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LCHC: A PROGRAM OF RESEARCH AND TRAINING IN CULTURAL PYSCHOLOGY

LCHC: A Twelve Year Program of Research and Training in Cultural Psychology

Note: This is the first draft of a progress report that I have been preparing. I am distributing it to selected people with a long history of interest in LCHC. I have not been able to get feedback on this effort, in its written form. I am grateful to all of you who wrote for being there. Excuse the glitches. Your corrections, additions and counterarguments are heartily encouraged.

MICHAEL COLE
(January 18, 1984)

A Twelve Year Program of Research
and Training in Cultural Psychology

LCHC: A PROGRAM OF RESEARCH AND TRAINING IN CULTURAL PYSCHOLOGY

The Carnegie Corporation made its first grant to us in 1972. Then as today, there was widespread doubt about the meaning of psychological test performance, especially the significance of psychological ability testing for educational practice. It was just three years since Arthur Jensen had shocked the nation into doubt about the power of education to close the gap in educational achievement between America's ethnic minorities and the Anglo, largely middle class, majority. A rising tide of biological determinism was chilling efforts at educational reform. Tests were at the forefront of public concern because they are highly visible manifestations of our social selection system and the instruments with which questions about biological and social contributions to cognition were decided. But behind the argument on testing lay basic questions of schooling and society.

Our prior research in Africa (published in 1971 under the title of *The Cultural Context of Learning and Thinking)* had led us to doubt the validity of tests as *general* measures of intellectual capacity. More importantly, we had begun the long process of developing an approach to the study of psychological test performance that would allow us to make principled statements about culture's contributions to cognitive development. Our approach, although rooted in experimental psychology, assumed that experiments model cultural practices, thereby committing us to employ ethnographic and linguistic techniques, in addition to experiments, as a part of our overall approach.

Phase 1: The Cross-cultural Background

It would require too much space to summarize adequately the series of studies that my colleagues and I had conducted or were conducting in 1972. But I can state conclusions relevant to the Corporation's concerns that I believe we had been addressing.

The Importance of Content in Constituting Cognition

The initial puzzle centered on schooling, particularly the extreme difficulty that Kpelle (Liberian) children experience with school mathematics. We confirmed these difficulties in a series of controlled studies. However, we also discovered that if we took our observations from farming practices centering on amounts of rice, rather than problems set by the school curriculum, not only did we find a coherent system of measurement appropriately coded in the language; we could find circumstances in which non-literate Kpelle outperformed Yale college students. Similar observations by others led us to emphasize the importance of culture in organizing dense practice in areas of life central to survival. Subsequently, a number of studies have emphasized that differences in cognitive content account for many cases of apparent differences in cognitive processes. In recent years, this issue has emerged as an important starting point for a reevaluation of developmental differences in cognition in American and European-based theories and research.

The Importance of Context

Content and context are related, but by no means identical. The same" content" (kernels of corn, for example) can enter into many different contexts. In a series of studies among Mayan peasants in rural Yucatan, we attempted to show how change in content from "abstract" shapes to "concrete" kernels of corn could induce a content-based shift in cognitive processing. Peasants who had taught *us* the local category system for corn were unable to construct these same categories when we used corn kernels in a conceptual sorting experiment. Kpelle adults who adroitly manipulated reference in legal disputes to suit their own advantage were hapless

communicators when asked to select highly codable, familiar sticks from arrays designed to assess their referential communication ability. A more sophisticated notion of content, one which seemed to be captured by the idea of context, seemed necessary.

The Non-Transparency of Experimental Tasks

Unexpected variations in performance associated with content and context made us very sensitive to the fact that *all* experimental procedures embody normative content and require interpretation on the part of the subject that constitutes the context of observation. A good many of our early studies began with procedures only slightly modified on the basis of local conditions and proceeded to search for systematic variations in performance that would allow us to link the density of cultural practice to the particular form of experimental procedure we used to map that cultural practice onto our experimental procedures, and thus to inferences about psychological processes.

For example, Kpelle children's difficulties in science classes had led to speculation that Kpelle culture fails to provide practice in rules of inference. Using an apparently simple apparatus designed to study the development of inferential ability in American children, we tested Kpelle children and adults with varying degrees of educational experience. The difficulties experienced by Kpelle adults were severe, a result that might lead us to infer real incapacities of reasoning.

Changes in the procedures that substituted match boxes, keys, locks, and other common objects for aspects of the standard apparatus, while keeping the logical rules identical, removed all difficulties, even for very small children. When these same manipulations were carried out with American children, the same result obtained; even very young children, who had been judged incapable of such inference, were found capable under slightly altered, but logically equivalent, circumstances.

Sample Publications

Cole, M., Gay, J., Glick, J. A., & Sharp, D. W. (1971). *The cultural context of learning and thinking.* New York: Basic Books.

Implications for the Carnegie

Whatever the explicit goals of the Corporation, the basic logic they seemed to be supporting through their interest in this work was roughly the following:

If a culturally sensitive methodology could be devised to demonstrate intellectual competence among Liberian rice farmers where standard procedures characterized them as incompetent, might not a similar approach help to explain the sources of poor cognitive performance among U.S. ethnic minorities and provide clues that would help educators improve their school achievement? This question offered a specific kind of hope. If a substantial amount of cognitive variability could be associated with cultural causes, and some of those causes could be pinpointed, school programs might be modified to unleash misdirected intellectual resources. At the same time, a more representative group of Americans would have access to institutions of higher learning bringing needed diversity into the top echelons of public policy and education. If this was not Carnegie's interest, it is at least how we construed that interest.

Stated so baldly, this line of endeavor might seem a little far fetched. It is certainly a heavy bell to hang around the neck of a very young and shaky goat. But it also turned out to be an extremely fruitful way to organize research that pushed toward a cultural theory of mind, or so we would like to convince the reader.

Phase 2: Setting up the Research Program, 1972-1974

At the time the first grant was awarded, LCHC was still involved in international, cross-cultural research. On the one hand, a grant from the Office of Education permitted our unusual opportunity to apply research principles originally evolved in Liberia, West Africa, to a systematic study of the cognitive consequences of education in the Yucatan, where schooling was variable, but extensive. Second, a really rare opportunity to study literacy independent of schooling presented itself in Liberia. Carnegie provided funds to initiate this second project, but it turned out to be a gigantic undertaking that required separate funding. Support from the Ford Foundation permitted the work to go forward to completion.

The Cognitive and Social Consequences of Schooling

From the very outset, our work was carried out in the context of international efforts to improve education in economically under-developed countries. While strongly believing in the importance of economic and political self-determination, we also became skeptical of the sources and apparent generality of the effects produced by schooling. On the one hand, our results suggested that a good deal of research in the United States in which age and schooling are highly correlated were reflecting specific practice in school, not general developmental functions. On the other hand, we could not readily accept conclusions to the effect that cognitive development was generally arrested by the absence of schooling. Rather, it appeared possible that the same principles which applied to non-literates applied to literate schooled people as well; their development was context and content dependent. The cognitive tasks which we used mirrored the structure of their experience in school so their development only *appeared* more general and extensive because so many of the cognitive tasks that we assumed to be general indices arose historically in connection with literacy and the demands of schooling.

These conclusions received a mixed reception from our colleagues. On the one hand, our emphasis on constructing cognitive tasks around native materials and our caution about inferring cognitive incompetence from poor performance were accepted as a useful antidote to overgeneralization and a safeguard against ethnocentric comparisons. On the other hand, we had failed to produce general positive statements about culture-cognition relations much more novel than "practice makes perfect." All agreed that we needed a theory of situations to go with our observations of situational variability; as a general undertaking this approach appeared impractical. This issue continues to occupy us to the present time. In later sections we will describe where this work has taken us.

Sample Publications

Sharp, D. W., Cole, M., & Lave, C. (1979). Education and cognitive development: The evidence from experimental research. *Monographs of the Society for Research in Child Development,* 44(1-2, Serial No. 178).

Scribner, S., & Cole, M. (1973). Cognitive consequences of formal and informal education. *Science,* 182, 553-559.

The Cognitive Consequences of Literacy

A basic claim of the early cross-cultural work was the existence of a close fit between the range of contexts in a culture within which particular kinds of practice were provided on the one hand and the generality of cognitive consequences on the other. While the totally general case may be virtually impossible to demonstrate, we succeeded in applying these ideas to the case of literacy among the VaL Remarkable for having invented their own syllabic writing system, the Vai also engage in literate practices in English and Arabic. Each writing system is associated with particular areas of life (Vai is used for personal affairs including family businesses, Arabic for religious purposes, English for dealing with the government and national commercial interests). Our research showed that each kind of literacy produced script/activity specific cognitive

consequences, which mapped very nicely on to the associated areas of cultural practice. These practices were, in turn, constrained by the larger socio-political situations. Implications of this work will be discussed below.

Sample Publications

Scribner, S., & Cole, M. (1978). Literacy without schooling: Testing for intellectual effects. *Harvard Educational Review,* 48(4), 448-461.

Moving the Strategy Home

These cross-cultural studies were extremely productive. But it was domestic problems that were the focus of our concern, and it is around domestic research that LCHC's major efforts have revolved ever since.

The major challenge was clear; to bring the power of our cross-cultural research strategy into New York City. The major obstacles were also clear:

J) Strong resistance by minorities to white researchers in their communities [see attached letters from Sister Hamilton, P. Wilcox, and reply).

2) Institutional and social barriers to psychological research outside of specific institutional settings.

3) The absence of a usable theory of embedded culture to provide guidance in making observations and isolating plausible variables to relate to explicit displays of cognitive performance.

We will pause to summarize each of these barriers because they were essential in shaping our work over the past decade.

The Problem of Cultural Domination

One of the key assumptions of our work was that in order to understand how culture influences mind, it is necessary to investigate those areas of experience where cultures provide people with dense practice. This meant that we had to look at people's everyday experiences in contexts of importance to them.

In Liberia or Mexico we were very clearly outsiders. In general we were understood by native peoples to have some kind of government backing associated with schooling and community development. If the chief of the village or the mayor of a town told people to make the visitors welcome, by and large they did so. This compliance was in part born of hospitality and curiosity, but it was backed by the authority of the government; to refuse a request from that source requires one to think twice. Besides, we generally brought the money associated with the presence of Americans in the poor countries of the world.

Having access in this sense was a great benefit to the work, but it came at a high cost. We could go with people to work and sit around asking questions or posing various puzzles; but we were inalterably foreign. We needed expert help from people who knew how things worked *from the inside* to keep us from blundering into trivia. Our most effective helpers were high school and college students, young people (mostly men) who had one foot in the world of Western schooling, but retained a native's knowledge of how things work outside of

school. As time went by, we came to understand that our helpers were often marginal people. Only rarely did we find someone who had advanced into relatively select circles of indigenous knowledge as well as the culture of the school. Nonetheless, we had entry and we worked out ways to teach what we were doing in exchange for what we learned.

In making the transition to New York City in 1971 a whole new set of problems had to be faced. First and foremost was the issue of Black-white collaboration. When I first decided to attempt comparative research within the United States to see if it was possible to generalize our Liberian experience, I contacted Black psychologists living in New York City. I met at Medgar Evers College, a heavily minority college within the City University, with A. J. Franklin (then a dean), Rae Banks and John Dill. The question we discussed was whether there was any way in which Black and white researchers could collaborate on research relating cultural variables to cognitive development. Everyone was doubtful. But they read the new book on cultural contexts and kept on talking, not just to me but to their colleagues.

In the spring of 1973 I received two letters and some reading material from Black community organizations that had been organized to control the activities of white researchers working in their communities. Copies of these materials are appended. These documents are worth reading both as evidence of the degree of organization of the Black community at the time and for the acuity of the basic critique justifying the writer's assertive stance. It is also important to recognize that each group is willing to consider the possibility of collaboration under some conditions. Sister Hamilton from the Boston Black United Front ends by offering to assist us "in doing what few if any white researchers have ever been able to do; be responsible for research that is necessary, relevant and useful in combating the oppressive forces of racist forces of racism in America." Preston Wilcox of Afram Associates wasn't so kind. He had me classed as a "colonizer," a person who comes in to take resources from the Black community and who will rewrite history in order to make *his* entry into the Black community the source of its virtues. This characterization and Wilcox's other categories remain a very useful social typology, one which we encountered repeatedly in later years. In my reply I emphasized both my willingness to talk and my eagerness to work out a genuine cooperative arrangement.

This exchange shows the importance of the cross-cultural research as a vehicle for cooperation. It was really the case that I was not focused on the Black community in the way other researchers have generally been, and I viewed the contributions of black scholars working in the community as essential to the enterprise. Using Wilcox's terminology, I argued that I was a "technician," not a "colonizer." I knew how to do certain kinds of research. I could not do it alone. But I could do it in cooperation with people who, like myself, had specialized knowledge that was one part of the solution to a *common* problem.

My Black colleagues wanted to formulate a Black psychology, rooted in their historical experience, to help them deal with their predicament in America and the world. I wanted to formulate principles of a *cultural* psychology, of which Black psychology, as -Black psychologists defined it, might turn out to be one example. I would trade my expertise as an Anglo and a mathematical cross-cultural psychologist for their knowledge as Blacks and psychologists. Over time, and to some degree, my argument prevailed. For how long and to what degree the reader may decide in reading the remainder of this report.

Institutional Barriers

Yet be to explored, even if we could obtain the cooperation of minority group scholars, was the institutional feasibility of the work we were proposing. Not long after we undertook this enterprise, the outgoing editor of "Child Development" commented on the paucity of psychological research about development between a few months and a few years of age. Children seemed to disappear from psychologists' view once they were no longer turning up frequently at well baby examinations and before they entered daycare or school...unless there was something the matter. Much the same problem existed with respect to older children as well as adults when

it came to research on how they did their cognitive processing outside of highly constrained test situations administered in some context of institutional authority (schools, hospitals, the armed services). While waiting for various individuals and groups to decide if we could be trusted enough to work with, we began to explore these social and institutional barriers on the study of cognition in a variety of contexts.

The Absence of an Accepted Scientific Framework

The third major obstacle facing our work, even if we obtained the kinds of collaboration and access that we thought that we needed, was the absence of an accepted scientific framework within which to carry out the research as a *positive program*. That is, we could be critical of existing testing and existing test procedures as much as we liked, but what positive program of action did our critique entail?

Our program of research had to face in two directions at once: it had to overcome the incoherences arising from the fact that we constantly violated the accepted division of labor between disciplines. As one commentator phrased it for one area of conflict, "anthropology studies cognitive content, psychology studies cognitive process;" we insisted on their interpenetration. While inter-disciplinary work is fashionable in some quarters, it is always open to the criticism that it is un-disciplined. We also had to provide practical alternatives to existing educational practices based on existing disciplinary bodies of evidence.

