CULTURAL-HISTORICAL ACTIVITY THEORY

"When there are no surprises I'm not learning much. It is when I react to disagreement and disconfirmation with curiosity rather than defensiveness that I learn most. When I facilitate others I try to encourage them to engage with disagreement in the same constructive way. That builds deeper understanding and better, more practical, more shared theory."

"In the Pursuit of Change and Understanding" - Bob Dick in Conversation With Bob Williams
Forum: Qualitative Social Research [On-line Journal]
http://www.qualitative-research.net/fqs-texte/3-04/04-3-34-e.htm

# CULTURAL HISTORICAL ACTIVITY THEORY (CHAT)[#]

History

CHAT was originally developed by the historical philosopher Alexei Leont'ev', at Moscow State Lomonosov University during the 1960's, based largely on Lev Vygotsky's particular theories of cognition and learning. Activity Theory was the basis of much research in Russia, especially in the areas of play and learning.

In more recent years the implications of activity theory in organizational development have been promoted by the work Yrjö Engeström's team at the Centre for Activity Theory and Developmental Work Research at the University of Helsinki, and Mike Cole at the Laboratory of Comparative Human Cognition at the University of California San Diego campus.

What is CHAT ?

CHAT is based on established systems principles, but takes a radically different approach to them.

The easiest way to explain the difference is to take the basic concept of systems approaches –using systems based thinking of the real world in order to gain insights about the real world :
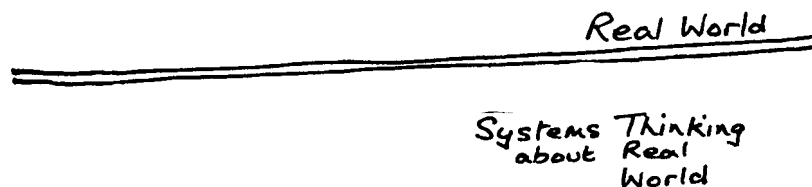
All of the approaches so far in this workshop were developed by biologists, physicists and engineers. So the systems based thinking described so far draws on ways in which these fields of inquiry engage with the real world. Since their engagement is essentially physical, their "models" have reflected ways in which the physical world behaves. The insights gained are based on simplified or idealized models of how the physical world behaves – or might behave if it were the system identified.

In contrast, CHAT was developed by cognitive psychologists. Their focus is on how we develop understandings of the real world, draw meanings from that understanding, create learnings from those meanings and are motivated to respond to those learnings. These cognitive "mental models" correspond to how we think about the real world and engage with it, not necessarily how the world actually works in a physical or biological

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sense. Their claim for legitimacy in the systems cannon is that if the point of systems thought is to gain new insights and meanings, then we should develop systems models that reflect how we actually develop insights and meanings. In other words, if the way we gain insights of the real world from systems models is essentially a cognitive rather than physical process, then the systems models we develop should be based on our understanding of cognitive processes.

Consequently a CHAT based inquiry combines three components:

- A systems component – that helps us to construct meanings from situations
- A learning component – a method of learning from those meanings
- A developmental component – that allows us to expand those meanings towards action.

These three components are constructed from seven basic propositions. Out of each proposition flows a set of evaluative questions that we can pose of the real world.

Proposition One – The Fundamental Proposition
Activity Theory is based on the proposition that learning is a social and cultural process not simply a biological process. The proposition means that in different situations (e.g. food production, design, factory, accounts) thinking and learning will be practiced and achieved in different ways and those ways are not likely to be readily transferred from one person, team or organization to another; learning is not that simple.

Proposition Two
'Activity' is what happens when human beings operate on their environment in order to satisfy a needs state.

$$\textit{People} \xrightarrow{\textit{acting on}} \textit{Environment} \xrightarrow{\textit{to satisfy}} \textit{Needs}$$

The needs we are seeking to satisfy is the *motive* for the activity and is what makes sense of what is happening rather than the *actions* we are undertaking. This is because the same actions may have different motives. For example a farm supervisor seen to be pressuring the team of orange pickers to work faster might be motivated by a desire to have the team finish its project on schedule, but it might also be because the supervisor wants to look good so that she can be promoted to a desk job.

Similarly there are many different actions we might take to satisfy the same need. For example one farmer might try to become more innovative by reading books, while another might set up a discussion group with other farmers to achieve the same end.

Diagnostic Questions For Proposition Two.

- What can we *observe* happening?
- What goals are those actions serving?
- Do the actions seem to fit the goals? Or might there be some other, unstated, goals determining the action?
- How well suited are the actions we can observe to the desired goals? If there is a misfit, why is it happening?

Proposition Three
Information must flow through the activity system in order for the desired result to be achieved.
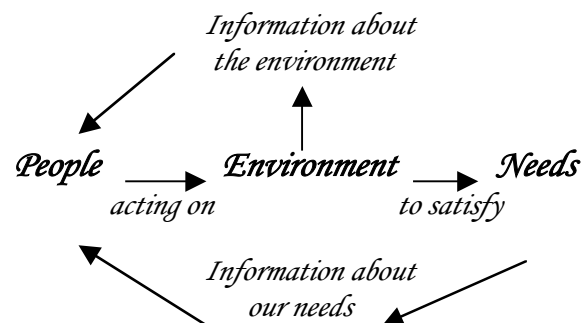
There are two types of information.

