

Re-searching the Potential of Cultural-Historical Psychology

Michael Cole

Laboratory of Comparative Human Cognition
University of California, San Diego

Talk Presented at Department of Social Psychology
London School of Economics

May 16, 2007

Rememberences of Psychologies Parsed

- The centenary of Psychology's origins produced multiple, simultaneous, reappraisals:
- Toulmin, Douglas-Price Williams, Farr, Jahoda...
- Common thread: Wundt's proposal for a dual psychology
 - one natural, one cultural/historical
 - one explanatory, one descriptive
 - *Naturwissenschaften, Geisteswissenschaften*
 - *Physiological psychology, Völkerpsychologie*
 - *Nomethic, idiographic*
 - *Paradigmatic, narrative*

A Common Textual Point of Reference in Wundt (Farr, 1996; Cole, 1996)

[Völkerpsychologie's] problem relates to those mental products which are created by a community of human life and are, therefore, inexplicable in terms merely of individual consciousness, since they presuppose the reciprocal action of many.

Individual consciousness is wholly incapable of giving us a history of the development of human thought, for it is conditioned by an earlier history concerning which it cannot of itself give us any knowledge.

The Multiple Responses to the Problem of “Two Psychologies”

- Ignore it. Declare all psychology reducible to physiological, evolutionary, phenomena
- Ignore it. Assume a common phylogenetic heritage and focus on the specifically human.
- Recognize it, but bracket it: I believe that everything important in psychology (**except perhaps such matters as the building up of a superego, that is everything save such matters as involve society and words**) can be investigated in essence through the continued experimental and theoretical analysis of determiners of rat behavior at a choice point in a maze (Tolman, 1938/1958, p. 172).
- Seek a unifying approach: This is what makes the Russians of special interest. They accepted the challenge and started seeking a solution in the 1920's

Origins of Russian-Cultural Historical Approach

- Explicit attempt to solve two psychologies problem.
- Drew heavily on evolutionary theory, Marxism, German Genetic Field Theory, French Socio-genetic approaches (e.g. Janet), American Pragmatism, Russian Semiotic traditions.
- Forced to confront the theory-practice divide as a practical political matter as well as a matter of scientific principle.

Foundational Principles:

1: Mediation

- Mediation through artifacts (tools, signs... culture)
 - The use of artifacts “not only radically change his [humans] conditions of existence, they even react back on [then] in that they effect a change in him and his psychic condition.
 - The unique structure of “the cultural habit of behavior” is that instead of directly applying its natural function to the solution of a particular task, the child puts between that function and the task a certain auxiliary means, by the medium of which the child manages to perform the task. (Luria, 1928).

Mediation (Con't)

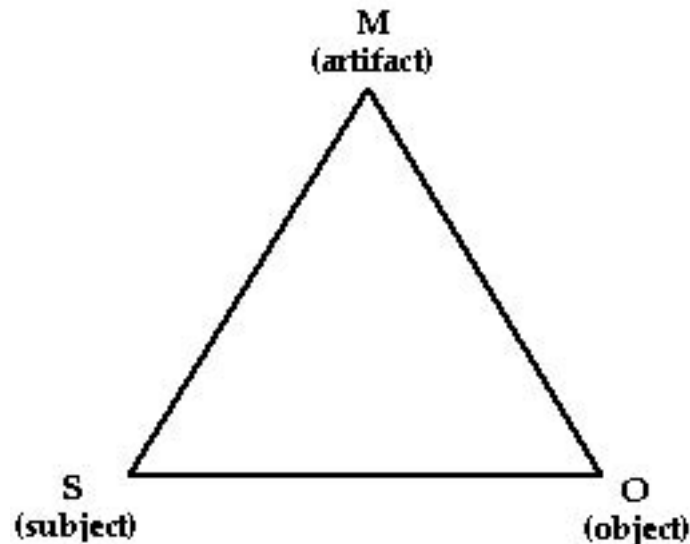
- the key idea is captured by a pair of oppositions:

“direct effect” = “immediate effect”