Accomplishments: 1971-1974

Balancing authority. My most pressing task was to build a group which could work together in a genuinely comparative framework. This group had to include professionals who were a part of the embedded cultural groups with which we wanted to work. Believing as we did that situational variability was a critically needed feature of our work, we also needed contact with people who could help us to invent ways of working outside of schools and institutional settings. A great deal of effort in the first two years went into creating the minimum necessary conditions for carrying out that work.

We managed to create a research group that was approximately 50% Black by providing full time support to two rather senior researchers. Instead of a single project, our laboratory entered its second phase made up of four sub-projects, two headed by Black psychologists, two by white ones. These projects can be listed as follows:

1) Studies of the ecology of learning in school and non-school settings - A. J. Franklin, Principal Investigator. (Ford Foundation)

2) Ethnic group differences in the functions of language - William S. Hall, Principal Investigator. (Carnegie)

3) The intellectual consequences of literacy - Sylvia Scribner, Co-Principal Investigator. (Carnegie-Ford)

4) Subcultural differences and the development of cognitive skills - Michael Cole, Principal Investigator. (Carnegie, NIMH, Office of Education)

These projects all related to the themes that guided our initial Carnegie proposal, but responsibility for major sub-divisions of the work had been decentralized. These sub-divisions were gathered administratively in a newly formed administrative unit, the Laboratory of Comparative Human Cognition. They gathered

substantively in research seminars, overlapping projects, and joint publications.

To gain expertise beyond our own skills in language and non-experimental approaches, we allied ourselves with scholars in other parts of New York City; the network of people with whom we were actively working included linguists, sociologists and anthropologists, as well as the people in the William Estes and George Miller laboratories, cognitively oriented social scientists like ourselves with different foci.

From the beginning, we combined research training with the actual conduct of our research. In the process of putting together the research group, we supported minority group graduate students from various parts of New York City, whose own institutions could not, or did not, offer the training they felt they needed. This training function was supported by Rockefeller University and the Ford Foundation.

Getting to work. Partly as a result of our increasing ethnic representativeness, community barriers to systematic research with children from minority group backgrounds lessened so that we were in a position to apply the work we had been doing in a much more systematic way. Bill Hall began to collect data on language socialization in homes and the community in such diverse locations as the lower east side of Manhattan and Westchester county. Rudimentary relationships with headstart consortia in Harlem were expanded to meet the increased capacities of our larger research group. Our long-standing working relationship with the school district where Rockefeller University is located expanded to include a very mixed district on Long Island and a district that is almost exclusively Black in Manhattan.

We had evolved to the point where we had a research group including several senior investigators working on an interrelated set of problems. At the most abstract level, our task was to specify the cognitive consequences of growing up in different cultural environments. This task required us to carry out cognitive research within a common theoretical framework that included such society-level constructs as "class," "ethnic group," and "education." We also had to deal with the specific ways in which these background variables affect individuals in different social settings; thus we work on problems of language socialization, the properties of formal and informal educational settings, and the consequences of specific kinds of job related activities. As a way of displaying the way in which different activities of the research group were thought to be related, we constructed a schematic Table, which is divided into three parts: macro-social variables, micro-social contexts, and cognitive tasks (see Table 1).

The macro-social variables were involved directly in our work in Liberia and William Hall's study of social class and ethnic groups variations in language socialization. The micro-social contexts were the focus of much of my own research as described briefly above: variations in the experimental situation (classroom vs. supermarket) or dialect or language of presentation, manipulation of specific materials, or children's involvement in the activity. Finally, we conducted experiments on verbal learning, logic, and memory to display the activities that people actually engaged in when confronted with standardized cognitive tasks. We designed several new ways of going about the analysis of testing children's memory or problem solving activities designed to "get underneath" test scores to actual processes.

In the next phase we planned to specify the way in which major social dimensions shape the kinds of micro-social contexts within which people's everyday activities are organized and then the way in which the organization of everyday activities shapes the kind and distribution of cognitive skills that people use. This emphasis on studying several levels of the determinants of activity *simultaneously* became one hallmark of our work.

Our own and others' analyses of the cognitive demands of educational settings that schools make very specific demands for memory activities that people are unlikely to meet in everyday life. Not only are children presented masses of information to be tested at a later time, the child often is presented this material in a way that requires him/her to organize the material around a principle or topic. The school task' differs in significant

Table 1
Overall Conceptualization of Research
1974-1978

Domains of Concern

Variables & Tasks	Social Class Work Settings Education	Language content & usage Interactional contexts Specific job-related tasks	Memory Logic Language
Sample Research Activities	Hall's lang. socializ. proj. Vai literacy Maya education Scribner & Cole (1973) Sharp & Cole (1974) Cole & Scribner (1975) Cole (1975)	Classroom/ supermarket lang. Games & experiments Vocabulary & memory Hall, Reder & Cole (1975) Cole & Scribner (1974) Hall & Freedle (1973)	Discrim. trans. studies Syllogistic reasoning Classification & memory Cole (1973) Scribner & Cole (1972) Franklin & Fulani (1975) Scribner (1974)

ways from remembering in everyday life (we believe), where remembering is most often a byproduct of *doing.* However, work tasks certainly vary in the extent to which remembering is an explicit part of the job: the checkout girl at the A&P and the taxi-cab driver both have to remember things, but remembering, as an isolated activity, is rarely engaged in for either job; taxi-cab drivers don't sit home studying maps, nor do checkout girls study long lists of products, prices and shelf displays.

Similar considerations apply when we think about what children must do to get along on a day to day basis. They have to remember all the time, but seldom is remembering isolated from doing.

Experimental studies of memory were only then beginning to make this distinction in a systematic way. Following Russian researchers, several psychologists in the U.S. were beginning to study instrumental memory. But we felt the range of settings in this research was systematically underplaying important factors related to out of school (long term) knowledge.

In our work abroad, we had been able to look directly at large changes in macro-social variables that might affect the diversity of people's experience that required memorizing an explicit activity. This variation motivated part of our concern in the study of literacy and education.

We conducted several research studies with Black and white children in Manhattan comparing recall of lists made up with their own items, their own norms, or "standard" norms. These preceding results were technically "culture contingent" because they do not assume equivalence of the materials that go into the experiment. Instead, we generated materials from each group and perhaps each individual. They bear on the issue of ethnic differences in recall by showing their locus to be in vocabulary, not memory.

The same principles were applied to quite different domains of intellectual activity. A principle focus of Sylvia Scribner's work in this area was in age and ethnic group differences in "logical reasoning." Dr. Scribner devised analytic procedures which disarmed the notion that wrong answers on logic questions reflect "logical deficits." Her procedures were analogous to those for isolating the true locus of differences in "conceptual memory."

However, this research, by and large, still represented situationally constrained model activities characteristic of formal schooling, we had still not succeeded in modeling the community settings of everyday activity. When we tried to work with experts by conducting cognitive research in OFF TRACK betting parlors, we could not get past the suspicions of both patrons and police to arrange a serious effort. Nor could we see little children after school or at home except by creating extraordinary arrangements. Our attempt to set up a "store-front" laboratory in Harlem failed to connect in any substantial way with the community. Just as important in view of the standing critique of white research in Black communities was the fact that responsibility for the research remained in white hands; somehow we needed to distribute control and resources while continuing to work in collaboration.

Sample Publications

Cole, M. (1973). A developmental study of factors influencing discrimination transfer. *Journal of Experimental Child Psychology,* 16, 126-147.

Cole, M. (1974). Toward an experimental anthropology of thinking. *Anthropology and Education Quarterly,* 5, 7-12.

Cole, M. (1975). Culture, cognition and I.Q. testing. *The National Elementary Principal, 54,* 49-52.

Cole, M., & Ciborowski, T. (1973). A developmental and cross-cultural study of the influences of rule structure and problem composition on the learning of conceptual classifications. Journal of *Experimental Child Psychology*, 15, 193-215.

Cole, M., & Scribner, S. (1974). *Culture and thought.* New York: John Wiley & Co.

Cole, M., & Medin, D. (1975). Comparative psychology and human cognition. In W. K.

Estes (Ed.), *Handbook of learning and cognitive processes* (Vol. 1. Hillsdale, NJ: Lawrence Erlbaum & Associates.

Cole, M., & Scribner, S. (1975). Theorizing about socialization of the intellect. *Ethos, 3,* 249-267.

Hall, W. S. (1976). Black and white children's responses to Black English vernacular and standard sentences: Evidence for code switching. In D. Harrison & T. Trabasso (Eds.), *A seminar on black English.* Hillsdale, NJ: Lawrence Erlbaum & Associates.

Hall, W. S., Cole, M., Reder, S., & Dowley, G. (1977). Variations in young children's use of language: Some effects of setting and dialect. In R. O. Freedle (Ed.), *Discourse production and comprehension.* Hillsdale, NJ: Lawrence Erlbaum & Associates.

Hall, W., Reder, S., & Cole, M. (1975). Story recall in young black and white children: Effects of racial group membership, race of experimenter and dialect. *Developmental Psychology,* 11, 628-634.

Scribner, S. (1974). Developmental aspects of categorizable recall in a West African society. *Cognitive Psychology,* 4, 475-494.

Scribner, S. (1975). Situating the experiment in cross-cultural research. In K. F. Riegel & J. A. Meacham (Eds.), *The developing individual in a changing world: Historical and cultural issues.* The Hague: Mouton.

Scribner, S. (1975). Recall of classical syllogisms: A cross-cultural investigation of error on logical problems. In R. J. Falmagne (Ed.), *Reasoning: Representation and process.* Hillsdale, NJ: Lawrence Erlbaum & Associates.

Scribner, S., & Cole, M. (1973). Cognitive consequences of formal and informal education. *Science,* 182, 553-559.

Scribner, S., & Cole, M. (1976). Studies of subcultural variations in semantic memory: Implications of cross-cultural research. *Bulletin de Psychologie,* Special Annual.

Phase 3: 1974-1978

It was very clear after two years of constant effort that a serious attempt to apply our comparative, culture-sensitive approach to cognitive research was going to flounder without substantial, highly skilled, and dedicated minority group initiatives. But those minority scholars who braved their colleagues' scorn to work with us were not especially skilled in this new kind of interdisciplinary research and their commitment was understandably limited.

Either a redoubling of effort was required or the enterprise would have to fold. We redoubled our effort. We needed an ethnically diverse research group that combined research and training. Bootlegging training in the face of demands to deliver the research goods for a paradigm that did not exist was a recipe for failure.

The key opportunity to break out of this deadlock appeared in the person of William S. (Bill) Hall, the Black psychologist, whose work I mentioned briefly above. When Hall came to Rockefeller, he and Cole had found that they had many interests in common, most importantly a desire to conduct genuinely cross-cultural research within the U.S. They planned the bi-racial, bi-dialectical study of language and memory which we mentioned above.

Hall accepted a position at Vassar College for the 1973-74 academic year, which allowed him to pursue collaborative plans with Cole. The result of this planning was two-fold:

1) A training program in the conduct research on cognition

2) An observational study of early language and cognitive socialization that varied ethnicity and social class, and which incorporated the principles of contextual variability that had grown out of the early work of the laboratory: children would be followed into the home and community.

Support for the research on language socialization was provided by Carnegie to Hall. Support for research by A. J. Franklin and the training program was provided by the Ford Foundation. in separate grants. With these resources, supplemented by federal grants to the Behavioral Sciences Group at Rockefeller University, for experimental studies of cognition, LCHC was born.

Accomplishments: 1974-1978

During this period, the cross-cultural research of LCHC members was completed and all energies were turned to comparative studies in the United States. Several lines of research were being conducted simultaneously:

1. Bill Hall conducted his massive project on the spontaneous language use of Black/white, mid- -dIe class/lower class children with 10 preschoolers representing each category. Each child was fitted with a transmitting microphone and his/her talk recorded over a period of weeks in several different settings.

Results of this work have been appearing in print gradually as Hall has brought the corpus under control. Early findings included marked ethnic and social class variations in the degree to which the vocabulary in basal readers and IQ tests was present in the childrens' environment. These differences were themselves conditional on where the recordings were made. The lower class Black children ,emerged as a group with very different language experience than the other three and the largest mismatch between language socialization experience in the home and school.

When these results were put along side of experimental studies emphasizing the importance of frequent contact with the *content* of ability tests, the way in which culturally organized experience can result in test bias was clearly laid out. This result does not thereby erase the problems many of these children experience in school. But it should re-orient our educational activities.

In the course of carrying out this work, Hall collaborated with a variety of scholars, notably John Dore, whose speech act theory provided one of the early analytic tools for rendering the corpus suitable for comparative purposes. The corpus, in turn, challenged the theory, producing a healthy give and take in both directions. In addition, Hall acted as supervisor for several pre-doctoral and post-doctoral fellows (See the separate section on the training program).

Sample Publications

Hall, W. S. (982). Continuities and discontinuities in language use." In E. Gordon (Ed.), *Review of research in education.* Washington, DC: American Educational Research Association.

Hall, W. S. (In press). Continuities and discontinuities in the function and use of language as related to socio-economic status. *Childhood bilingualism: Aspects of cognitive, social and emotional development.* Norwood, NJ: Lawrence Erlbaum & Associates.

Hall, W. S., & Gearhart, M. (982). Internal state words: Cultural and situational variation in vocabulary usage. In Borman (Ed.), *The social life of children in a changing society.* Norwood, NJ: Lawrence Erlbaum & Associates.

Hall, W. S., & Jose, P. E. (983). Cultural effects on the development of equality and inequality. In *The child's construction of social inequality.* New York: Academic Press.

2. Sylvia Scribner was a key social science theoretician instrumental in the formulation of the idea of literacy *practices* as a basic unit of analysis. She was project director on the Vai literacy project but she was also active in planning and executing New York-based comparative research and helping to train pre-doctoral and

post-doctoral fellows. She initiated research into the development of writing and logical problem solving. Others of her studies demonstrated how school experience teaches a distinctive mode of language use that strips away content in favor of abstract logical rules.

Sample Publications

Scribner, S. (1974). Developmental aspects of categorized recall in a West African society. *Cognitive Psychology,* 6, 475-494.

Scribner, S. (1975). Recall of classical syllogisms: A cross-cultural investigation of error on logical problems. In R. J. Falmagne (Eel.), *Reasoning: Representation and process.* Hillsdale, NJ: Lawrence Erlbaum & Associates.