1. Information about our needs (What are they? Have they been satisfied?) comes from within ourselves and involves an internal dialogue, either personally or interpersonally.
2. Information about the environment (What resources are there that can help me meet my needs? What do I have to do with those resources in order to succeed?) comes from outside through our senses. However, both types of information require internal mental processing to make sense of them.

But there are also two main types of information we get from the environment, and they subdivide. The main categories of information we receive looks like this:
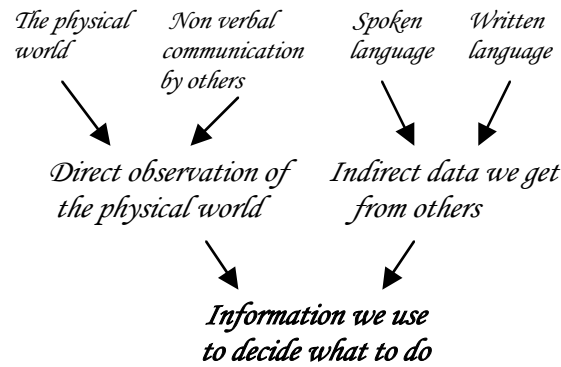
Language – whether written or spoken – is 'indirect' because it consists of symbols that describe the 'real world' as seen by others rather than the real world itself that we experience directly through our senses - seeing, hearing or feeling. Language consists of symbols, but it also consists of other people's interpretation of reality. This is where many communications problems lie. One person may have perceived what is going on incorrectly, or have interpreted what she saw in very personal ways, but we may also misunderstand the words that person uses to describe what they experienced.

In any focused group activity all four sources of information are vitally important to performance. Yet, often for practical reasons, many individuals, teams, program participants get their information unequally, and may have different internal resources and perceptions for making sense of the information.

When we 'decide what do' we place the information we have gathered alongside our needs and figure out how to use one to satisfy the other. In other words we *think.*

Diagnostic Questions For Proposition Three.

- What information is available to the stakeholders, and where is it sourced?
- What information that the stakeholders need to achieve their goals is not available? Why not?
- Where are stakeholders getting their information from? If it is filtered through other people, is it being distorted in this process? If so, why and how? Do they have any verification strategies for indirect information?
- What values and assumptions are underpinning the ways in which the stakeholders are processing and analyzing information?
- Is information from some sources given more weight than others simply because of the power and status of the source?
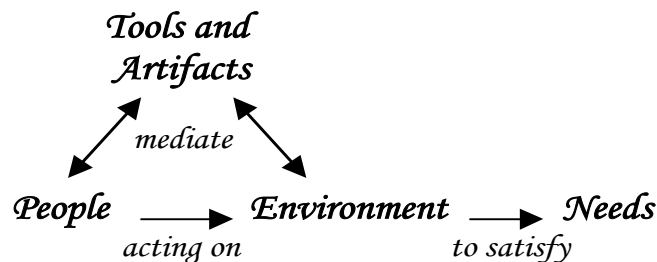

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Proposition Four
We use tools to manipulate our environment and to get information from the environment. The tools we use *mediate (*or shape) the way we do the work.

Humans are a tool users. A tool is anything we use to help us manipulate the environment to meet our needs. We also use them to obtain needed information from the environment. This definition means that language is a tool, as are concepts and mental models. When someone opens a book or a computer file to get information, the book and the computer are being used as tools for work, but the written language is part of the tool. Exactly the same thing is happening when a someone asks a question of another. In this case the spoken language is the tool, and in a way so is the person that the another person asks.

But while physical tools extend our physical capabilities, and conceptual tools extend our mental capabilities, they also have embedded in their design the ideas and assumptions of the people who developed them, and they also always have limitations. For example the desk I am sitting at as I write this is not mine. The position of the height adjustment lever assumes that the desk user is right handed. But I am left-handed. Similarly every project or program has embedded in its design assumptions that the developers have about the users' world. For example, business planning manuals make assumptions about how business processes are carried out. However, we often find that these business planning methods that are not aligned with ways of successfully managing my our of business, which has been developed over the years both experientially and culturally.

This means that while we use tools to manipulate the environment, the nature of the tools we use also shapes our own thinking about what to do and how to do it

$$\textit{Tools and}$$
$$\textit{Artifacts}$$

mediate

$$\textit{People} \longrightarrow \textit{Environment} \longrightarrow \textit{Needs}$$
acting on   *to satisfy*

Diagnostic Questions For Proposition Four

- Are the tools in use well suited to the stated goal of the work?
- In what ways are the tools in use constraining or influencing the way the work is done?
- Do stakeholders have sufficient skills to use the available tools effectively? (This includes the questions of literacy and language proficiency – including technical language proficiency).
- Are some stakeholders privileged over others in the use of the tools? Does this matter, or is it merely a sensible division of labor ?


