and research, focuses on the nature of collaboration between families and their therapists. Although Sundet’s (2010) article focuses on just a few specific CHAT concepts rather than employing the overall CHAT framework, it is useful because it features particular interactional/therapeutic practices for fostering collaboration between families and therapists with an emphasis on voice, agency, learning/healing, and collaboration. In sum, using its unique units and levels

of analysis, CHAT offers a constructive way to assess interventions and change in institutions and societies when the activity system perspective is used to identify its participants who are then made aware of their roles and actions within it.

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