Scribner, S. (1978). Modes of thinking and ways of speaking. In R. O. Freedle (Ed.), *Discourse production and comprehension* (Vol. 2). Hillsdale, NJ: Lawrence Erlbaum & Associates. Reprinted in P. N. Johnson-Laird & P. C. Wason (Eds.), *Thinking: Readings in cognitive science.* Cambridge: Cambridge University Press.

Pratt, M., Scribner, S., & Cole, M. (1977). Children as teachers: Developmental studies of instructional communication. *Child Development,* 48, 1475-1481.

Scribner, S., & Cole, M. (1976). Studies of subcultural variations in semantic memory: Implications of cross-cultural research. *Bulletin de Psychologie,* Special Annual.

Scribner, S., Orasanu, 1., & Lee, C. (1979). Development of category organization and free recall: Ethnic and economic group comparisons. *Child Development, 50, 1100-1109.* Reprinted in S. Chess & A. Thomas (Eds.), *Annual progress in child psychiatry and child development.*

3. A. J. Franklin completed a series of studies among adolescents on the dependence of memory on culturally organized content. Dr. Franklin received the Martin Luther King award for research and contributions to the community, awarded by the New York Society of Clinical Psychologists in 1983, as well as Distinguished Psychologist of the Year which was awarded by the New York Association of Black Psychologists in 1980. On sabbatical leave from CUNY where he is a Professor of Psychology and Associate Director of the clinical doctoral program, Dr. Franklin received a research fellowship from the Rockefeller Foundation and is doing a postdoctoral fellowship at ISR, University of Michigan.

Sample Publications

Boykin, W., Franklin, A. J., Anderson, J., & Franklin, N. B. (In press). Psychoeducational perspectives on parenting in Black child development. In McAdoo & McAdoo (Eds.), *In research in black child development.* Beverly Hills: Sage.

Franklin, A. J., & Anderson, J. (1980, June). *Monograph of Basic College Skills.* New York: City University (CUNY), Center for Academic Skills.

Franklin, A. J., & Anderson, J. (1982). Therapeutic interventions with urban black adolescents. In Jones & Korchin (Eds.), *Minority mental health.* New York: Praeger Press.

Franklin, A. 1., & Anderson, 1. (1983). The social context and socialization variables as factors in learning and thinking. In Glaser & Chipman (Eds.), *Thinking and learning skills.* Hillsdale, NJ: Lawrence Erlbaum & Associates.

4. John Dore, in collaboration with Denis Newman and Meryl Gearhart developed Dore's approach to speech acts into a viable descriptive scheme to be used in evaluating cognition and comparing language use across settings. This work carried them into some of LCHC's earliest work in the teaching/learning process.

Sample Publications

Dore, J. (1979). What's so conceptual about the acquisition of language. *Journal of Child Language,* 6, 129-137.

Cole, M., Dore, J., Hall, W. S., & Dowley, G. (1978). Situation and task in young children's talk. *Discourse Processes,* 1, 119-176.

Dore, J. et al. (1978). The structure of nursery school conversation. In K. Nelson (Ed.), *Children's language* (Vol. 1). New York: Gardner Press. (co-author)

5. Ray McDermott wrote several theoretical papers on the way contexts are constructed and maintained through interaction, with heavy attention to reading and classroom interaction.

Sample Publications

McDermott, R. P. (1977). Social relations as contexts for learning in school. *Harvard Educational Review,* 47, 198-215.

McDermott, R. P. (1977). The cultural context of learning to read. In S. Wanat (Ed.), *Issues of evaluating reading.* Arlington: Center for Applied Linguistics.

McDermott, R. P. (1977). The ethnography of speaking and reading. In R. Shuy (Ed.), *Linguistic theory.* Newark: International Reading Association.

McDermott, R. P., & Aron, 1. (1978). Pirandello in the classroom: On the possibility of equal educational opportunity in American culture. In M. Reynolds (Ed.), *The futures of education.* Reston, V A: Council for Exceptional Children.

McDermott, R. P., & Gospodinoff, K. (1978). Social contexts for ethnic borders and school failure. In Wolfgang (Ed.), *Nonverbal behavior.* New York: Academic Press.

McDermott, R. P., Gospodinoff, K., & Aron, J. (1978). Criteria for an ethnographically adequate description of concerted activities and their contexts. *Semiotica,* 24(3/4), 245-275. Reprinted in 1981, Language, culture, and cognition. In R. Casson (Ed.), *Anthropological perspectives.* New York: Macmillan.

McDermott, R. P., Orasanu, J., Boykin, A. W., & Laboratory of Comparative Human Cognition. (1977). A critique of test standardization. *Social Policy,* 8, 61-67.

McDermott, R. P., & Roth, D. (1978). The social organization of behavior: Interactional approaches. *Annual Review of Anthropology,* 7, 321-345.

During this period my activities were a mixture of experimental and techniques. At the experimental end I conducted a whole series of studies on content variation, roughly parallel to those being conducted by A. J. Franklin. I also did content variations in the concept learning domain. These were two arenas chosen by Jensen to develop his two level theory of mental abilities, one rote, one conceptual. They were strategically useful to me because they were arenas within which there were fairly well developed process theories so that there was some chance of clear empirical refutation of Jensen's claims.

Through varying the content of the materials (Black and white dolls instead of Black and white people) we showed that children judged non conceptual by Jensen's standards clearly engaged in conceptual behavior when the content was changed to include objects for the children's everyday worlds. Through varying the social setting, we could produce "different levels of language development" in the same children by varying social context. We could produce variations in verbal learning and word use that made minority students appear more or less competent by the standards of the literature.

But these variations were, by and large, of the magnitudes that one encounters in experimental journals. Group performance levels vary, but not generally by vast amounts; all of the children are of normal health and enrolled in the school systems. They all know more or less what to do in such situations. The gap between the small differences in behavior that we could see in our test settings and the large differences we could see in their overall academic attainment was too substantial to be ignored. Equally vexing was the gap between what our experiments looked at and the full range of adult activities that education is supposed to prepare one for. Students who were doing poorly in the classroom appeared more capable in other settings where they had more control over the flow of the activity. It seemed that we needed to get a more principled account of the everyday organization of activities involving basic skills like reading that are central to the curriculum.

Our plans called for us to bring the content of everyday activity into experimental settings and to discover the basic requirements of mental tasks in the everyday environment. But the research just described all centered on institutionalized settings like schools and forms of interaction that look more or less like testing. We were not being successful at getting into the intuitively interesting settings that occupied our imaginations in the planning phases. So we decided to create an environment that had a lot of the properties of non-school settings (often, and equally awkwardly, called everyday settings). Using a child language facility created jointly by G. A. Miller and Cole, Ray McDermott, Lois Hood, Ken Traupmann and I created afterschool clubs around the themes of cooking and nature club.

The clubs were set up in a cooperative arrangement with the Manhattan Country School, a remarkable private school located on the border between Harlem and the fashionable East Side, across the park from a heavily Hispanic area of the city. A teacher at MCS allowed us to come into her classroom and video tape. We were also allowed to give each child psychological tests from time to time so long as we coordinated with the teacher. The parents agreed that after school, one day each week, half the class would come to the afterschool club which would focus on cooking and nature activities, but would include outings, games of various kinds, and would keep the kids healthily occupied. We were allowed to tape-record these proceedings with as much fidelity as our facilities and limited expertise would permit.

The logic of this enterprise went like this: Schools are places where societies gather children together to instruct them in the basic elements of activities that the children will encounter as adults. A good deal of selection also goes on in school with respect to the ease with which students readily "take" instruction. Tests are indexes of mental ability on the one hand, and samples of school-like activities on others (this being the issue we struggled with in the Yucatecan research). As index/samples, they are used to select those children who, for whatever reason, are facile with its set of requirements. Schools, on the other hand, sample the larger society. Not everything is taught (despite some critic's comments), but a great variety of skills centering around the use or numeracy and literacy to acquire adult skills *are* taught. Therefore, just as it should be possible to see test-like behaviors appearing in school contexts, it should be possible to see school like behaviors (and their test-like components) popping out in everyday settings outside of school. If we set up an environment that was rich in the production of school-related skills, but "everyday" in its social organization, perhaps we could figure out how to talk about the relations between tested performance and competence in the world. This was our way of posing the problem of ecological validity, coming from cross-cultural studies of intellectual testing and the effects of schooling.

This enterprise produced a number of provoking results. While it proved relatively easy to identify test-like activities in school, it did not at all follow that we could see test-like activities in the clubs. In our planning, we had been able to gain support for the club idea from worried adults and teachers by talking about all the school like activities that go on their. The children *read* instructions, *write* written records of what they do, *measure* quantities, and *solve* problems. We could say this genuinely. We had some familiarity with the notion of a camp, and we fully expected such things to happen. In addition of course, we expected as social scientists to be able to say something principled about them when they did.

We satisfied the teachers' and the parents' expectations very well. There were the usual number of hassle about bus schedules and hurt feelings, but the children liked the clubs. Despite the heavy academic and social schedule of a New York 9-10 year old, they came pretty regularly and they got to know the staff quite well. They also got to know things about each other. So it is safe to say we satisfied the kids. But we blew the brains out of our initial expectations about cognitive tasks in everyday settings. The short form of our conclusion, so short that it makes the point appear trivial, is that *cognitive tasks were socially difficult to arrange* without recapitulating the control structure and invoking the norms of the school. On the first day of observation 8 active children and two adults baked four cakes in one hour, starting from written instructions a cold oven, and the usual raw materials. But when the observers emerged at the end of the bustle, they were unable to report a single good example

of any given category of cognitive task. In the bustle of getting the cakes done, the cognitive work load was partialed out in so many piecemeal ways that it was impossible to recapture the conditions necessary to claim the existence of a cognitive task.

As the project continued, we began to analyze the nature of the social divisions of labor and the kinds of social structuring that were making cognitive task identification so difficult. We created variations that removed adult contributions to the structuring in various ways. We created natural excuses for remembering and problem solving.

We wrote the first draft of our findings in 1977-78, and sent them to the *Psychological Review,* then under Estes' editorship. We got two reviews in reply. The first said that our treatment was terrific and so important that it should be published immediately; the second said that we had simply rehashed what everybody knew. In the absence of a positive solution to the problems we laid out, the article was little more than a complaint that science is difficult. The article was not published, and in retrospect I think it is a good thing. We had a great deal to learn before we ourselves could figure out something useful to do with the knowledge gained and we did not want to make ourselves even more difficult to understand by illusions for prescriptions. This work has had an active underground existence since its publication and certain parts of it have appeared in print.

Sample Publications

Cole, M., & Means, B. (1981). *Comparative studies of how people think.* Cambridge: Harvard University Press.

Cole, M., & Traupmann, K. (1980). Comparative cognitive research: Learning from a learning disabled child. 1979 *Minnesota Symposium on Child Development* (Vol. 12).

McDermott, R. P., Cole, M., & Hood, L. (1978). "Let's try to make it a good day"--Not so simple ways. *Discourse Process,* 3, 155-168.

Joint Theoretical Efforts

During this period the group engaged in a number of collaborative writing efforts that grew out of the weekly LCHC seminar. It seemed appropriate, since work grew up in joint discussion (and often involved a lot of input from people nominally outside the group) to list LCHC as the author, and append people's names in alphabetical order (scrambled just enough to keep people like A.B. Anderson from getting in trouble with the alphabetically less astute).

These were generally methodologically-oriented efforts which allowed us to proceed in a disciplined way despite our interdisciplinary constitution. In making things clear to ourselves, we found that it was helpful to require ourselves to be clear to outsiders. These publications have evoked some interesting discussions about the institutional role of authorship; one University head complained that we were being irresponsible. We blunted these comments by pointing out the joint teachingllearning nature of the seminars, and urged that they be used by committees as evidence of teaching ability.

Other important lines of theoretical work were done by various sub-groups within the lab or in specially created groups. Cole, working with SSRC support, got together several mini conferences on comparative methodology, which eventually produced a book for use by undergraduates. Scribner collaborated closely with Cole on questions posed by Soviet Psychological theory for general theories of mind. Hall and Dore collaborated on the development of a speech act theory adequate to Hall's data. McDermott collaborated with Dore on a critique of that same approach using McDermott's data. Throughout these activities, fellows and more junior research staff were deeply involved. It was a rich period of research in which a great deal of progress was made, but it was progress toward new levels of complexity.

Sample Publications

Cole, M., Hood, L., & McDermott, R. P. (1978). *Ecological niche picking: Ecological invalidity as an axiom of experimental cognitive psychology.* Laboratory of Comparative Human Cognition, University of California, San Diego & The Rockefeller University. Excerpts reprinted in 1982 in U. Neisser (Ed,), *Memory observed.* San Francisco: W. H. Freeman & Co.

Laboratory of Comparative Human Cognition. (1976). Memory span for nouns, verbs and function words in low SES children: A replication and critique of Schutz and Keislar. *Journal of Verbal Learning and Verbal Behavior,* 15, 431-435.

Laboratory of Comparative Human Cognition. (1978). Cognition as a residual category in

anthropology. *Annual Review of Anthropology,* 7, 51-69.
Laboratory of Comparative Human Cognition. (1979). What's cultural about cross-cultural cognitive psychology? *Annual Review of Psychology, 30, 145-172.*
Laboratory of Comparative Human Cognition. (1979). Cross-cultural psychology's challenges to our ideas of children and development. *American Psychologist,* 34(10), 827-833.
Laboratory of Comparative Human Cognition. (1982). Culture and cognitive development. In W. Kessen (Ed,), *Mussen handbook of child development* (Vol. 1). New York: Wiley.
Laboratory of Comparative Human Cognition. (1983). Culture and cognitive development. In W. Kessen (Ed,), *Mussen handbook of child development* (Vol. 1). New York: Wiley.

The Rockfeller Phase: Restrictions

The Rockefeller environment was excellent in so many respects that it was very difficult to think about moving the laboratory to another location. However, there were structural barriers to its development which promoted the thought of moving, if a suitable location could be found. The major difficulties were:

1) The hierarchical laboratory structure which allowed a tenured position to only one member of a unit (laboratory). This structure gave great power to the head of a laboratory and promoted efficiency for certain kinds of research. But in LCHC, where every effort was made to have researchers invent new ways of doing things (ways that differed from one ethnic group to another) such efficiency got in the way. Our multicultural approach granted equal validity to the many different kinds of expertise needed to synthesize different disciplines and forms of cultural knowledge; that form of equality ran counter to the structure of the institution and by 1978 was hampering our work. The lack of access to tenured positions for LCHC members undermined our efforts to create a system of equal control.