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Proposition Five
The human systems – social, cultural and organizational – within which we work, also mediate the ways in which we conduct our activities.

It is not only the tools we use that shape how we approach our work. Humans are social beings, and mostly we have to come together in some form of organization to undertake the activities that will meet our needs.
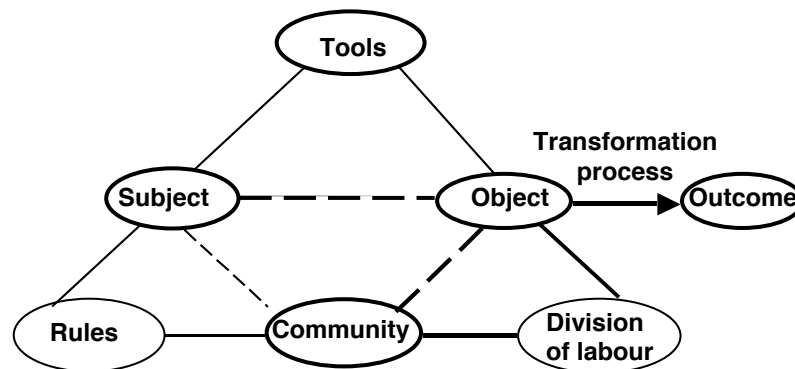
Furthermore, the nature of our social relationships, and the ways in which an organization is structured, are the product of the cultural and historical traditions and experiences that have been transmitted to individuals and groups by those who went before. Finally those cultural and historical perspectives also play a large part in determining what we think of as being our higher level needs those beyond survival and reproduction) and thus in defining not just *how* we work, but also *why* we work.

This principle can be shown diagrammatically like this:
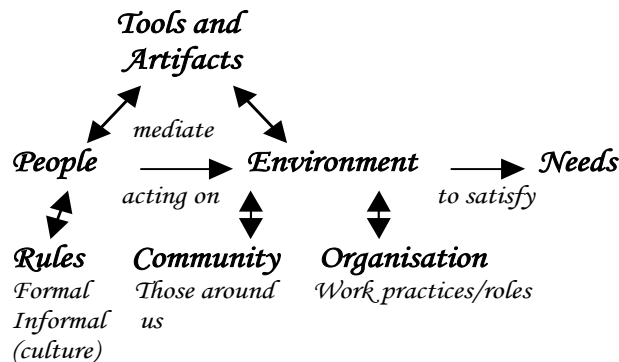
This is the basic structure of an Activity System. It consists of elements – listed in the words in the diagram, actions and tasks. It also requires information flows. An Activity System is a basis for structural analysis of a team or organization or program and its work .

For a variety of reasons the model is usually shown in a slightly different format :

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Using the above diagram, an activity system is defined by the common outcomes towards which a team, a group, an organization, a program, or indeed a society is working. There may be multiple goals present in any system because of the parallel and personal goals that individuals may have, but without some shared purpose there is no activity system.

Therefore the first step of any activity system based inquiry is to identify the shared object of the work being done.

Precisely what constitutes an "object" is much debated within the Activity Systems world, but crudely it is a set of purposes and motives that help define and focus the activities within the system, and help direct them towards the goal.

It is always the case that Activity Systems have multiple objects, some of which are held by the whole system and some of which are held by one or many of the actors in the system. However there is usually a super ordinate object or set of objects that are the explicit purpose of the system.

Even at the super ordinate level the explicit objects can often be in tension with one another. For example an airline may have as its object to transport passengers safely and reliably, but it is often the case that operational trade offs may need to be made between reliability (e.g. arriving on time) and safety (e.g. diverting or climbing away from storms in order to reach the destination at all). But at the tacit level tensions between objects almost always produce multiple levels of tension that are not always explicit. The most widespread class of these concern the personal objects of individuals and groups who work with or in the system.

Analyzing these multiple objects, and surfacing the tacit or unspoken ones, is an essential first step in a CHAT approach. Such analyses help us to understand why people do things the way they do and why those observable actions often seem to be in conflict with the stated objects of the system

Once the shared object(s) has been identified, the next step is to analyze the structure of the system using a number of guiding questions.

Diagnostic Questions For Proposition Five

- What is the outcome of the activity? What goods or services are being produced?
- What raw materials and prerequisite conditions are required for the activity to start from. What are the processes by which the raw materials and the prerequisite conditions are transformed into the outcomes?
- What physical and mental tools are needed for the work? What knowledge and skills are needed? Are they present?
- What are the different kinds of people needed to do the work?
- What are the formal rules (manuals, standard operating procedures, etc) that promote or constrain the way in which the activity proceeds?
- What are the informal (cultural) rules that promote or constrain the way in which the work proceeds?

- What are the organizational structures that shape the way the work is done?
- What other systems must supply inputs in order for the work to proceed? What other systems use the product of our systems' work? How are all these systems connected to our system?
- What information must flow around the system for it to operate effectively? Where is the information needed kept, and where must it go? Is the information flowing as required?