≠

≠

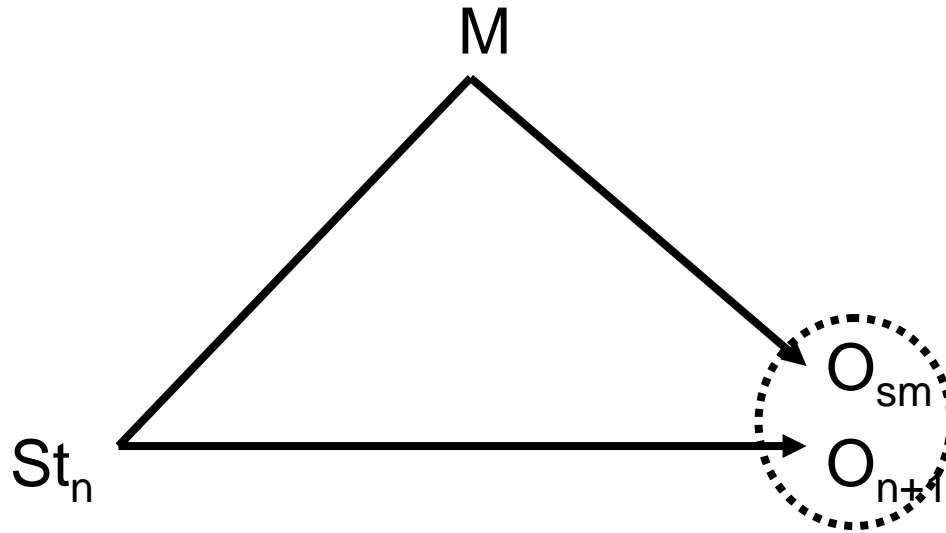
“indirect effect” = “mediated effect”



Two kinds of Mediators a la Vygotsky: Tools and Signs

1. The tool's function is to serve as the conductor of human influence on the object of activity; it is *externally* oriented; it must lead to changes in objects. It is a means by which a human external activity is aimed at mastering, and triumphing over, nature.“
2. “[Signs] are directed toward the mastery or control of behavioral processes - someone else's or one's own - just as technical means are directed toward the control of processes of nature.

Putting Time in the Mediational Picture



Foundational Principles:

2. Practical Activity

- Human psychology is concerned with the activity of concrete individuals, which takes place either in a collective - i.e., jointly with other people - or in a situation in which the subject deals directly with the surrounding world of objects - e.g., at the potter's wheel or the writer's desk.... Leontiev

Foundational Principles:

3: Historical/Genetic Inheritance

- Implied by the notion of artifact: an aspect of the material world modified and incorporated into action
- Internal psychological activities originate from practical activity, historically accumulated as a result of the education of man based on work in society - Leontiev

Historical/Cultural-Historical Inheritance a la Dewey

We live from birth to death in a world of persons and things which is in large measure what it is because of what has been done and transmitted from previous human activities. When this fact is ignored, experience is treated as if it were something which goes on exclusively inside an individual's body and mind. It ought not to be necessary to say that experience does not occur in a vacuum. There are sources outside an individual which give rise to experience (Dewey, 1938/1963, p. 39).

Foundational Principles:

4: Practice as the Crucible of Theory

- Vygotsky: “most complex contradictions of psychology’s methodology are brought to the field of practice and can only be resolved there. Here the dispute stops being sterile, it comes to an end ... That is why practice transforms the whole of scientific methodology

A Lemma: Primacy of the Social

- Because psychological development requires the appropriation of the experience and products of prior generations and
- Because the infant is born helpless, and is cared for using the cultural accumulated experience of others.
- The social world is primary in organizing for the very possibility of human development.

To Understand Behavior is to Understand the History of Behavior

- Human beings are emergent product of
 1. Cultural-history of the social group
 2. Phylogeny- history of species
 3. Ontogenetic historical experience of individual
 4. Microgenetic experience in joint mediated activity
- Must study change over time.
- Ideally, studies should focus on two or more of these “genetic domains” showing new properties that arise from their combination.

Early Implementation of the Ideas by Russians

- A variety of “genetic experiments” that in principle combined the two psychologies by studying the basic form of human activity: appropriation and use of culture.
- Studies of mediated memory, attention, self control, all using the method of dual stimulation as *the* ur method.
- Examples:
 - Parkinsonian patient
 - Immersion of problem solving situation in play
 - Studies of identical and fraternal twins
 - “Vygotsky blocks” study of nonce mediating concept formation

Period of Turmoil and Suppression

- Death of LSV, onset of Stalinism, Edict on Psych.
- Dominance of activity over mediation
- Accusations of “signocentricism,” cosmopolitanism
WWII, post-war Pavlovian Sessions and Drs plot.
- Following WW 2 a number of influential monographs validating theory in area of treating the wounded/restoration of functions. BUT
- LSV’s work virtually unknown in USSR in 1950’s.
- Stalin’s death leads to gradual, but incomplete recovery of the cultural-historical school.