2) Rockefeller is an overwhelmingly male, Anglo Saxon community. It was not perceived as friendly by the minority group community, rendering the position of an Anglo head of a laboratory very problematic in terms of a long-term training/research effort where minorities were supposed to have an important, and eventually, guiding, role. The charge of colonialism could not be effectively countered given these conditions.

These difficulties were compounded in 1978 with a change in the presidency of Rockefeller. Joshua Ledeberg made it very clear that the behavioral approach used by LCHC did not accord with his idea of a basic research that would answer to medical problems, at least not in the way that he thought appropriate for the institution. Although we had begun to do research relevant to the problem of learning disabilities, that focus was too narrow to sustain the search for a culturally grounded psychology.

It is significant that when LCHC left Rockefeller University, Ledeberg refused to replace it with another behaviorally oriented laboratory, thereby bringing the behavioral science group below critical mass. The following year, both William Estes and George Miller left the University, and neuroscience replaced behavioral science as an organizing concept. This biologizing trend was, of course, precisely the trend that had been signaled so clearly at the beginning of our program by the social response to Arthur Jensen. The fact that culture is a *biological* characteristic defining homo sapiens had no foothold in science. Our mission was clearly unfilled.

Phase 4: UCSD, 1978-1984

The Promise

When a group gives up a privileged position in a privileged institution like Rockefeller University to take up residence in a public institution with a major commitment to undergraduate training (Rockefeller University is exclusively a research institution with a very small, elite graduate program), some sort of explanation is necessary. In this case, the explanation is that Rockefeller's shortcomings for the special mission of LCHC seemed matched by UCSD's virtues. The most important elements appeared to be the following:

Third College. During the late 1960's the UCSD campus of the University of California responded to the social upheavals of the times by creating Third College, an academic structure with a unique formulation that had survived the retrenchment of the 1970's with sufficient strength to appear in the 1983 catalogue as follows:

… Third College is guided by the belief that education should not be divorced from the social

> imperatives of our time...it has a distinctive academic focus on understanding the diverse elements which effect societal change and development and the alleviation of contemporary social problems … From its inception, Third College has been dedicated to the establishment of a multiracial, multicultural academic community.

While a good deal of the energy had drained from this effort, the superstructure was still there, and Third College still enrolled an exceedingly large ratio of minority group students. The UCSD faculty included two tenured Black psychologists, several outstanding social scientists with whom LCHC had been in contact over the years, and an organized research unit called the Center for Human Information Processing that appeared to be an excellent home for LCHC, providing intellectual support analogous to that provided by the behavioral science group at Rockefeller.

The Communication program and resources. All of these virtues would not be sufficient if there was not an academic unit that was legitimately located within Third College with open positions into which LCHC faculty could be fit. Here again there appeared to be a unique opportunity in the form of an interdisciplinary program in communications, the charter of which made it an integral part of Third College. Again citations from the catalogue are informative:

> Communications at UCSD is an interdisciplinary effort, drawing upon the strengths of the social sciences such as anthropology, linguistics, political science, psychology and sociology. In their courses, communications students will master theories, concepts, and methods for dealing with the study of interaction at the political, societal, group, and individual levels … The program is housed on the Third College campus, and plays a central role in the efforts of Third College.

This formulation fit very nicely into the theoretical ideas that were growing within LCHC wherein the two part, stimulus-response formula of the 1950's and 1960's was replaced by a three part semiotic formulation, which allowed *culture* into the system as the "medium" of interaction.

Not only does this formulation fit the goals of LCHC, but the special circumstances of the Communication Program in 1978 made it possible to envision hiring faculty who would implement the stated goals in manner consistent with LCHC's mission. Owing to longstanding internal conflicts, more than 300 students were majoring in Communication, but only 3 full-time faculty were assigned to the program. This faculty/student ratio was recognized as a serious distortion, so that the move of LCHC to UCSD could be accompanied by the prospect of hiring sympathetic faculty in the years ahead.

This potential has been realized beyond reasonable expectation in the intervening 5 years. We have available a description of the newly formed Communication Department, whose structure maps in a genuine way back on to the overall mediational formulation underlying the current theory guiding LCHC.

Psychology Department. As a member of the Psychology Department, Cole could admit graduate students. A Black faculty member in Psychology, A. B. Anderson, agreed enthusiastically to join in the LCHC effort. In addition, several outstanding psychologists in the department offered their support to the training program.

The social science faculty and TEP. A major resource for the Laboratory at UCSD was the presence of several prominent social scientists, in addition to those in the psychology department, whose areas of expertise fit closely with our concerns. Between 1975 and 1978 there was extensive contact over research issues between Cicourel and Mehan in Sociology and D' Andrade in anthropology over issues of cognition and social interaction. When Mehan conducted a study of the organization of classroom lessons with Courtney Cazden, a series of meetings were held in New York and San Diego to review methods and data.

As director of the Teacher Education Program, Mehan was particularly instrumental in the group's move. He found teachers interested in working with cognitive researchers in their classrooms. The multi-cultural emphasis of TEP meant that there could be a more direct tie between research and teaching in the University and appearance of the fruits of that effort in the classroom.

Initial Configuration of UCSD activities

Administratively, LCHC was made a part of the Center For Human Information Processing (CHIP) with its offices and lab space located in the building housing the Communication Program and TEP.

Using temporary faculty money, Luis Moll was hired in Communication to teach about language and society as well as problems of bilingual communication. He applied for, and obtained, a grant from NIE to study the organization of bilingual reading instruction.

Alonzo Anderson, in psychology, was looking for a project that would combine his background as an experimental, social psychologist with a strong interest in ethnic differences in socialization practices. After some preliminary feasibility studies, he hit upon the study of the way that working class families socialize their children into literacy practices. He obtained a grant from NIE to study literacy practices in lower class Black, Chicano and Anglo homes. His plans, and LCHC's suffered a blow in 1979 when his contract was not renewed by the psychology department, but a grant from the Spencer Foundation enabled him to continue the work. He was later able to obtain a second NIE grant to extend his observations into the early school grades.

Jim Levin, a cognitive scientist who obtained his degree at UCSD joined the Laboratory and the Communication Program as a specialist in microprocessors as a medium of instruction and communication.

With help from Bud Mehan, Mike Cole gathered a small research group to conduct the next step in the work on inter-relationships between psychological tests, classroom organization of instruction, and everyday cognition. Mehan convinced Peg Griffin, a former teacher and highly experienced sociolinguist to join the project. Denis Newman, who had worked with Dore at Rockefeller, also participated.
The basic working arrangement whereby minority group scholars had their own base of operation within their own community settings meant that we had a legitimate context for pre-doctoral and post-doctoral A Twelve Year Program of Research and Training in Cultural Psychology

training. UCSD provided something else, albeit temporary, faculty positions, along with space and administrative support. The sympathetic group of social science colleagues provided a source of expertise on difficult problems of method and theory. Leavened by the participation of fellows using training money carried over from the unfinished grants in New York, this group reconstituted LCHC in its Western setting.

During its years at Rockefeller University our group had put together a rather thorough critique of existing approaches to the intertwined phenomena of mind, culture and school performance. From a great many sources we were getting the message that it was time to turn from critique to positive action. It was this task which has occupied the center of our attention. I will review the work with respect to four major components: theory building, research, training, and institution building.

Theory Building: Constructing an Alternative Framework

From the frequency with which our work was being cited in the relevant literature and our success in obtaining research grants, it was clear that our criticisms were having an impact.

For example, Gelman pointed out that the principles of cross-cultural research contained in our work seemed to apply to age comparisons in her 1978 *Annual Review of Psychology* article. Donaldson, in an outstanding book, *Children's Minds* cited our studies of inference as evidence for her formulation or the principles of cognitive development. But we had not offered the crucial connecting links, and for the most part our colleagues were waiting for us to come up with the "theory of situations" that would allow specification of the patterns of performance conditioned by different cultures.

The 1980's have witnessed a marked change in both the theoretical foundations and networks of cognitive development research in America and Europe which have moved our formulation closer to the academic mainstream. From many sources have come formulations of theories of adult cognition and cognitive development that adopt a context-specific approach to understanding cognition in place of broad stage and ability formulations. Representative is the work of Robert Siegler, who claims in the context of problem solving research that

> "Developmental differences (on cognitive tasks) seem more to involve improvement in the range of conditions under which appropriate representations are formed than in the inference process itself."

Very similar formulations are to be found across a wide spectrum of otherwise-diverse developmental research, including the work of Kurt Fischer, Robert Sternberg, Howard Gardner, and Katherine Nelson to name a few.

In the literature on adult cognition, the widespread move to schema-based theories has yielded precisely the same result. Thus, we get such generalizations as the following from David Rumelhart

> Most of the reasoning we do apparently *does not* involve the application of general purpose reasoning skills. Rather, it seems that most of our reasoning ability is tied to particular schemata related to particular bodies of knowledge.

Three specific implications of this view will be of concern to us here.
First, contemporary approaches imply that behavior in familiar situations will differ from behavior in unfamiliar or less familiar situations because "Familiar situations are those for which schemata have already been formed and in which top-down processes playa large role" (J. Mandler). Second there will be marked variability of performance of cognitive tasks *within* individuals across cognitive domains/real world settings. The third implication to be drawn from the current work in cognitive psychology is that transfer is hard to explain. Theories specify a context-dependent unit of analysis, but as Jean Mandler savs. "We know relatively little as yet about either the circumstances or the possible developmental changes 20

that encourage their generalization."

The consequence of this shift in theory has been to provide us with precisely the links that we need to be in the mainstream of work on cognition and cognitive development. We have emphasized the situational variability and limited transfer of cognitive skills; this notion has moved from the periphery to the center of contemporary thinking.

At the same time, we felt that we had some useful additions to make to this effort. We focused on a problem that our cross-cultural entry point emphasized, but which was submerged in domestic research: if learning is context-specific and transfer is limited, how does *change* occur? We laid out our approach to this central issue of instruction and development in two major *Handbook* chapters, one oriented toward the concept of "intelligence," the other toward the concept of "development." In formulating an answer to the mechanisms of cognitive change, we also provided an alternative framework for the study of cognition, a framework which insists that culture and cognition are different aspects of a single system of interactions. We had arrived at the idea of a cultural theory of cognition, in which one had to treat each context of observation as a sample of culturally organized activity. Both interactions *within* the context and interactions between contexts had to be studied in order to account for performance and performance change. Moreover, the intertwining of cultural and "natural (biological)" factors constraining performance had to be studied as well.

The central notion of our concept of intelligent human behavior can be summarized as follows:

1) Cognitive acquisitions are (learning is) initially context specific.

2) Generality of cognitive acquisitions is tightly connected with the social organization of relations between contexts (including the way in which context relations are coded in language). Put less formally, change is the result of socially organized interaction.

3) The process of acquisition within contexts is interactively achieved; these interactions are often mediated by one or more communicative "tools" (language, print, films, etc.)

4) The resources brought to the interaction plus constraints (biological, social, institutional, economic) on the interaction must be assessed as part of a general theory of cognition.

Because coordination between interacting systems is very complex, change involves conflict, and cannot always be interpreted as development.

The implications of these ideas are worked out in the context of several research projects within LCHC. Each project concentrated on: 1) a selected set of contexts; 2) the way in which the social order arranged for those contexts to arise and for their internal structure; 3) the interactions within context that assemble new cognitive acquisitions (particularly, the way in which the interpersonal organization of behavior becomes intra-

personal, or "psychological'); 4) the social and individual resources that are brought to bear on the problems at hand, and the way that these contribute to judgments of competence.

Empirical Studies and Their Implications

The cognitive consequences of literacy. Although the empirical work was completed by 1977 it took a great deal of time and effort to complete the data analysis and write up the work on the consequences of literacy begun in 1974-75. This work gave us our first working model of how social constraints organized around different domains of activity and political power combine with available technology to promote the development of different *kinds* of literacy, each with its own set of "cognitive consequences."

So long as we stuck to test results from the standard tasks used to assess the cognitive consequences of schooling, it appeared that becoming literate in a native language in order to conduct business was cognitively equivalent to total illiteracy. However, when tests of cognitive consequences were tailored to the structure and domain of the literate activity, people literate in their native language could be shown to outperform schooled populations. At the same time, the effectiveness of schooling in changing the information processing proclivities of students for a wide range of tasks that fit importantly into modern economic activity was confirmed.

These results stand as a strong challenge to those who assume that schooling operates to change basic thought processes *in general* by demonstrating the context-specificity of all literates' accomplishment. It also provided an example of how native peoples, using their own technology of communication, could organize to improve their lot through literacy. The book describing this work won a prize from the African studies association in 1982.

We learned an important lesson about one work from the favorable review that appeared in *The New York Times*. When the reviewer attempted to apply the lessons of the researcher, his comments evoked a lot of controversy among our colleagues. We had shown that the effects of literacy are intimately connected to the socio-political *constraints* (among others) on the uses of print. But when this general point was removed from its African context to New York, its lessons were by no means easily agreed upon. We needed to work directly on the problems we had raised here at home. Sylvia Scribner subsequently carried this work directly into the American workplace.

Cognitive science and education. The work on tests, schools, and everyday settings that we had begun at Rockefeller University had adopted the deliberately naive notion that it is possible to discover cognitive tasks in everyday life as a way of demonstrating the special properties of cognition in schools. This next attack on the problem applied the diametrically opposite strategy. We constructed cognitive tasks with clear structure and well worked out positions within developmental and instructional theories. We then embedded them in differently organized contexts to see how the context would invade and disassemble our tasks.

We applied this strategy in an ethnically heterogenous 3-4th grade classroom with the help of teachers who had graduated from the UCSD TEP program. And we chose to address a vexing practical problem which stemmed from the general uncertainties of standardized assessment that we had been wrestling with for the previous decade.

The practical problem centered on coding schemes to assess the teaching/learning process. There were many calls for such coding instruments for evaluation of large federal assistance programs, teacher effectiveness, the impact of different social arrangements within the classroom, and a host of other issues related to educational improvement. A good deal of work on input-output models of educational effectiveness had left the mechanisms of change as cloudy as the results of the regression analyses, and there was general agreement that" process measures" of education were needed.

Our particular interest was in on-line coding schemes that purported to be *cognitive* assessment schemes. Our prior work had led us to be deeply suspicious of on-line cognitive coding, especially when applied to non-normative children. We latched on to this problem as a natural interface between our theoretical concerns and NIE's concerns (soon to be abandoned) with educational equity.