Proposition Six – The Learning Proposition
When the tools, rules, community and organization operate as expected those within an activity system proceed by conducting standardized tasks with predictable results. But the system will often be interrupted by unanticipated events (disturbances), or surface underlying tensions between elements of the system (contradictions). When a team, program or organization encounters these it will founder unless it is able to *learn* how to deal with these issues. Thus disturbances and contradictions in system components allow us to learn about the "real" world.

Disturbances and contradictions are fundamental concepts in Activity Theory.

Disturbances almost always are the visible manifestations of systemic contradictions. Even natural disasters such as droughts are risks around which informed choices can be made about the location of farming activities. If a drought that is within normal climatic ranges occurs and it is unplanned for, then that represents a systemic failure.

Disturbances provide the opportunity for learning and innovation. If disturbances are seen as irritations – 'problems' to be overcome – then it is unlikely that stakeholders will progress beyond 'fire fighting'. But Activity Theory points to disturbances and contradictions as potential springboards for learning, innovation and development.

There are four possible sources of contradictions :

1. *Within* components of an activity system (eg between rules)
2. *Between* components of an activity system (eg between rules and object)
3. *Between activity systems* (eg a tool used in an organization's object to reduce injuries, and another tool used to support the same organization's object to sell product)
4. *Historical disturbance* – between what is now and how it used to be (ie between a newly introduced tool and an old rule)

The most difficult contradictions to use as springboards for growth are those that are 'invisible' or 'undiscussible'. An invisible contradiction is one that is so much part of the team's everyday life that they members don't even recognize it as a difficulty. Invisible contradictions include anything that is 'taken for granted', and especially covers cultural assumptions about how things are done and how relationships are managed.

Undiscussible contradictions are those that nobody ever talks about because they are embarrassing, uncomfortable or culturally difficult to confront. Gender and racial issues in teams, or offensive personal habits of politically powerful program stakeholders, are all examples of undiscussible.. Nobody is willing to talk about them openly, but they may be seriously impeding progress towards the goal.

Surfacing invisible or undiscussible contradictions, and stimulating a developmental dialogue around them is the most potentially valuable service that an Activity Theory based intervention can provide.

Diagnostic Questions For Proposition Six

- What contradictions are there within the system ? What have been the consequences ? How have people responded ? How could they respond ?
- What generalizations do people make about the performance of the system ? What exceptions to those generalizations are there ? What learnings are there from these "small" contradictions ?
- What disturbances - unanticipated events have happened ? What were the consequences ? What are the potential learnings ?
- What are the historical underpinnings of these contradictions and disturbances ? How is the "past" interacting with the "present"; the "old" with the "new" ?
- What events and circumstances remain undiscussible ? Between whom are they (un)discussible ? What rules, roles, tools, objects and histories mediate these undiscussibles ?
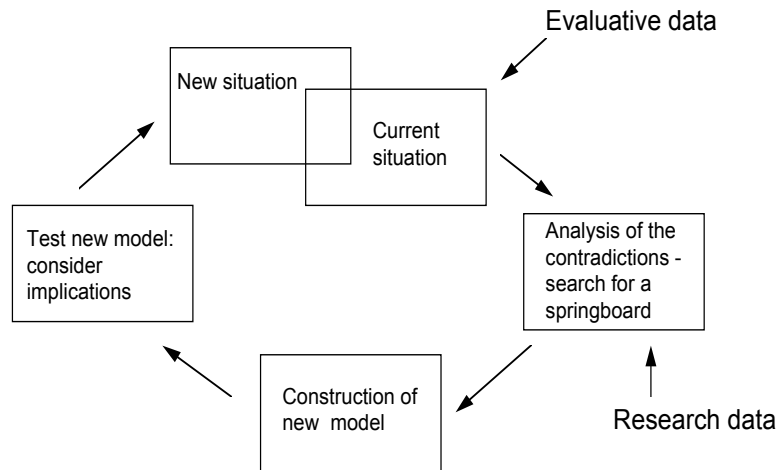

Proposition Seven – The Developmental Proposition
When a contradiction's potential as a springboard is triggered by the actions of system participants they enter a 'Cycle of Expansive Learning".

After a structural analysis of an activity system, a developmental analysis involves the search for contradictions, and especially those that are invisible or undiscussible, and the analysis of their potential as learning and developmental springboards.