Post Stalin Revival

- Luria becomes active following death of Stalin, translating and traveling: mental retardation & neuropsychology, but larger picture obscured.
- Expurgated version of *Thought and Language* (1962) creates limited interest in West:
 - *Controversy with Piaget over egocentric speech*
 - “*Vygotsky blocks*” experiment
- However, impression of an influential line of thought belied by reality on the ground.
- 1966 International Congress a “first huzzah” for psychology but a “last hurrah” for Vygotskians.

Western Interest: 1970's –1980's

1. Resurgence of interest in culture as a central feature of human nature associated with independence movements, mass education, UNESCO initiatives. (Often Cross-cultural research). Focus mainly on Vygotsky & Luria from Western Europe & US.
2. Northern European Marxist Activists look mostly to Leontiev.
3. Russians themselves cannot follow through on their full research program: biology in tatters and old ideologies stifle interaction. Limited influence some domains.

Internationalism Leads to Diverging Pathways

1. Some continue to follow a version of Vygotsky's emphasis on mediation (Wertsch: "mediated action in context")
2. Some develop Leontiev's ideas about activity while retaining centrality of mediation (Engeström's activity approach).
3. Some pursue historical change in cross-cultural work
4. Some conduct research in institutionalized settings focusing on "communities of practice."
5. New developments in genetics and brain research open up possibilities for serious inter-genetic-domain research.

Pursuing One Pathway: Cultural-Historical Activity Theory (CHAT)

- Historical events interceded to limit the accomplishments of the early cultural-historical psychologists, despite the promise of their ideas and initial research.
- Current aim is to test the viability of the original vision of a unified scholarly discipline, perhaps psychology, perhaps a new, integrative discipline.

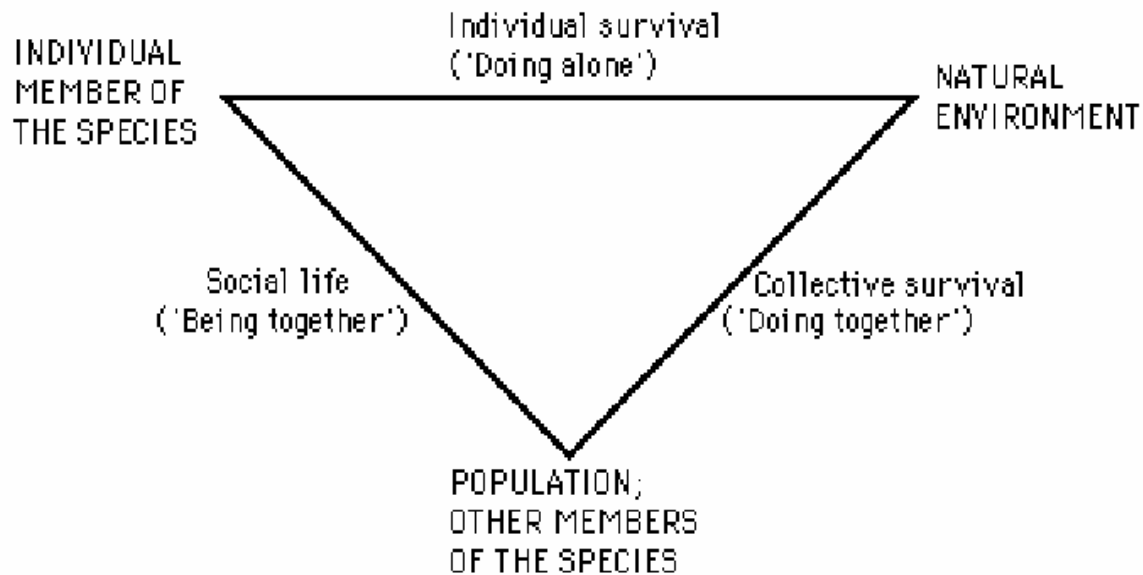
Conceptual Reformulations: Culture

1. In place of tool/sign, artifact: an aspect of the material world that has been modified over the history of its incorporation in goal directed human action. Artifacts are *simultaneously ideal (conceptual) and material*. They emerge in the process of goal directed human actions. They are ideal in that their material form has been shaped by their participation in the (successful, material) inter-actions of which they were previously a part and which they mediate in the present- Ilyenkov
2. “Culture is a process, a cognitive process that takes place both inside and outside people’s heads... the “things” that appear on -like definitions of culture are residua of this process.... [which] accumulates partially solved solutions to frequently encountered problems.” – Hutchins