Over a two year period we constructed curriculum units in a variety of different educational content areas which doubled as "cognitive task tracers" for our analytic benefit. Units were conducted in electricity, chemicals in the home, native American cultures, remembering, long division, and mapping. Each unit was divided into lessons, taught by the regular classroom teachers, to groups organized to provide a wide range of constraints on the teaching learning process. There were lessons where the teacher taught all 30 children

simultaneously and individual tutorials as the extremes. In between we constructed varying kinds of small group lessons, including ones with no direct adult supervision. Bud Mehan, Margaret Riel, James Levin, and Yaakov Kareev conducted weekend clubs that carried these tasks into a very informal setting. These sessions were videotaped making possible detailed later analyses so that on-line coding could be compared with conclusions buttressed by repeated observations. Teachers joined in the planning and the analysis, in addition to fulfilling their responsibilities in the classroom.

By putting the activity of cognitive psychology/testing directly into the context of application (the classroom) in such a self conscious way, we succeeded in exposing the kind of social-organizational work that goes into constructing test and teaching interactions, as well as their differential impact on the children. We also lay bear the conflicting requirements of cognitive testing and teaching.

Consistent with our speculation from testing environments, when we sought to apply standard coding schemes to the children, they turned out to be differentially applicable. Some children could be described quite adequately by (for example) Marion Blank's cognitive coding scheme. However, other children's behavior did not seem to fit; in the less tightly constrained setting of the classroom, it was possible to see that it was not simply that they were doing less of something the teacher (and coding scheme) expected. They were doing something other. These other behaviors were not simply a problem for the coding scheme, they were often a problem for the teacher who did not know how to build upon them to help the child discover the information the teacher was interested in imparting.

We found that when we compared the effectiveness of the coding schemes in one-on-one settings with multi-person settings, different aspects of the coding were rendered problematic. Because we had built the abstract structure of the task into the lessons, we were successful in coding a good deal of the multi-person lessons (which was certainly a step up for us from our earlier cooking clubs). But some proportion of the interchanges were almost certain to be uncodable because the teacher filled in for the child, even at times when the coder didn't think it necessary.

As the work progressed, we became engrossed in the details of teaching/learning exchanges for different children and different groups of children over a sequence of lessons. We began to realize that the same teacher behaviors that clouded our assessment were instrumental in keeping the child coordinated with the lesson. What appeared to us as a margin of "error" from an assessment point of view were a margin of instruction for the teacher.

The final cycle in this work was constructed by the teacher around procedures for teaching long division. The analyses provoked by this unit became seminal in several later efforts as it became clear that an essential element in long division (the process through which candidate quotients are arrived at) is never explicitly taught by the teacher, although she teaches up to and around it. This unit also emphasized the tremendous importance of the teacher building up a rich representation of individual children's abilities over an extended period of time in order to arrive at assessments valid for purposes of teaching.

Sample Publications

Newman, D., Griffin, P:, & Cole, M. (1984). *Learning in interaction*, in progress.

Bilingual reading instruction. Luis Moll in collaboration with Esteban Diaz (a predoctoral fellow from Harvard) conducted studies of reading instruction in Spanish and English among elementary school children who are Spanish dominant bilinguals. The first phase of this work was observational; they did comparative analyses of lesson structure and content in Spanish and English reading contexts. They discovered that there were many children reading and writing in Spanish at a fairly sophisticated level (sophisticated enough to write book reports) who were working at the first grade level in English. Knowing that these children could speak English, Moll and Diaz set out to see if they could find out the source of the difficulty. Their analysis suggested that a combination of communicative impediments

created a context of instruction in English in which the teachers (who do not speak Spanish) consistently misinterpreted the source of the children's difficulties and relied on phonics training to bring the children to an appropriate level of oral English pronunciation be/ore they moved on to focus on comprehension.

In the intervention part of their study. Moll and Diaz showed that it was possible to use Spanish to support the children's knowledge of how to read in English. In one striking demonstration, a fourth grader being taught at the first grade level read directly from her English book and gave a running translation in Spanish. In a first follow up study, a regular classroom teacher repeated the procedure, bring children up several grades in their English reading levels and creating a good deal of excitement about the possibilities of applying these procedures more broadly. At present officials in the San Diego Unified School District are attempting to arrange to have Moll and Diaz institute their reading procedures in a special instructional program. One element of this program involves bilingual computer-based activity, stemming from work do be described below.

Sample Publications

Moll, 1.. C. (1981). The microethnographic study of bilingual schooling. In R. Padilla (Ed.), *Ethnoperspectives in bilingual education research: Bilingual education technology* (Vol. 3). Ypsilanti, Michigan: Eastern Michigan University.

Moll, 1.. C. (1983). Constructing strategic learning environments for Hispanic students. To be published in *Proceedings of symposium on the handicapped Hispanic child: Research and implications for practice*. Texas: Texas A & M University.

Chesterfield, R., Moll, 1... C., & Perez, R. (1982). A naturalistic approach for evaluation. Bilingual Journal, 7(1).

LaBelle, T., Moll, L.C., & Weisner, T. (1979). Context-based educational evaluation: A - participant research strategy. *Education Evaluation and Policy Analysis*,] 1 (2), 85-93. Moll, 1... c., & Diaz, S. (In press). Ethnographic pedagogy: Promoting effective bilingual instruction. To appear in E. Garcia & R. Padilla (Eds.), Advances in bilingual educational research. Arizona: University of Arizona Press.

Moll, L.C., & Diaz, S. (In press). Teaching writing as communication: The use of ethnographic findings in classroom practice. To appear in D. Bloome (Ed.), *Language, literacy and schooling*. Norwood, NJ: Ablex Publishing Co.

Moll, L.C., & Diaz, S. (1984). *Towards an interactional pedagogical psychology: A bilingual case study*. Manuscript submitted for publication. -

Moll, L.C., Diaz, E., Estrada, E., & Lopes, 1... (In press). Making contexts: The social construction of lessons in two languages. In S. Arvisu & M. Saravia-Shore (Eds.), Cross-cultural and communication competencies. New York: Horizon Press.

Moll, L.C., Estrada, E., Diaz, E., & Lopes. (1980, July). The organization of bilingual lessons: Implications for schooling. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 2(3), 53-58.

Comparative studies of early literacy socialization. Alonzo Anderson, in collaboration several junior staff members and graduate students, completed two large studies on the early literacy experiences of working class children in their homes and neighborhoods, as well as the school. He succeeded in demonstrating an enormous variety of literacy experiences, even in homes where the adults were not especially well educated and where "story time," the traditional index of home literacy, was virtually absent.

An especially provocative outcome of this study was the evidence that little children's contact with the printed word occurs in a great many mundane activities which connect the family to the world outside the home; breakfast cereals, telephone bills, and catalogs, no less than books, bring children into contact with print and its uses. A direct implication of this work is the usefulness of interventions outside the home to effect changes in literacy experience *inside* the home, allowing parents to be selective in how they handle the issue of literacy in their own homes.

For example, the once-popular tradition of using cereal boxes and other food packages as occasions to involve little children with print would almost certainly be effective, according to Anderson's data, in increasing very small children's knowledge of the alphabet and the multiple functions of literacy. With some planning, older children and parents could also be lured into denser activities with print by such means. For some of the families, especially those who espouse evangelical religions, the church is a potentially powerful agent of literacy in the home. That segment of Anderson's Black sample who were involved in evangelical churches engaged in text analysis and writing in ways that directly model procedures admired and promoted in the school, although the specific content and purposes differ.

The Anderson literacy project taught us important lessons about inter-ethnic research. In Anderson's project, a Black person was in charge of inter-ethnic research, and capable Chicano and Anglo researchers worked with him. The adjustment of people to the power structures built into the funding was not easy and not complete, because of the institutionally organized differences in the goals of the individuals. Our Japanese colleagues report similar experiences. Hiroshi Azuma, Dean of the School of Education at Tokyo University, discusses in our *Newsletter* the institutionally organized processes associated with international cooperation in educational research.

Sample Publications

Anderson, A. B. (1975). The combined effects of interpersonal attraction and goal-path clarity on the cohesiveness of task-oriented groups. *Journal of Personality and Social Psychology* 31, 68-75.

Anderson, A. B. (1981).. The role of literacy in the non-school and school environments of lower-class children. In A. Humes (Ed.), Moving between practice and research writing. Los Alamitos, CA: SWRL Educational Research and Development.

Anderson, A. B. (1984). *Literate activity within low-income Black families: The dynamic process of socializing preschoolers into literate practice.* Manuscript in preparation. Anderson, A. B., & Griffin, P. (1984). The influence of the home and family on literacy development. Monograph for the International Reading Association. Manuscript in preparation.

Anderson,n, A. B., & Stokes, S. (In press). Social and institutional influences on the development and practice of literacy. In F. Smith (Ed.), *Awakening to literacy*. New York: Heineman Publishing Co.

Anderson, A. B., Teale, W. H., & Estrada, E. 1980, July). Low-income children's preschool literacy experiences: Some naturalistic observations. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 2(3), 59-65.

Anderson, A. B., Teale, W. H., & Estrada, E. (981). How preschoolers interact with written communication. In M. Kamil (Ed.), *Directions in reading: Research and instruction*. Washington, DC: National Reading Conference.

Anderson, A. B., & Teale, W. H. (1982). La lecto-escritura como practica cultural (Literacy as a cultural practice). In *Nuevas perspectivas en los procesos de lectura y escritura*. Mexico: Siglo XXI.

Micro-processor technology and education. Our use of microprocessors as research tools arose from several inter-related issues confronting us in the late 1970's, explaining the somewhat a-typical course that our work in this area has followed. When we began our work on thinking in everyday contexts we were very impressed by the way in which cognitive tasks, when they arose, were quickly disassembled by the group in what we came to understand as a spontaneous division of mental labor. There are many positive sides to this process, but from an analytic point of view, we wanted a better specification of the actions that people were carrying out than we could get from our videotapes in the cooking clubs. Problems implemented on microprocessors seemed like an excellent medium for our work because we could allow two people to work at once, but their key strokes would provide us at least some notion of what they were doing as individuals.

At the same time, we believed that the dynamic properties of microprocessors, while not nearly state of the art for large machines, were sufficient to permit us to create some very useful environments within which children could be seduced into getting rich and varied experience in domains of knowledge (such as the number line or vocabulary) which appear as important components of basic skills such as long division and reading.

The microprocessor, complemented by a telephone line, also allowed people in different locations to interact with each other using message systems, a potential which we believed could provide an excellent resource for education. Finally, we believed that the text production capacities of the microprocessor could serve as an important prosthetic device for students who experience unusual difficulties with written language.

Encompassing all of these interests was a deep concern; how could the potential of microprocessor technology be used to decrease the existing gaps in educational achievement between rich and poor. Were inequities inevitably to be increased, or could social organizational measures be taken to amplify significantly the achievements of segments of the population who traditionally struggled with school?

We have found microprocessors useful for so many of their originally intended purposes that they are now included in environments that have other activities (such as bilingual teaching) as their foci. In the interests of brevity, I will list several especially noteworthy results.

1. Jim Levin, joined at different times by Andrea Petitto, Margaret Riel, and others, created families of game-like activities that built a strong representation of the number line as a key element in basic arithmetic operations. In some of their studies it has been possible to show transfer of the skills learned in these games to paper and pencil testing. Using these and other specially constructed programs, Riel created a "mental gymnasium" which provides trainees with extensive and targeted training in a variety of basic skills.

Sample Publications

Levin, J. A., Boruta, M. J., & Petitto, A L. *How do children think about numbers? Let us - count the ways.* Paper presented at the Fifth Annual Cognitive Sciences Conference.

Levin,, J. A, & Boruta, M. J. (In press). Writing with computers in classrooms: "You get -- EXACTLY the right amount of space!" *Theory Into Practice.*

Petitto, A. L., & Levin, J. A. (1983). Dynamics of learning and mislearning in a simulated micro-world. *Proceedings of the National Educational Computer Conference*.

2. At about this same time Levin, Warren Simmons and Luis Moll translated, adapted and developed computer programs to make their content and language adequate to minority cultural group users. For example, an estimation/computation game called Lemonade was translated into Spanish and Tagalog and subsequently used in bilingual classrooms. A new activity was developed from a program called story maker, which made the content particularly salient to inner city children.

3. Levin, Moll and Peg Griffin developed and implemented a pilot research project in a multiethnic community in which a computer was placed in an adult-gathering place as a way of introducing the technology to a population unlikely to have access to the machines. They found that community members were eager to learn more about what computers are about and to explore how these machines are relevant to their lives. In one attempt at linking community interests to computer use, a Visicalc program was adapted to help local residents do comparative food shopping.

The user would enter what items they wanted to buy and the computer would tabulate total cost, including transportation, for four different stores in the area. Similar programs were developed to select daycare facilities, among other functions.

4. Levin, Riel and others have developed a system of writing activities which support writing for novices. In collaboration with Ron and Suzanne Scollon in Alaska, these activities were modified for use by Alaskan native children writing in either English or their native language.

Sample Publications

Cohen, M., Levin, J. A., Mehan, H., & Souviney, R. (1984). Exemplary classroom computer use: *A time for tools*. Report to the Teacher Education and Computer Center, San Diego/Imperial County Region.

Levin, J. A., Boruta, M. J., & Vasconcellos, M. T. (1983). Microcomputer-based environments for writing: A writer's assistant. In A. C. Wilkinson (Ed.), *Classroom computers and cognitive science*. New York: Academic Press.

Levin, J. A., Riel, M. M., Rowe, R. D., & Boruta, M. J. (In press). Muktuk meets Jacuzzi: Computer networks and elementary school writers. In S. W. Freedman (Ed.), *The acquisition of written language: Revision and response*. Hillsdale, NJ: Ablex Press.

Levin,, J. A., & Souviney, R. (1983, July). Computers and literacy: A time for tools. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 4(3), 45-46.

5. A major line of investigation involves the use of message systems in conjunction with classroom activities to enhance educational attainment. In an initial study with college students, Black, Levin and Mehan showed that students taught via a message system took a more active stance vis a vis the teacher and the to-be-learned materials with measurably favorable academic outcomes.

In an important extension of this idea, Riel and Levin showed that the requirement to come up with a joint product, combined with the ability to enter the interaction publicly at times of their own choosing, induced poorly achieving American students and Eskimo children to request time to work on basic writing skills, and improved their academic performance.

Sample Publications

Black, S. D., Levin, J. A., Mehan, H., & Quinn, C. N. (1983). Real and non-real time interaction: Unraveling multiple threads of discourse. *Discourse Processes*, 6, 59-75.