The Cycle of Expansive Learning is a central concept in Activity Theory and concerns how new knowledge – i.e. innovation – can occur and be nurtured.
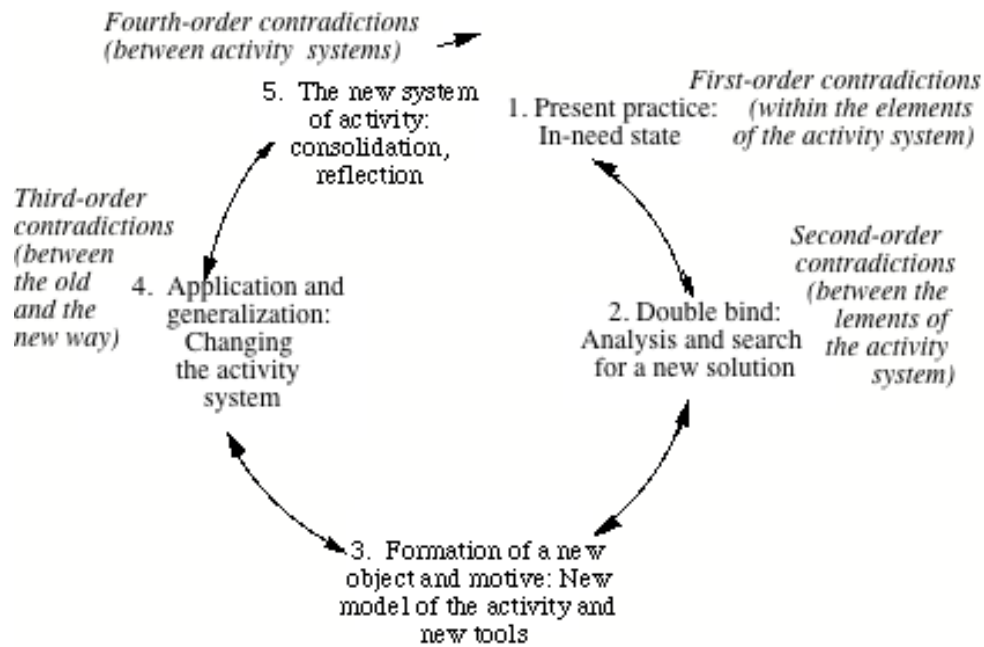
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Data and the Cycle of Expansive Learning

Evaluative data

New situation

Current situation

Analysis of the contradictions - search for a springboard

Test new model: consider implications

Construction of new model

Research data

Why "Expansive Learning" ?

"Learning" because the introduction of the "new" situation will set up further contradictions between what currently "is" and what emerges as a result of the intervention. This leads to further opportunities for learning, and so on. Thus it is a cycle of learning.   However, expressed like this it is little different from the traditional action learning cycle. However the traditional action research cycle is not "expansive".

"Expansive ?"   The next diagram (essentially combining proposition six and seven) demonstrates that learning can be "expansive" because the consequences of action may lead to further contradictions within the system (eg "new tool" imposed on "old rules"), or even beyond the boundary of the existing system (ie between activity systems) and thus expands the possible boundary of learning beyond the initial focus of the inquiry.

Fourth-order contradictions
(between activity systems)

5. The new system
of activity:
consolidation,
reflection

First-order contradictions
1. Present practice: *(within the elements*
In-need state   *of the activity system)*

Third-order
contradictions
(between
the old
and the
new way)

4. Application and
generalization:
Changing
the activity
system

2. Double bind:
Analysis and search
for a new solution

Second-order
contradictions
(between the
elements of
the activity
system)

3. Formation of a new
object and motive: New
model of the activity and
new tools

Diagnostic Questions For Proposition Seven

- What is the history of how current activities came to be as they are now?
- What kinds of weaknesses exist in the relationships between the elements of the system?
- What is missing that is needed
- What is not working as well as it might? What relationships are not working as they should?
- What strengths are there in the system? Are they being used as well as they could be?
- What potential for growth and development is there in the system? What is desirable? What weaknesses and deficiencies need to be rectified before the potential can be tapped?
- How could possible changes impact on the existing activity system ? What are the learning opportunities and how can they be enhanced ?
- Are adjacent activity systems likely to be affected ? If so, in what way, and how can these learnings be exploited ?

History is critical to a CHAT analysis and intervention. We cannot understand what is happening in a work system now without understanding how it came to be.

AN ANALYTICAL TOOL BASED ON ACTIVITY THEORY

QUESTION ONE

Generalisations and exceptions

Looking at the data, what generalisations can you make about what you see ?
For each generalisation, identify from the data an exception.

Now explain how that exception and generalisation can be present in the data. What insights do you draw from that ?   What does it say about the tools you may use, the roles people take, the goals you aspire to, the activities you do, the history of the system and who does what.

QUESTION TWO

Contradictions

Looking at the data, what contradictions do you see in the data (as in "on the one hand .... on the other")

Now explain how these contradictions can be present in the data. What insights do you draw from that ?   What does it say about the tools you may use, the roles people take, the goals you aspire to, the activities you do, the history of the system and who does what.

QUESTION THREE

Surprises

Looking at the data, what did you expect to see that isn't present in the data ?
Looking at the data, what did you not expect to see that is present in the data ?

Now explain how that difference between what you expected and what happened came to be present in the data. What insights do you draw from that ? What does it say about the tools you may use, the roles people take, the goals you aspire to, the activities you do, the history of the system and who does what.

QUESTION FOUR

Puzzles

Finally looking at the data what remains completely puzzling, what doesn't make any sense ? What insights do you draw from that ? What does it say about the tools you may use, the roles people take, the goals you aspire to, the activities you do, the history of the system and who does what.