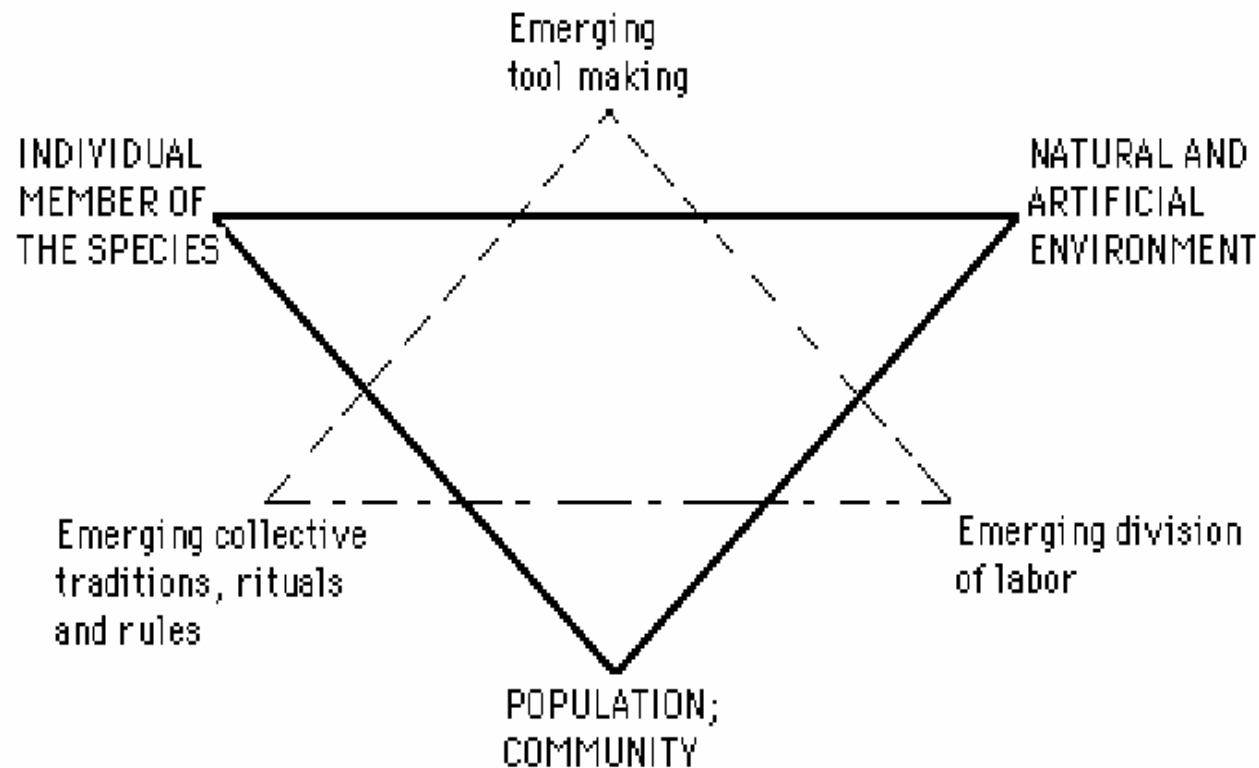
Conceptual Reformulation- Activity

- Leontiev (1): Human psychology is concerned with the activity of concrete individuals that takes place either ...in the midst of people, or ... with the surrounding object world – before the potter's wheel or behind the writing desk.
- Leontiev (2). Structure of activity:
 - Activity and its object
 - Actions and their goals
 - Operations and their conditions
- Seen as underplaying mediation *and* actual research did not reach beyond level of operations and actions. Formulations remained programmatic.