Quinn, C. N., Mehan, H., Levin, J. A., & Black, S. D. (1983). Real education in non-real time: The use of electronic message systems for instruction. *Instructional Science*, 11, 313-327.

6. Diaz, Griffin, and Cole created an educational fantasy world comprised in part of microprocessor-based activities of various ranging from arcade games to programming languages. Used in conjunction with other educational activities, this environment proved effective in inducing children to work hard over extended time periods on a wide variety of intellectual problems. And enabled multi-content, context observations to be made concerning children's abilities and disabilities regarding memory math literacy and problem solving.

Sample Publications

Laboratory of Comparative Human Cognition. (1982, July). A model system for the study of learning difficulties. *The Newsletter of the Laboratory of Comparative Human Cognition*. 4(3), 39-66.

7. Mehan and his colleagues carried out several studies of microprocessor use in classrooms, with special attention to the problems of teachers given machines they don't understand in inadequate numbers with inadequate software. The are currently cooperating with the San Diego City Schools on applications of microprocessors in classrooms.

Sample Publications

Mehan, H. (1983). The role of language and the language of role in institutional decision making. *In Language in Society*.

Mehan, H. (1984). Practical decision making in school settings. In B. Rogoff & J. Lave (Eds.), *Cognition in its social context.* Cambridge, MA: Harvard University Press.
Mehan, H., Hertweck, A., Combs, S. E., & Flynn, P. J. (1982). Teacher interpretations of students' behavior. In L. C. Wilkinson (Ed.), *Communicating in the classroom.* New York: Academic Press.
Mehan, H., Hertweck, A., Meihls, L., & Crowdes, M. M. (1981). Identifying handicapped students. In S. S. Bacharach (Ed.), *Issues of school organization and school processes*. New York: Praeger Press.

8. Billy Vaughn and Peg Griffin have devised microprocessor games that teach vocabulary in ways that implement proven paper and pencil instructional programs. These programs are currently being tested in an inner city school with children who have fallen far behind the reading norms for their grade and are proving popular with children and school personnel.

9. Esteban Diaz, working with graduate students and junior LCHC staff created a computer literacy camp especially designed to give minority group children access to basic computational principles as well as extensive basic skills practice. Their mixed activity systems were exceedingly effective in capturing the intelligence and motivation of children who were alienated from schooling for a variety of reasons. -. -•

Studies of educational decision making. Bud Mehan and two predoctoral fellows carried out a study of the processes by which children are singled out for special educational help within the school system. Their work shows clearly that the outcome of the decision making reflects a complex, social "satisfying" process which is shaped at least as much by the availability of money in specific categories as by any demonstrable psychological/educational characteristics of the children. This work became directly relevant to understanding problems of remediation discussed below.

Studies of re-mediation. One of the lines of work coming out of LCHC's time at Rockefeller University was the analysis of learning disabled children and a desire to find ways to help them achieve a full education. LD children presented an especially interesting version of the basic paradoxes we had long been working with. They are defined as having normal intelligence, yet they fail badly at a variety of school tasks, notably reading, writing and arithmetic. In 1980-81 we banded together with Ann Brown and Joe Campione, researchers who had long worked in remedial education, to study the problems of learning disabled children in the school.

A year of observational work was sufficient to lay bare the multiple layers of incoherence surrounding efforts to assess and educate children designated LD. The children so designated by the schools were not detectably different from other poor readers in the level or profile of their standardized test scores. The instruction that they received did not seem to be working, and an aura of frustration surrounded the entire topic. By the middle of the 1981-82 academic year, we had reached a dead end with our observational work; it was time to try selected interventions to probe the system and see if we could make a difference. But such procedures would have meant tampering with the established program of activities for these children, which the teachers were not about to permit.

After contemplating giving up the project, we decided instead to set up an after school program in which we would instantiate reading activities designed to diagnose and remediate the children's problems in a single setting. Under the direction of Peg Griffin, we set up an after school activity center we called Field College, where we took on the school's difficult and incorrigibly difficult students. The children were put through four different curricula designed to teach reading comprehension directly. They also received individual diagnostic testing and training and rich practice in playing a variety of computer-based games. Finally, they were assigned big brothers and sisters from UCSD as a further means of support and of providing us with knowledge about their lives outside of school settings.

Following an initial pilot program lasting from December-June during which various strategies for creating activity contexts at Field College were tried out, a replication of the basic reading procedures was carried out under more controlled conditions and the micro-processor activities were woven into a fantasy world that required the children to engage in active analysis of their own learning activities (dubbed The 5th Dimension).

In order to implement the diagnostic/remedial procedures, we found it extremely useful to include university undergraduates in our activities in a dual role. On the one hand, they acted as big brothers and big sisters to the children, getting to know them, helping them out, and providing role models for their everyday lives. On the other hand, the undergraduates would act as willing participants in our reading activities, helping to hold the activities together, even when the children were uncertain about what to do, or unwilling to do it. (I mention this role of UCSD undergraduates here because it will be important when we get to the issue of institutional change.)

A great many lessons have been learned from this work, which ties back in important ways to all of the previous work done in the Laboratory. Perhaps the strongest empirical result was our discovery that despite a wide variety of different presenting symptoms, the children we were working with had a common wrong idea about what reading is about. Put simply, they had formed the hypothesis that reading means creating the right oral rendition of the phonic characteristics of alphabetic characters. They did not understand the interpretive goal of reading and the activities they engaged in to achieve the goal they did understand was systematically blocking discovery of the correct system of mediation.

The work on remedial reading has evoked an extremely enthusiastic response from educators, reading researchers, and parents. After publication of a preliminary report of this work in the Newsletter in 1982 we were asked by several national organizations to give talks about the diagnostic/remedial program and implications for teaching learning disabled children. Somewhat ironically, since one reason for leaving Rockefeller University was a strong presumption that we would have to work on the problem of learning disabilities, the fruitfulness of our approach to this problem has made it a central focus of attention. It combines detailed focus on interaction-in-context with an analysis of institutional forces that shape diagnostic categories, and ethnographic work in the community. It has also proven to be an outstanding medium within which to teach undergraduates, graduate students, and post-doctoral fellows about the principles of comparative, cognitive research.

Sample Publications

Cole, M., & Griffin, P. (In press). Current activity for the future: The Zo-ped. In B. Rogoff & J. Wertsch (Ed.), *Children's learning in the zone of proximal development*.

Griffin,, P., & Cole, M. (1984). Model systems for re-mediating reading difficulties. In R. Glaser (Ed.), *Cognition and instruction*. L.E.A.

Laboratory of Comparative Human Cognition. (1982, July). A model system for the study of learning difficulties. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 54(3),39-6666 (special issue).

Cole, M., & Griffin, P. (1983, October). A socio-historical approach to re-mediation. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition*, 5(4), 69-74.

The Fellowship Program: A Ten Year Summary

MARY CROSS obtained her Ph.D. in experimental psychology from Princeton University. During her stay at LCHC she conducted research on the development of memory and problem solving. Subsequently she was on the faculty of the Merill-Palmer Institute before moving to the National Institute of Education.

KATHYNN HU-PEII AU was a Ph.D. candidate at the University of Hawaii; transferred to University of Illinois with Bill Hall's help where she received her Ph.D. in 1980. She is presently head of the curriculum department Kamehameha Early Education Program, Honolulu Hawaii. Very active professionally, Dr. Au has given numerous papers and written several articles on her very successful,, culturally sensitive methods for teaching reading.

RAPEHILENEE BANKS obtained her Ph.D. from CUNY following predoctoral fellowship in LCHC. Her dissertation investigated variability in Black children's cognitive and linguistic performance as a function of the conditions of testing.

DENISE BORDER-SIMMONSS was Curriculum Specialist, Project Cultures,, a magnet school pro- gram designed to reduce minority group isolation, in the Ithica city school.. As a predoctorall fellow in LCHC, Dr. Simmons completed her dissertation on the interaction between communicative context and evaluations of Black children's linguistic competence. After obtaining her Ph.D. from Teacher's College, she continued work in applied linguistics and curriculum design. Now Evaluation Consultant CTB/McGraw Hill.

SHELA BROLESS was B.A. from San Diego State, now a psychology graduate student at UCSD. Ms. Broyles is conducting research on the use of microprocessor editors and networked message systems for assisting learning disabled college students to produce adequate English text.

WADE BOYKN was Assistant Professor of Psychology, Cornell University; presently Professor of Psychology, Howard University. During his stay at LCHC Dr. Boykin elaborated his theory of environmentally induced motivation as it applied to the tested performance of Black students; he was among the first to see the implications of Gibsoniann perceptual theory to problems of culture and cognition.

DOROTHY CARERR was working in the teacher education program of Bank Street College and Coordinator of the In-Service Teacher Education Program at Bank Street from 1970 and Program Associate, Principals Leadership Institute Bank Street College; presently Faculty Advisor, Graduate School of Education Bank Street College of Education, New York. She has written monographs on multicultural education and literacy development.

WILLIAAM E. CROSS, JR. was Assistant Professor at Cornell. Now Associate Professor African Studies and Research Center, Cornell University, Dr. Cross has written extensively on self identity and family development among Black people. He has been instrumental in organizing and maintaining networks of Black scholars.

ESTEBAN DIAZ was graduate student at the School of Education, Harvard University; while a predoctoral fellow, Dr. Diaz completed his dissertation on the inadequacy of theories linking cultural style to modes of instruction;; currently a postdoctoral fellow in LCHC where he is conducting research on the use of Spanish competence to promote English reading skills among Hispanic students, computer literacy, and model systems for remedial reading instruction.

JOHN DORE was Assistant Professor of Linguistics at Baruch College; now Associate Professor in the Linguistics Department, The Graduate School, City University of New York, Baruch College, City University of New York. While at LCHC Dr. Dore engaged in collaborative research on situation variation in language use and gave seminars on speech act theory and the development of language.

GILLIAN DOWLEY came to LCHC while a graduate student at Chicago (where she obtain her M.S. in Teaching) and then Northwestern where she obtained her Ph.D. in Educational Psychology. She is now a member of the faculty of the Erikson Institute where she teaches and conducts research on the organization of educational environments for preschool children.

ELETTE ESTRADA was an educational therapist, Centro de Aprendizaje, Cuernavaca, Mexico; while at LCHC she conducted research on the organization of bilingual classrooms and early literacy experiences of children in their homes, education of reading handicapped children; most recently a member of the bilingual special education teacher training project, Department of Special Education, University of Texas, Austin, Texas.

ANDERSON J. FRANKLIN was a dean at Medgar Evers College; while at LCHC conducted research on sub-cultural variations in cognitive skills and learning; currently Professor of Psychology, CCNY.

LENORA FULANI was a predoctoral fellow in LCHC while completing her dissertation at the Graduate Center, CUNY; her thesis centered on the everyday arithmetic knowledge of B1ac~childrenn and its relationship to early education; currently active as a psychologist and community activist in New York City.

JANICE HALE was as a lecturer, Department of Early Childhood Education, Georgia State University; currently Associate Professor Early Childhood Education, Jackson State University. While at LCHC Dr. Hale conducted research on cultural continuities in the socialization of Black children in the family; she has published extensively on this topic in recent years.

LAURA HINES was predoctoral student at Fordham in urban school psychology; while at LCHC she completed her doctoral dissertation on tested memory performance in Black and white children as it is influenced by dialect and situational factors; currently Assistant Professor, Ferkauf Graduate School of Psychology, Albert Einstein College of Medicine.

MIRIAM KOIVUKARI was predoctoral student from University of Jyvaskyla, Finland; while at LCHC she designed a dissertation on the organization of instruction in Congolese schools; Currently a visiting research scholar at the Graduate School at CUNY. She also does training workshops for teachers and technical experts going to developing countries.

TERRY LACEY was part-time teacher of social psychology to nurses at the New Nursing School, Reykjavik, Iceland. Now instructor of English, University of Iceland. Teaches English as a second language to Icelanders.

JEAN LAVE Associate Professor Anthropology, School of Social Sciences, University of California, Irvine. While at LCHC she gave seminars and discussed her research on the cultural constitution of cognition and action. Her work has involved an analysis of apprenticeship learning and the everyday use of arithmetic skills by adults from different cultures.

LAWRENCE LOPES was predoctoral fellow while completing a dissertation for the Anthropology Department, Stanford University. His dissertation analyzed family therapy as a group problem solving process, requiring him to integrate theories and techniques from several disciplines. Subsequently, Dr. Lopes conducted ethnographic research on school reform. He is currently a member of the Family and Community Medicine Department, UCSD.

LAURA MARTIN came to LCHC with a strong background in human development and early childhood education. During the Fall of 1981 she went to the U.S.S.R. as an exchange scholar in the Institute of Psychology where she conducted research on the social division of mental labor. She is currently a research psychologist associated with the Teacher Education Program at UCSD.

RICHARD MENDOZA was a new Ph.D. in psychology from University of California, Irvine; now Assistant Professor Psychology, California School of Professional Psychology, Los Angeles, California. During his stay at LCHC Dr. Mendoza worked on problems of acculturation and cognitive style. Since leaving, he has continued to work on issues of cultural change and adaptation among the Chicano population of

JACQUELYN MITCHELL was a new Ph.D. in Education from Harvard University. Now Assistant Professor in Afro-American Studies Program and in Applied Behavioral Sciences at the University of California, Davis. While at LCHC she conducted an ethnographic study of an alternative day care center in the San Diego Black community and wrote about problems in the higher education of Black social science researchers.

LUIS MOLL was a predoctoral student at University of California, at Los Angeles. Now Assistant Research Psychologist LCHC, at UCSD, also Lecturer, Department of Communication, UCSD. For the past few years Dr. Moll has been conducting research on the organization of bilingual literacy instruction; his studies have included classroom interventions, linking school and community for teaching writing, and the use of microprocessors to help bilingual students.

MOHAMED NYEI a native of Liberia, Mr. Nyei was a key consultant on the Scribner-Cole study of literacy among the Vai He is now working on a Ph.D. in Sociology at New York University. His current research is focused on problems of rural development in underdeveloped countries, particularly his native land.

CAROL PADDEN obtained her Ph.D. in linguistics at UCSD. Dr. Padden's dissertation was a study of American Sign Language in which she demonstrated the existence of linguistic structure which prior linguists had misinterpreted. This work is a part of her larger interest in the relation between language, culture and mind. She is currently Assistant Professor of Communication at UCSD and a faculty member in LCHC.