LESSONS LEARNED

Strengths of CHAT: when might I use it?

Weaknesses of CHAT: why might I not use it?

Possible uses of CHAT, or the perspectives it generates in evaluation ?

A CHAT BASED CASE STUDY

WHOLE FRUIT[*]

Whole Fruit began in 1985 as a not-for-profit business, although built on the shell of a much older for-profit workers cooperative. The principles of worker involvement in the company is still an important aspect of the way it goes about its job, largely through a desire to maintain a stable and happy workplace.

Its mission is to develop marketing and educational activities that strengthen ecological family farms; increase public access to the benefits of a local farm system by serving as a broker (ie intermediary between producers and retail markets) for small and medium scale family farmers in Okalahoma, and expand a program working with Latino citrus farmers in California. Formally this is expressed as the following goals : "to accelerate the movement toward a locally-based and locally-controlled food system in Okalahoma."

It has had a bumpy ride over the past twenty years. Originally, it was hoped to be self-sufficient, but cut-throat competition and other events have made the possibility for self-sufficiency unrealistic, even though "making money" is a major driver in the organization. Whole Fruit has now morphed into two services —trader and consultant (see below).

It is an ambitious company that has established a strong brand via its promotional and other activities. Much of its success has been developed through very close relationships with farmers and retailers. For instance, whatever the circumstances it tries to ensure that farmers get a fair price, whatever the difficulties the firm is experiencing.

On the other hand it demands and closely monitors the quality of the product from the growers and closely monitors the quality of the product that is delivered through to the retailers. On at least one occasion this close monitoring at the retail level has helped them maintain the relationship with a retailer that was complaining about poor quality (it was able to demonstrate that delays at the retailer warehouse were the problem). The quality control process is shared amongst the farmers, contractor, Whole Fruit and retail staff – it involves a lot of work.

Growth is important to Whole Fruit, and it has grown significantly over the years. Partly as a matter of principle and partly to gain economies of scale. Initially Whole Fruit established the contract for supplies and the farmers did the deliveries. However, one of the consequences of growth was that the retailers were demanding more frequent deliveries from farmers – and

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individual farmers were unable to do this themselves. The response was that Whole Fruit raised capital to purchase the means of delivery – it invested heavily in warehousing and trucks to solve this problem. This required new approaches to quality control.

This increased capacity allowed it to develop relationships with larger retailers and grow substantially. A particular retailer was very enthusiastic about the product and began to become a significant – almost dominant – customer. At some stage Whole Fruit reached the point where it became more visible (and a more significant threat) to larger, much larger, competitors. Eventually one of the larger suppliers persuaded this large customer to drop Whole Fruit. It was done just before the main delivery season when all its contracts were established and the growers were growing the crops. The cash flow consequences were disastrous, as were the implications for Whole Fruit's relationships with farmers and retailers.

To sustain these relationships (for instance it chose to keep the relationship going with the retailer who dropped it), it had to reduce costs and very fast. It fired its delivery staff, sold the trucks. It leased out its warehouse – pretty profitably. Slowly the firm began to recover, and the relationships with farmers and retailers were sustained. However, it meant redesigning – again – the quality control methods.

Out of this experience came a big reassessment of Whole Fruit. It was clear that despite its growth the unit costs were not reducing. It was unable to get the economies of scale that would allow it to withstand the kinds of shocks it had just experienced. These economies of scale would only begin to emerge when it was perhaps 20 to 50 times bigger. It also began to realize that it needed to be able to trade all year round, not just for 6 months of the year. This meant vastly expanding its product range, considerable capital expenditure and extending considerably the network of trading relationships.   This would – in the view of Whole Fruit – negatively impact on the service towards existing growers. Consequently, Whole Fruit decided to open a year round business that was low investment, high margin and low maintenance – it would start to provide business consultancy services. The story continues ….

You have been asked by a Foundation that has supported this project for ten years, to evaluate. Ostensibly the Foundation wants to judge Whole Fruit's performance against its staged goal. More candidly it is concerned that the continuous financial crises and changes of direction display a lack of prudent business knowledge and poor management systems. There is a concern that it is throwing money down a bottomless

pit without any real impact. These are perspectives through which the Foundation wants you to evaluate Whole Fruit.

So let's unpick this story within a CHAT context. This is not a full analysis – the observations are based only on the data presented. A full study would uncover a richer array of viewpoints, meanings, contradictions and perspectives.

Key Diagnostic Question - what is the object ?

The critical first stage is to determine what the "object" (or multiple objects) of the activity system is.

Analyzing these multiple objects, and surfacing the tacit or unspoken ones, is an essential first step in a CHAT approach. Such analyses help us to understand why people do things the way they do and why those observable actions often seem to be in conflict with the stated objects of the system

Whole Fruit is no exception. The object of the activity system is actually quite complex. It includes the following :

Maintaining a stable workforce within Whole Fruit
Sustaining a pleasant workplace within Whole Fruit
Maintaining a compatible relationship between supply of produce and demand for produce
Brokeraging relationships between farmers and retailers
Ensuring farmers get a fair price for their labor
Finding ways of keeping financially afloat
Ensuring that the retailer gets high quality produce

One part of the object disappeared during the period described here – that of Whole Fruit seeking means of financial independence from non-commercial activities (eg Kellogg Foundation).