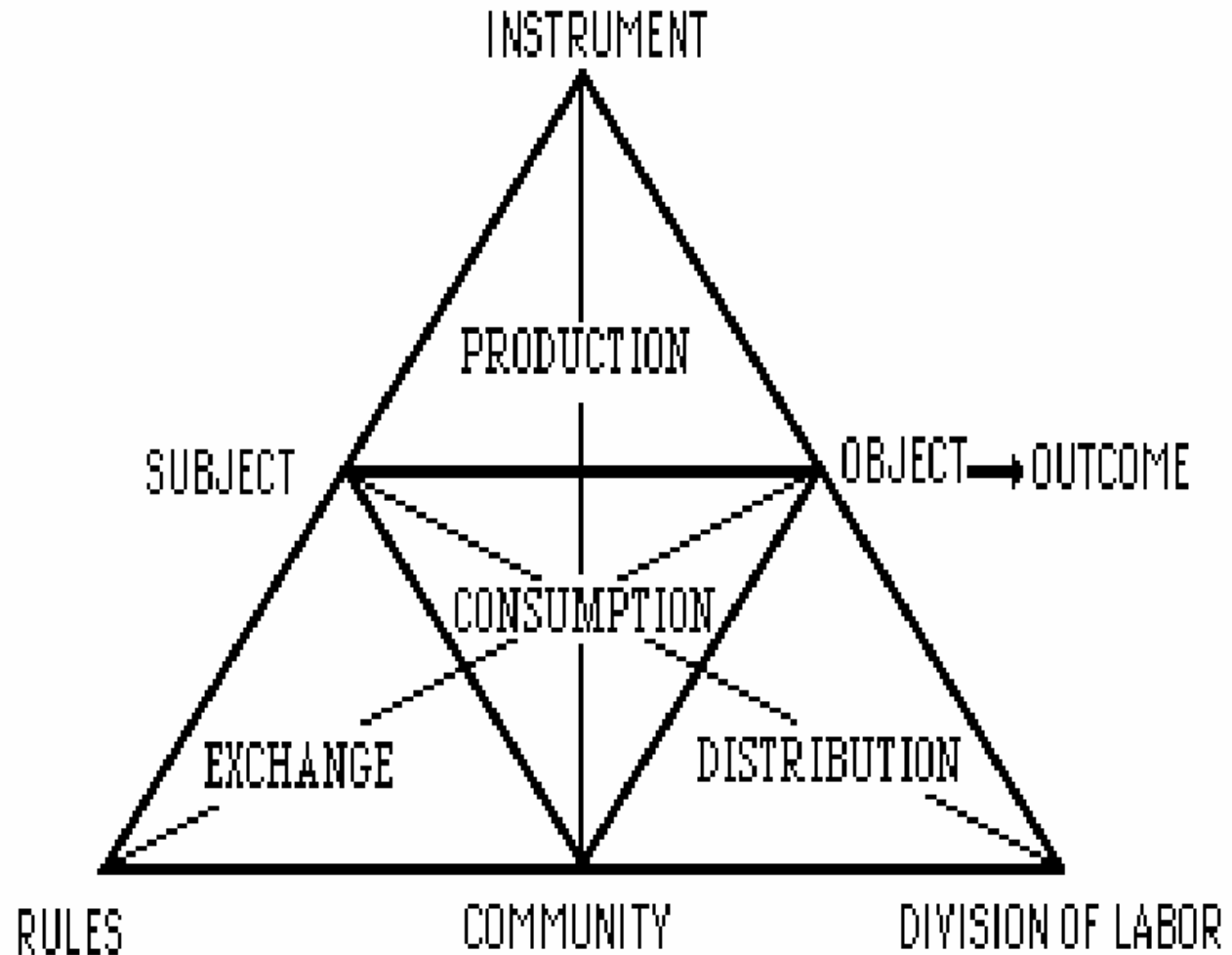
Engeström's Combination of Vygotsky and Leontiev (Mediation & Activity)



Evolution of Activity- Con't



Engeström's "Expanded Triangle"



- Provides umbrella framework for comprehensive research program in which different people focus on different parts of the whole