ANDREA PETITTO was Research Associate in developmental psychology at Children's Hospital Medical Center, Harvard University Medical School. Now Assistant Professor Graduate School of Education and Human Development, University of Rochester and director of the Computer Education Pro- gram. Dr. Petitto carried out a variety of research projects while at UCSD, including the development of microprocessor environments for teaching basic arithmetic concepts and studies of teaching/learning interactions. She is currently conducting research with learning disabled adolescents.

ROGELIO REYES was new Ph.D. from Harvard University. Presently, Lecturer, Mexican American Studies, Sonoma State College. Dr. Reyes has subsequently conducted comparative sociolinguistic research on bilingualism and language mixing among various hispanic groups as they impact literacy and education.

ROBERT RUEDA was Assistant Professor, currently Associate Professor, Department of Special Education, College of Education, Arizona State University. While at LCHC Dr. Rueda studied ethnographic and sociolinguistic methods to complement his background in psychology. He also engaged in research on a culturally heterogeneous learning disabled group emphasizing literacy as an everyday activity.

ROBERT SERPELL was Senior Lecturer and Head Psychology Department, University of Zambia. Presently, Professor of Psychology, Director Institute of African Studies, University of Zambia. During two stays at LCHC, Dr. Serpell gave seminars and wrote on problems of culture and cognitive development.

WARREN SIMMONS was predoctoral student at Cornell University; now is Research Psychologist at Army Research Institute. Dr. Simmons' dissertation was a study of the influence of culture-specific knowledge on children's concept identification performance. While at LCHC he participated actively in efforts to generalize the results of cross-cultural work to understanding subcultural variations among U.S. populations. He is currently working on evaluation of the Army's Basic Skills Education Program and helping to develop a computer assisted job skills education program.

SHELLEY STOKES was Coordinator, Program Services, Spokane Community Mental Health Center; presently Program Supervisor, Pomona Valley Mental Health Clinic, of the Tri-City Mental Health Authority, California, where he coordinates and supervises the clinic's outreach and education program. During his stay at LCHC, Dr. Stokes studied ethnographic and quasi experimental methods for use with minority group populations. He participated in a major study of literacy in the homes of Black preschoolers before accepting his current position.

FAY VAUGHN-COOKE was Associate Professor University of the District of Columbia, a position she still holds. Dr. Vaughn-Cooke has conducted basic research on language acquisition among Black children and developed methods appropriate for diagnostic testing of Black children with suspected communicative disorders.

BILLY VAUGHN was candidate for M.S. at California State, Long Beach in psychology; now Ph.D. candidate, Psychology Department, UCSD where he is doing research on computer-based curricula for teaching reading, literacy in the black community, and concept formation.

Fellows: **Summary characteristics**. In November 1983 we attempted to contact all of the former fellows of LCHC, asking them to provide a vita and comments about the influence of their fellowship experience on their careers. At the time of this writing, materials have been received from 30 of people. In this section we make a few summary observations about characteristics of this group.

The group is almost evenly divided between predoctoral fellows, whose dissertations were completed at LCHC, and postdoctoral fellows who came to the Lab to learn new research techniques or to work on theoretical problems of inter-disciplinary, cross-cultural research. Approximately 50% of the fellows are Black, 25%Hispanic, and most of the remainder Anglo. While in New York, the proportion of Black fellows was larger, owing in good measure to the work of William Hall, who was central to the formation of the training program. After moving to California, a somewhat larger proportion of the fellows were Hispanic, in large measure as a result of Luis Moll's influence.

In keeping with the intellectual focus of the program, fellows come from a variety of social science backgrounds in addition to psychology. Their common focus is on the issue of ethnic and cultural diversity as it influences the organization of effective educational environments. Other common concerns include questions of language and cognition and the importance of context on cognitive performance.

These foci are evident in the positions which former fellows now occupy. Whether in Government agencies or Universities, the fellows are engaged in research on more effect means to educate segments of the population who find formal schooling a struggle.

Fellows: Summary of comments. Copies of statements from those fellows who commented on their training are included here to provide an account in their own words of the value of the training aspect of LCHC's activities. Major common themes can be summarized as follows:

1. LCHC provided a support system within which it was possible to work out a plan of research that reflected the fellow's scientific aspirations and the techniques to help them implement their plans.

> "Since 1971 I have worked with other Asian- and Polynesian-American educators in a program nationally recognized for its effectiveness in improving the reading achievement of Hawaiian students. My ability to contribute to this program was greatly enhanced by my LCHC training. This training helps make it possible for me to pursue practical educational research questions which by their very nature require the application of other than traditional experimental theory and methods."

> "I feel very indebted to the LCHC Fellows Program. It launched me into the social science research community in a totally compelling way and contributed very substantially to my work. I am happy to say 1 am now building a research program that the Lab can be proud of and take some credit for!"

"I came to the Laboratory to complete a dissertation I had started during my last year of coursework at UCLA and to participate in the Laboratory's training program. I was familiar with the work of Cole and his colleagues in Liberia, which included a series of "referential communication" experiments similar to the ones I was conducting bilingually with Chicano and Anglo children in Los Angeles (my dissertation topic). I was convinced of the relevance of their work to my research with Latino children in Los Angeles. Contrary to the prevalent view of minority cultures as problematic to children's intellectual development, these researchers worked on the assumption that other people's cultures were as rich and complex as the majority culture. Their attempts at supplementing traditional psychological methods with ethnographic observations were very exciting and promising. Second, I was introduced to sociolinguistic/ micro-ethnographic research and to the use of videotaping as a research tool."

"A critical problem facing minority social scientists who are concerned with investigating ethnic behavior, cognition and development is to acquire the necessary research tools and to develop alternative theories of intellect with which to describe those populations in terms of practices and experiences that are culturally relevant to its members. In fact, many top-notch graduate programs at major universities do not adequately offer the kinds of research experiences necessary and relevant to prepare minority scholars to carry out these goals. The Laboratory of Comparative Human Cognition, under the direction of Michael Cole, addresses this problem in its fellowship training program. It is structured as an interdisciplinary forum, offering a rare opportunity for students to both study research methods with noted scholars and to participate in theory building."

"My experience at the Laboratory gave me a much broader view of cognition and it's relation to culture and human interaction. This has been of enormous benefit, both theoretically and methodologically, to my current focus on human learning processes ...In particular collaboration with Mike Cole, Peg Griffin and others working with learning disabled children has led to research opportunities with learning disabled adolescents...work with Jim Levin, Margaret Riel and others introduced me to the use of micro-computers and the study of children's interactions with and around them ... In addition to technical knowledge of computing, the principles of micro-computer based educational interaction first formed with the LCHC group, have served me very well in developing progressive, innovative and effective programs for teacher training and curriculum development in the use of computers in all areas of education, from the arts to computer science. This is especially true in the area of reading and writing."

"My training at the Laboratory of Comparative Human Cognition included experience in planning research, doing background reading and preparation for research, collecting data, analyzing data, and interpreting and evaluating research findings--from which I have acquired skills useful in both laboratory and field work situations..."

As the result of this mutual collaboration facilitated through the LCHC, I have been able to work with my colleagues in the publication of one book and several articles."

"These periods of direct contact with the Lab have been immensely beneficial to me in a number of ways, by affording me opportunities to take stock of my research work, reflect on it and prepare it for presentation to a variety of audiences (in the form of seminar papers, lectures, journal articles and chapters for volumes)..."

"To my surprise, I found that people at the Laboratory were not only interested in my work but actually doing research related to my own! I met with Mike Cole and Bill Hall on a weekly basis and the guidance I received from them and other members of the Lab helped me to see the strengths and weaknesses of my work more clearly. I also had an opportunity to interact with people in linguistics, anthropology, and sociology, something that rarely occurs in graduate training. These interactions helped me to expand the conceptual base of my own research."

"Upon close inspection of some of the interesting events recorded in my observations, I was able to isolate a set of data for closer analysis. Under the guidance of you [Mike Cole] and Dr. Peg Griffin that work has become a very formalized and useful set of information in our field of study."

2. This support included both a high level of individual attention from senior laboratory staff and strong peer support from other fellows.

> "I wanted to use the observations which LCHC has systematically organized into a working whole, for example, elements of "cultural practice"' theory, and the extensive amount of time that I spent with members of LCHC, primarily Dr. Cole, Dr. Mehan, and Dr. Griffin, to discuss theoretical and methodological issues concerning this and other ongoing work."

> "There I met senior researchers sympathetic to the practical concerns I had for the learning to read of minority students. These were people, like Ray McDermott, with a level of theoretical sophistication and analytic expertise which I have now come to recognize as rare and perhaps at that time, unique."

> "My experience with LCHC was, and remains true now, one of the best opportunities available to interact in a thoroughly rigorous way with professionals concerned with exacting science coupled with humane social awareness in pursuing an understanding of human development in a complex world."

> "The conversation, the work pace, the colleagues and the endless visitors to the Lab made for the most exciting, challenging, and personally gratifying experience that a research scientist can imagine. It was also a good way to be a citizen. We worked on issues relevant to the publics surrounding us, and we did so with a group of people from a consistently diverse set of race, class, gender, and culture strains...

Institutionally, my time at the Lab was pure gold. It gave me time to work and people to work with. I am still emptying my drawer of projects started while at the Lab. Some will sit forever. Some will emerge in new forms. But they will not go away. I teach from them and use them as entry to a wide interdisciplinary conversation that keeps me in touch with many good scholars around the country."

> "I certainly consider that Bill and you played a very important role in the formulation and execution of my doctoral project."

> "Professor Cole is unique in making the training of minority scholars a professional reality. He assumes primary responsibility for teaching and directing the LCHC fellows in weekly scheduled group meetings as well as in numerous personal sessions. During these times he broadens the trainees' research potential by offering encouragement, advice and knowledge on specific research problems. Professor Cole creates, in this way, a shared learning context, a collaboratively structured environment where students can incorporate his expertise and scholarship into their own research areas of interest. He values the input of minority students, encourages them to challenge the validity of existing theories, and motivates them to pursue viable theoretical alternatives. Commendable traits of this nature contribute significantly to his superior teaching style."

> "I am very impressed with the resources available in the Laboratory. There has always been someone available to help me with a variety of tasks. Recently, I was able to make use of the computer consultant to help me determine the most efficient way to analyze some data I am analyzing."

> "Perhaps most importantly, the greatest influence of being in the Laboratory has been the wide exposure to many areas of social science, often through meeting some of the world's foremost scientists. I can safely say that my time at the Laboratory has been the most influential part of career thus far. I am currently working on a book about the development of conversational skills in children, and most of the central ideas for the book arose in the contexts of working in the Laboratory."

The Lab's twin emphases on interdisciplinary and intercultural research made it especially helpful to minority group scholars whose contributions were made to feel valuable, even at early stages in their careers.

> "I really appreciate the opportunity to work and learn in a multi-ethnic environment. It is very important that members of underrepresented cultures have a medium which allows them to express themselves among people who share their socio-cultural history, yet have a sufficient amount of diversity of other ethnic groups to develop a well-rounded understanding of shared ideas and experiences."

"One of the main attractions of the Laboratory of Comparative Human Cognition was the work that I had read from several of the members in which there was a great deal of emphasis on everyday activity as a valid topic of study. For example, Mehan's Learning Lessons examined classroom interaction in actual classroom settings and documented unique discourse patterns characteristic of classroom activities. I was especially interested in gaining more extensive exposure to research methodologies which permitted systematic examination of activities of theoretical interest in daily life rather than in de-contextualized settings. I felt that this was especially important in making meaningful statements about the behavior of mentally retarded students, since virtually all of the available knowledge regarding problematic learners was laboratory based."

"The Laboratory of Comparative Human Cognition was exceedingly beneficial in enlarging my consciousness and knowledge base about human cognitive variability, some cultural factors that affect cognitive behavior, and that differences in cognitive styles and behaviors are not necessarily to be con strued as cognitive deficits."

"I considered the training in cross-cultural cognitive psychology to be extremely valuable to my research and teaching."

"...my internship with the Lab had considerable impact on the work that I am currently doing. What is not apparent however, is the value of working in a receptive and ethnically diverse environment where the exploration and development of cross-cultural issues are strongly encouraged and supported. This, I believe, is where the value of the fellowship program at the Lab is unique and especially significant. This is also why I have maintained my ties with the Lab and have looked to its members for suggestions and critiques of my current work."

"...I am thankful for the time spent at the Lab for the opportunity to interact in a multi-cultural interdisciplinary context on the issue of culture and cognition as formulated in the Lab's theory and as applied in the various projects which comprise the Lab's work."

"Under the guidance of Dr. Alonzo B. Anderson I was able to learn the fundamentals of ethnographic research from a multidiscipline perspective!"

4. The Lab has provided an ongoing support system through networking among sub-groups of fellows and through the medium of the Newsletter, the importance of which several fellows commented on:

"I believe the Lab's major power is in the ongoing and sustained nature of its influence. There are tangible measures of this: the Newsletter, which I think of as the central communications mechanism for the wide-ranging network of people who are working at the cutting edge(s) of research on culture and cognition. And there is the communication network that the Laboratory has established. It provides tangible support for the growth that comes through keeping in touch with Lab scholars and others ... It seems to me that much of the extraordinary influence the Lab has had over the years comes from the intense commitment to mutual-help; to a fluid, shifting set of roles in which very little attention is given to the formal disciplinary and status concerns that impede education in general and interdisciplinary work in particular. The focus has been single-mindedly on the best possible social science research -- with extraordinarily powerful results."

"Many of the colleagues I interact with professionally are ones that I met and built friendships with when I was a fellow in LCHC."

"The most valuable benefit I received through my affiliation has been the human resources I was introduced to. I encountered scholars at different levels of their careers (doctoral students to senior professors) to talk to, study, and collaborate with."

"On the intellectual level, the Lab is a constant wellspring of new and exciting ideas. The week I was able to spend there last April only confirmed what I remembered. There is nothing like it. In one week, I was introduced to more people and ideas than I had heard during the previous year, and this in the face of the fact that I do not run a dormant intellectual life. I teach and lecture all over the place and am constantly organizing interdisciplinary study groups. But there is an intensity of focus at the Lab that is simply impossible to produce with the hit-and-miss busy schedules most of us live through at other places of employment...it is a place to turn to for clarity on many issues. In my own case, the work I was able to do on psychology during my years at the Lab helps me, not just on the issue of school performance where psychological language rather uncritically reigns hegemony over other interpretations of children's behavior, but in the rest of my social science work as well."

"Although I am presently at the University of California, Davis, my interactions with Professor Cole continue. He continues to guide the theoretical underpinnings of my research."