One part of the object appeared during the period – dispensing Whole Fruit's knowledge and expertise to other agencies

The important thing to recognize here is that the activity system is not Whole Fruit as an organization, but a set of goal oriented activities in pursuit of which some of Whole Fruit's activities are important. In fact, Whole Fruit can be seen as participating in many activity systems. We are exploring one (or possibly two) of them

Diagnostic Questions For Proposition Two.

What can we observe happening?
What goals are those actions serving?
Do the actions seem to fit the goals? Or might there be some other, unstated, goals determining the action?

How well suited are the actions we can observe to the desired goals? If there is a misfit, why is it happening?

These questions use the observable actions to try and understand the whole set of objects – stated and unstated.

The goal is a locally-based and locally-controlled food system in the north-eastern United States that increases public access to high quality locally grown food.

Overall the actions described in this case study are oriented towards this goal, although clearly there are other adjacent activity systems directed towards goals that both help and hinder the activity system achieve the goal. For instance Whole Fruit is working with Californian citrus farmers , and later start a national consultancy service. Depending on what we are trying to investigate these could be seen as separate activity system, or part of the same activity system. If the latter we would have to expand the "object" slightly, which would almost certainly introduce a fresh later of contradictions (which are dealt with later).

Diagnostic Questions For Proposition Three.

What information is available to the stakeholders, and where is it sourced?
What information that the stakeholders need to achieve their goals is not available? Why not?
Where are stakeholders getting their information from? If it is filtered through other people, is it being distorted in this process? If so, why and how? Do they have any verification strategies for indirect information?
What values and assumptions are underpinning the ways in which the stakeholders are processing and analyzing information?
Is information from some sources given more weight than others simply because of the power and status of the source?

Observed actions may be puzzling in terms of the objects/s because people are acting on inadequate or distorted information. Deficiencies may be due to inadequate information and knowledge management, or because it is interpreted through the culturally biased lenses of people who handle it. In either case such distortion represents a tension in the system.

There's limited data about information use in this case study. The most important information described in the case study are information flows that relate to sustaining high quality produce throughout the activity system. As the activity system has responded to various disturbances, new quality control methods (ie new forms of information flow through the system) have had to be developed.

One area of information flow that negatively affected Whole Fruit and potentially the farmers, was the discussions between the major retailer and their major supplier. Had this information been flowing through the system earlier (ie before the farmers had planted their crops), or Whole Fruit had "read" the information that was flowing

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slightly differently, then the disturbance to the activity system may have been much less significant.

Diagnostic Questions For Proposition Four

Are the tools in use well suited to the stated goal of the work?
In what ways are the tools in use constraining or influencing the way the work is done?
Do stakeholders have sufficient skills to use the available tools effectively? (This includes the questions of literacy and language proficiency – including technical language proficiency).
Are some stakeholders privileged over others in the use of the tools? Does this matter, or is it merely a sensible division of labor ?

Tools mediate the way in which work is done. Inappropriate or inadequate tools for the object(s) are tensions in the system. In CHAT the word 'tools' refer to *anything* that we use to shape or modify our environment. Thus in any work system one of the most important shaping and modifying tools is language.

The variety of tools used in this activity system is large. The critical ones appear to be :

- Methods of deliver and storage (eg transport and warehousing)
- Methods of assessing the quality of the produce at various stages in the value chain
- Whole Fruit also can be considered a "tool" since it brokers the relationship between producers and retailers
- The Kellogg Foundation is also a "tool" since it provides a mechanism for bridging a gap between what farmers receive, what it costs to run Whole Fruit and what retailers are willing to pay.

Clearly there have been some issues over time about the ability of stakeholders to use the quality control tools – issues that have flowed largely from the systems response to disturbances (see later)

Diagnostic Questions For Proposition Five

What is the outcome of the activity? What goods or services are being produced?
What raw materials and prerequisite conditions are required for the activity to start from. What are the processes by which the raw materials and the prerequisite conditions are transformed into the outcomes?
What are the different kinds of people needed to do the work?
What are the formal rules (manuals, standard operating procedures, etc) that promote or constrain the way in which the activity proceeds?
What are the informal (cultural) rules that promote or constrain the way in which the work proceeds?
What are the organizational structures that shape the way the work is done?
What other systems must supply inputs in order for the work to proceed? What other systems use the product of our systems' work? How are all these systems connected to our system?

What information must flow around the system for it to operate effectively? Where is the information needed kept, and where must it go? Is the information flowing as required?