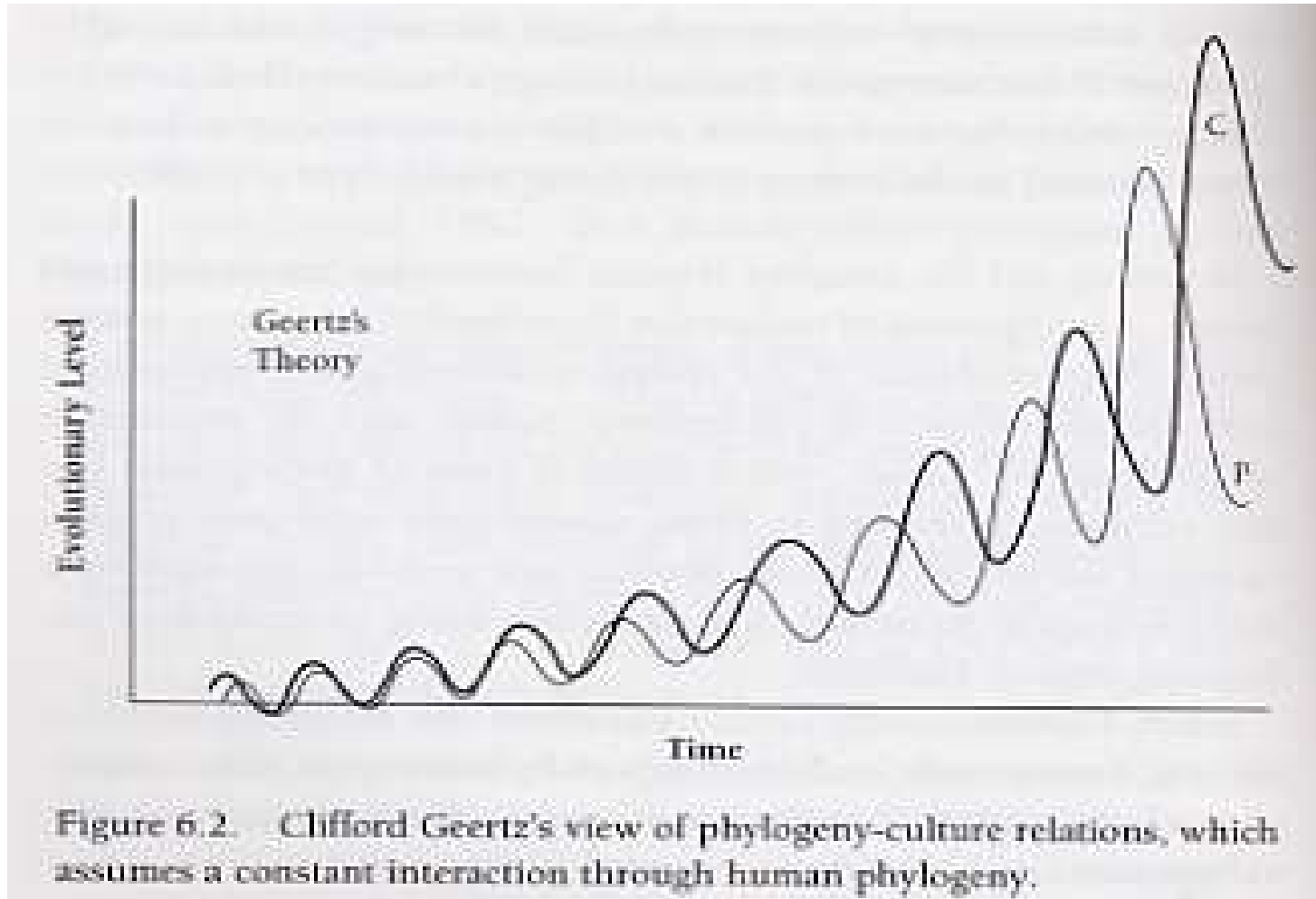
Genetic Domains: Phylogeny/Hominization

- Man's nervous system does not merely enable him to acquire culture, it positively demands that he do so if it is going to function at all. Rather than culture acting only to supplement, develop, and extend organically based capacities logically and genetically prior to it, it would seem to be ingredient to those capacities themselves. A cultureless human being would probably turn out to be not an intrinsically talented, though unfulfilled ape, but a wholly mindless and consequently unworkable monstrosity – Geertz (1973).
- *Research on hominization* showing two way causal connections: biological change (bipedalism → faster running → more protein → bigger brain → better tools → more protein → bigger brain → → →

Contemporary Views of This Tangled Web

- Plotkin: “Biology and cultural evolution relate to each other as a two-way street of causal interactions.”
- Donald: “Culture actually configures the complex symbolic systems needed to support it by engineering the functional capture of the brain for epigenesis”
- Quartz & Sejnowski: culture “contains part of the developmental program that works with genes to build the brain that underlies who you are.”

Phylogeny: Culture-Biology Coevolution



Cultural-Historical Change

- Early Work by Luria replicated repeatedly, but does it general or activity contingent change.
- Studies of literacy/schooling: similar disputes.
- Studies of changes in indigenous activities of special interest:
 - Weaving in Zinacantan (Greenfield).
 - Advent of commercial farming - Nepal (Beach/Ueno)
 - Advent of schooling & commerce - New Guinea (Saxe)
- As mediational means and structure of activity become more complex so do forms of thinking.
- But are these changes domain specific or general?

Cultural Historical Change: Farming → Farming + Marketing (Ivory Coast)

- Compare children in neighboring rural groups none of whom have been to school.
- Children in both groups displayed knowledge of relative quantity.
- children from the subsistence farming group displayed far weaker counting skills and calculation skills
- In second study, *if* children attended school, no cultural differences

Phylogenetic Contributions in Ontogeny: The Case of Number

- Early primate evolution (and probably earlier), and early in infancy, building blocks for representation of number are present.
- Wynn on infant arithmetic: 4 month olds
- Doll placed on empty stage;
- Screen raised to hide doll;
- Hand visibly places another doll behind screen and withdraws sans doll
- Screen lowered with either 1 or 2 dolls.
- Infants stare longer when only one doll.
- They also expect $3-2=1$
- While still disputed, many such results in many “core” or “skeletal domains.” Physics, biology, animacy.....

Skeletal Principles (Phylogeny) + Cultural Practices: Number

- Compare children in neighboring rural groups none of whom have been to school.
- Children in both groups displayed knowledge of relative quantity skeletal principle.
- children from the subsistence farming group displayed far weaker counting skills and calculation skills
- In second study, *if* children attended school, no cultural differences

Skeletal Principals + Cultural Practices (Pirahã –Brazil).

- A society reputed to have at most a few count words, e.g. “one, two, many.”
- Absence of cultural practices where number is used.
- display elementary arithmetic abilities for small arrays, but their performance quickly deteriorates with larger numbers.
- Pirahã children who learn Portuguese number words (and cultural practices) do not display the same limitations as their parents.
- With change in cultural historical change in practices, change in manifested abilities.

Culture Becomes Mental: Numerical Practices Using an Abacus - Japan

- People can learn to operate an abacus in an elementary manner in a few hours if they participate in deliberate instruction.
- Abacus masters calculate accurately and even faster without a physical abacus present.
- Can add multi-digit numerals as fast as they can be read off.
- Appear to represent an intermediate, resultant number on their "mental abacus," in the form of a mental image of bead configuration

Cultural Practice Changes Brain Function: Abacus in the Brain

- ordinary people retain series of digits in verbal working memory (revealed as increased activation in the corresponding cortical areas including the Broca's area)
- mental abacus experts hold digits in visual-spatial working memory, showing activation in bilateral superior frontal sulcus and superior parietal lobe.
- No differences for recall of words

Culture Becomes Biology: Schooling and the Brain in Portugal

- PET study of adult women from rural Portugal where first born daughters kept home but second borns sent to school.
- Task: to repeat real words and pseudo words
- Difference only for pseudo words.
- Literate subjects engaged in phonological processing of unfamiliar phonemic sequences, illiterate subjects substituted similar sounding real words for the pseudo words.
- Literates showed right parietal activity for pseudo words while non-literates did not
- Note: Changes closely linked to practice of reading, not general. This fits precisely results of Scribner and Cole on literacy in and out of school.

A Unified Psychology?

- To a considerable extent, the vision of the original cultural-historical psychologists appears to be vindicated
- Although I have not emphasized study of microgenesis, the program supported as it relates to humans being hybrids of phylogeny, cultural history, and ontogenetic experience.
- Present fashionable term for this enterprise, “bio-cultural co-constructivism.”
- What’s missing?

What about Theory/Practice?

- Many programs following CHAT principles currently being tested in practice.
 - Finnish Development Work Research Tradition uses method of dual stimulation for the redesign of work settings.
 - LCHC using combination of principles for design of alternative educational practices out of school.
 - Several groups using principles for re-design of education in schools and the integration of new mediational means (computers into education)
 - Cultural practice → brain reorganization research giving rise to special programs for children with early brain damage

Is CHAT a Form of Psychology?

- Appears closer to a re-combination of the old human sciences and re-integration of biology and cultural history.
- Requires wide range of methods that cut across psychology, anthropology, linguistics, sociology, neurosciences.
- Appears to require the creation of new forms of scientific work activity in new institutions, or networks of institutions and specialists.
- To date, few such re-arrangements have come into being. That is the challenge for the future.