The critical rules in this activity system include :

- The system must grow
- Whole Fruit must become independent of Foundation money
- Farmers get a fair price for their produce
- Retailers pay a fair price for their supplies
- The relationships between farmers, retailers and Whole Fruit are to be good and constructive
- Whole Fruit is "worker friendly" and a good place to work.
- High quality of produce is essential

The "division of labor" has changed several times; largely as the result of disturbances elsewhere in the system (see below)

DoL One
- Farmers produce and deliver
- Retailers purchase and sell
- Whole Fruit broker and assess quality

DoL Two
- Farmers produce
- Retailers purchase
- Whole Fruit broker, assess quality, pick up produce, store produce and deliver

DoL Three
- Farmers produce
- Retailers purchase
- Whole Fruit broker and assess quality
- Other parties pick up produce, store and deliver

Diagnostic Questions For Proposition Six

What disturbances - unanticipated events have happened ? What were the consequences ? What contradictions are there within the system ? What have been the consequences ? How have people responded ? How could they respond ?
What generalizations do people make about the performance of the system ? What exceptions to those generalizations are there ? What learnings are there from these "small" contradictions ? What are the potential learnings ?
What are the historical underpinnings of these contradictions and disturbances ? How is the "past" interacting with the "present"; the "old" with the "new" ?
What events and circumstances remain undiscussible ? Between whom are they (un)discussible ? What rules, roles, tools, objects and histories mediate these undiscussibles ?

Disturbances almost always are the visible manifestations of systemic contradictions. Even natural disasters such as droughts are risks around which informed choices can be made about the location of farming activities. If a drought that is within normal climatic ranges occurs and it is unplanned for, then that represents a systemic failure.

Diagnostic Questions For Proposition Seven

What is the history of how current activities came to be as they are now?
What kinds of weaknesses exist in the relationships between the elements of the system?
What is missing that is needed
What is not working as well as it might? What relationships are not working as they should?
What strengths are there in the system? Are they being used as well as they could be?
What potential for growth and development is there in the system? What is desirable? What weaknesses and deficiencies need to be rectified before the potential can be tapped?
How could possible changes impact on the existing activity system ? What are the learning opportunities and how can they be enhanced ?
Are adjacent activity systems likely to be affected ? If so, in what way, and how can these learnings be exploited ?

History is critical to a CHAT analysis and intervention. We cannot understand what is happening in a work system now without understanding how it came to be.

It's probably easiest to cover these two sets of diagnostic question in narrative form.

The first major disturbance was between the "growth" rule and the "division of labor" structure. The system became too big to sustain the historical way in which produce was distributed. Whole Fruit sought to resolve this disturbance by reorganizing the structure of the system and become the storage and deliverer of produce.

The new efficiencies within the system led to the ability to supply large quantities to a single retailer. The next disturbance occurred as a consequential contradiction between the "growth" rule, the "information" tool and some aspects of the overall "object". Responding to some contradictions of its own (within an adjacent activity system), the major retailer dumped Whole Fruit at short notice – something that the systems information tools were unable to pick up, possibly because of an over-reliance on the "good relationship" rule.

Within the system, Whole Fruit was confronted by a massive and simultaneous set of contradictions. There were contradictions within system elements (especially between rules, and between objects), between system elements (eg between division of labor and objects, between rules and tools) as well as some historical contradictions (potential bad relationship with major retailer and past relationship with that retailer).

Whole Fruit responded essentially by changing the community of practice – it altered the relationship between the rules and roles by essentially changing the division of labor. It fired staff and changed the way in which food was stored and delivered. In that way it expanded the community of practice, but kept the good employer rules (by

altering who it employed). Thus the solution allowed the rules, tools and object to remain largely untouched.

However, this resolution created further disturbances. The new division of labor created tensions within rules and tools around the object of maintaining high quality. A new set of tools had to be developed, which also allowed the quality control object to be "expanded" slightly and is probably now best expressed as "keeping quality consistent in a changing environment".

The other consequence of this massive disturbance was to focus Whole Fruit on other contradictions within the activity system. In particular, the object of being free of Foundation money, and survive under its current business model (ie its primary focus on this single activity system). This led to a profound reassessment of the activity system and Whole Fruit's role within it and outside it. At this point we have a choice of analyzing events as either Whole Fruit establishing a new activity system, or expanding the object of the current activity system to include the proposed year round consultancy operation. However, the change is so profound that this will entail expanding the goal, tools, subjects, rules and roles within the current activity system. In which case it might be easier to understand that Whole Fruit can now be seen as needing to resolve potential synergies, and contradictions between two adjacent activity systems. However, the lessons it has learned from the original activity system are not being applied within the new one – a nice potential example of "expansive" learning.

This narrative has been largely diagnostic, but also may be used in any future planning and strategizing for Whole Fruit. In terms of evaluation, it has provided an alternative framework – focusing primarily on understanding what opportunities Whole Fruit had to learn from the changing situation and their response to it. In terms of the original stated goals of Whole Fruit it is possible to see failure, however in terms of Whole Fruit's ability to learn and adapt there are some significant possible lessons for FAS as a whole.

* This case study is based on a history of a real company. However, it has been altered
to fit the demands of this workshop, and also to protect the company. Many companies
will have experienced similar chains of events. Please don't try and guess which one
this example is.

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Systems Concepts   **Bob Williams**