"...enabling me to see my own on-going research as part of a network of activities being undertaken by psychologists, anthropologists and linguists in various parts of the world, and forcing me to think about the similarities and differences amongst our various approaches; stimulating me through interaction with other researchers in related fields to articulate more precisely the theoretical basis of my research."

"The Lab provided an interested, critical and supportive environment in which to do my work and to contribute to the work of others. The Lab provided me with a set of colleagues to work with, exchange ideas with, write with and learn with, things that I didn't have prior to my experience at the Lab. I still write with, argue with and learn with the colleagues and friends I made during my time there. In fact, I discovered that being a member of the Lab is something that does not end when one leaves its physical space. I for one feel that my membership in the Lab will endure as long as the questions we've all asked remain unanswered."

"I can only observe that now when puzzling and perplexing problems of minority education arise on any level (preschool to graduate school), as they so often do in this field, I have a cohort of colleagues whom I feel I can call on to consult in these matters. I have an "in" to a network of minority professionals."

"Although I increasingly read in areas far from apparent Lab concerns (history, economics, and literary theory), at least half of my conversational partners around the world are Lab-derived. The resources and even problems addressed might shift, but the concern for description and the concern for a tight fit between theory and method, so crucial to Lab life, remain dominant."

5. The research program of LCHC has provided researchers with a way to reconcile their belief of close connection between social and mental phenomena with the requirements of science.

"It seems to me that everything I am presently doing -- in research, writing or teaching -- is a natural continuation of the activities I engaged in at the Lab."

"Culture" has not yet joined "person" and "environment" as a necessary category for psychology but the Lab's position has won adherents and few discussions go on today about the nature of psychology and its ability to speak to the human condition that do not take account of the Lab's works and views. I'm not the best person to speak of the Lab's impact, because so much of it interweaves with my own history -- but I keep discovering sometimes with surprise, how widespread its intellectual influence has been. If it has not become part of the mainstream, it is certainly recognized as an important component of the forward stream. I would only wish that the Lab's influence as a "model research institution" were as great. Where else is there an inter-racial, multicultural Lab? Or one so committed to multiple perspectives? My experience has been that academics are more ready to preach than to practice -- something you've had to reckon with all this while. No wonder guilty consciences want to shoot it down."

"Although completing my dissertation was obviously the primary goal of my fellowship, the most important aspect of my work at LCHC was participating in the training program .... It was not until I studied Vygotsky's

> ideas in the context of the work of LCHC, that I realized the profound significance of his ideas to my research interests: he was proposing a psychological theory that included culture as its central component. I began to realize, to have an inkling really, that this theory provided me with a way to move beyond merely criticizing existing research with Latino children on methodological grounds and instead propose alternative approaches. That is, I was armed with a psychological theory that stated that a group's cultural activities, instead of being considered a liability, should be considered a powerful resource for cognitive development."

The Newsletter. One part of our agreement with the Ford Foundation was that we would work out some effective system of dissemination. Bill Hall and I decided upon the Newsletter, a semi-formal device that gave visibility to the discussion we were trying to evoke: what part does culture play in the constitution of cognitive processes? We invited articles of all kinds relevant to developing our ability to be explicit about this topic and we got them. In the seven years of its existence, the Newsletter has published somewhat over 100 articles and approximately 80 reviews of articles and books.

Most of the articles were originally written for the Newsletter. But in a few cases we reprinted articles that we thought contained especially interesting material that ordinarily would not be encountered by social scientists, or classic pieces that are currently hard to obtain. So, for example, we reprinted two articles by Slavic literature specialists on the ideas of Mikhail Bakhtin, the Soviet semiologist who is a currently influential theorist of language-culture-politics-thought relationships and methodological articles by D'Andrade and Romney on anthropological and psychological approaches to cognition and 1.Bloom on language coding schemes.

About 20% of the articles published are by foreign scholars, including contributions from Japan, the USSR, Brazil, Switzerland and Israel. We take this to reflect success in making the theoretical context for the work interaction. Our success at inter-group theoretical discussion among various cultures in the U.S. was not nearly so dramatic. Only 10% are by minority group scholars in the U.S.

The topics covered by these articles and reviews, although they cluster around the problem of social organization and mental ability, are as diverse as the authorship. A rough categorization would include articles on technology, language, social interaction-in-context, methods of analysis, the ecological validity of experimental and psychometric techniques, and the relationship between macro-social indicators and tested performance.

The Newsletter has reached into a variety of disciplines and across a great variety of national boundaries. The subscription list includes a diverse group of students and social scientists as well as research institutes, private foundations, professional organizations and government research agencies. At last count, the Newsletter is received by scholars representing approximately 30 different countries.

In the early days the Newsletter was produced by The Rockefeller University Press, high quality, but high cost proposition. For the first two years we built a readership through mailings and a low subscription rate. This procedure got the Newsletter out to do its assigned dissemination function, but it did not create a self-sustaining operation.

After LCHC moved to UCSD, we began to concentrate on making the Newsletter self-sustaining. Our staff began to study layout, we learned how to create text files using the University's centralized computer facilities, and have now arrived at the point where we can produce a 1000 copy issue for approximately $1200 not counting salaries. Our annual income from 600 paid subscribers is generally $6000.

Starting with the Fall, 1983 issue, editorial responsibility for the Newsletter was turned over to three former fellows of LCHC, representing diverse professional concerns and cultural backgrounds. The new editors have mounted a subscription effort in the hope that they can, with minimal logistic support from LCHC, have a self-sustaining operation.

A number of former fellows, when queried about their LCHC experience, have mentioned the Newsletter as one of the important resources of the Laboratory. We have received letters from many readers commenting on its usefulness. There have also been numerous suggestions from would-be publishers to convert the Newsletter into a formal journal. We resisted that suggestion in the past, for reasons that we wrote about in September, 1976 and October, 1981 (see Appendix), for editorial by Hall and Cole. It is too early for me to predict where the new editors will go with their efforts, but I assume that they will continue to use the Newsletter as a vehicle for communicating ideas about issues of importance to those pushing social diversity and educational access.

International Cooperation at LCHC

Beginning as it did with puzzles raised by cross-cultural research, it is not particularly surprising that the Laboratory would have something of an international flavor. This aspect of our work has been enhanced by the fact that for the past 15 years I have been the editor of Soviet Psychology, the translation journal, as well as the commissioner for psychology in the exchange between the ACLS and the USSR Academy of Sciences. We have carried out collaborative research and exchanged postdoctoral fellows, although the current international situation has greatly reduced the level of activity.

In 1981 an important new dimension was introduced to our international connections when I was invited to spend two months in Japan lecturing about culture, cognition and education. Since that time, we have had an exceedingly fruitful working arrangement with leading Japanese cognitive scientist educators. We have met yearly to discuss problems of mutual concern (our next meeting, on technologies of understanding, is scheduled for Tokyo in September of 1984). To make matters really interesting, the Japanese are extremely sophisticated about *Soviet* psychological theories, so that we find ourselves constantly "triangulating" on each other's understandings.

Several closely inter-related themes dominate this international discussion. First, there is the problem of the *social* origins of individual psychological processes. The Japanese and the Soviets both present us with collectivist cultural traditions which place society prior to the individual in the ceaseless dialectic of socialization and procreation. It is the Soviets, however, who have elaborated the consequences of this view in the most detail within the framework of modern psychological science. In the terminology of Soviet research, development proceeds from the *inter*-psychological to the *intra*-psychological. The structure of interpersonal interaction, thus, gives us important hints about the structure of internal, psychological activity; hence we, along with the Japanese study closely Soviet approaches to the cultural nature of mind.

Second, we along with the Soviets and the Japanese, are very concerned with the relationship between early socialization, school success and work. Here we and the Soviets share the common problem of ethnically heterogeneous societies that must, nonetheless, come to terms with the homogenizing forces of modern industrial modes of production. The Japanese are fascinating for the way in which they have learned to encapsulate and subordinate the technology to traditional cultural values. At the same time, the Japanese are facing up to the fact that once one interacts with the devil of modern technology, it may be too strong for traditional cultural values to subordinate; they simultaneously look to us for our technical ability to use the technology and for hints about how to keep the technology from ripping their cultural values to shreds.

Unsurprisingly perhaps, a central topic for our discussions with the Japanese has been the nature of expertise and the kinds of educational arrangements that foster it. In contrast with many American cognitive scientists, we emphasize with our Japanese colleagues the idea that expertise is a *developmental* process, because there are qualitative shifts in the organization of information as well as quantitative changes in the efficiency of performance. Their studies of the acquisition of expertise in interaction complement nicely our work on the acquisition of basic skills in interaction.

The shared belief that cognitive science must include socio-cultural as well as individual-biological elements entails a common concern with general problems of theory and methodology that has greatly helped LCHC in its attempts to formulate a cultural psychology. It is significant, for example, that neither our Soviet nor our Japanese colleagues find it strange when we talk about "methodology" in contrast with "methods" while our American colleagues ordinarily treat the two terms as synonymous. The fact that the Japanese and Soviets disagree on many matters, but agree that theories entail certain orders of relevance for specific kinds of data, means that our critique of specific methods is seen, correctly, as implying a different kind of theory. The fact that both groups are sympathetic with our attempt to include culture systematically in a psychological theory means that we have in these groups critics who understand what our efforts entail.

LCHC has profited enormously from both sets of contacts as well as from the stream of visitors from Europe, South America and Asia who have come to the Laboratory as guest researchers and visitors. It is gratifying to see our approaches taken up in societies quite different from our own, where we seem to have affinities that run quite deep in the human experience. On the other hand, it is very discouraging to see how the attempt to include culture in a theory of mind constantly loses out to the imperatives of industrial production and international competition.

Sample Publications

Cole, M. (Ed.). (1978). *The selected writings of Alexander R. Luria.* White Plains, NY: Sharpe.

Cole, M. (Ed.). (1978). *Soviet developmental psychology.* White Plains, NY: Sharpe.

Cole, M., John-Steiner, V., Scribner, S., & Souberman, E. (Eds.). (1978). L. S. Vygotsky, *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Cole, M., & Hall, W. S. (1981). Newsletter devoted to Japanese psychology. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition,* 3 (2), 21-40 (special issue).

New Technologies and LCHC

The approach to culture and mind developed over the life of this program gives LCHC an unusual relationship to the new technologies of communication that have come to such public prominence during the same period. Virtually all of the research summarized in previous sections has used one or another medium of communication (language, writing, microprocessor micro-worlds) as part of the system of mediation under study. The close theoretical tie between media and tools as both analytic devices and means of transforming mind is one reason why LCHC found the Communication Department a congenial home and education a natural domain of research.

In addition to this embedding of media in research, we have sought to make exploration of new media a means for attacking the very serious issues of social inequality that arise whenever a new means of communication enters into social life. This concern has expressed itself in a number of ways. Our research on computer use in the schools, for example, has concentrated on ways to avoid creating even greater achievement gaps between rich and poor by inventing new systems of activity that would be especially appropriatable by those traditionally occupying weaker places in the educational system.

Two projects begun during the past year stand somewhat outside these efforts in their focus on media and the information access. Each has manifested special potential for amplifying the efforts of LCHC, making them deserving of special attention in this report.

XLCHC: A satellite-based research network. The interactions initiated with Alaska around issues of microprocessors and educational access made it clear that it was technically within our power to begin to interact very inexpensively with colleagues living great distances from us via computer-based networks operating on satellites. Computer networking has been a basic mode of cooperation among LCHC members on the UCSD

campus since the laboratory moved to UCSD because of the distributed office space assigned to us, our close relations with people in various departments, and the fact that many of us spent time in the field, making coordination difficult. With seed money from UCSD and cooperation from our colleagues in CHIP, this messaging activity expanded at a steady pace, spreading to homes and remote locations as communications software added to our microprocessors made remote messaging practical.

In the summer of 1983 we initiated XLCHC, a satellite-based message system through which various research groups which have been affiliated with LCHC in the past and share an interest in one or more of its on-going research topics could interact over problems of mutual interest. XLCHC has grown rapidly from a few "nodes"' to a network that includes researchers in Alaska (in several native Alaskan villages), several locations in the United States, and Japan. Additional groups are making arrangements from Israel, Italy, and Mexico. This same facility can be used to put students and teachers in one location in interaction with each other as demonstrated in research summarized earlier.

This activity has generated a great deal of interest because it makes possible a qualitatively distinct form of joint activity at a distance, enabling work that otherwise would be impossible.

For example, organizing and engaging in joint activities with our Japanese colleagues has been greatly improved because of XLCHC. Information may now be exchanged between LCHC and Japan in a matter of days. Previous to XLCHC, over a month was required for written exchanges between LCHC and Japan. The rapid exchange of information now allows Japanese researchers to participate in XLCHC discussions, adding their particular perspective.

At present there is ongoing discussion on the nature of cultural mediators and problems of power and access that includes people from several ethnic groups located in several parts of the world. XLCHC has provided us with a unique sort of multicultural forum. The responses from other cultures concerning the utilization of the technology as well as the content of the discussion is of interest to the minority group members in LCHC who are also seeking to define their relationship with emergent technology. As mediators between the community and academy, this discussion has taken on special urgency in shaping the role of the microprocessor so that it is sensitive to community needs.

Exploring the potentials of video. As central as our study of the way in which the media of interaction help to shape human abilities has been our focus on the way the new information technologies can be exploited to overcome scientific barriers to data analysis and communication. A tremendous amount of time and effort has gone into the development of replicable techniques for recording and describing behavior at the level of analysis called for by a cultural psychology, people acting in a setting. Because of the often-extended time course of such events (one example of problem solving that we analyzed in some detail lasted over 15 minutes and involved several participants) and the fact that they are not tightly enough constrained ahead of time to enable accurate on-line coding, videotaping has long appeared the method of choice in "capturing the original." But in the absence of well-understood techniques of analysis, a major result of many such efforts has been the accumulation of mountains of un-analyzable tape.

In our view the difficulties of establishing the principles of a cultural theory of mind and the technical difficulties of behavioral description and analysis are intimately connected. The presence of experts from various disciplines (micro-ethnography, developmental psycholinguistics, functional behavior analysis, sociolinguistics) in LCHC has been very important in helping us to develop this line of work, which is reflected in several publications by laboratory members.

In the summer of 1983 we experimented with a different potential of video, this time put in combination with satellites following the same principles as those which organized the computer-mediated interaction between children described earlier. In this case, fragments of films made were used as the common cultural artifacts around which we organized a discussion between Soviet and American.

Interactants with the goal of helping them to discover their common predicaments and aspirations as human beings, despite differences of language, history, and national interests.

The first such experiment succeeded in creating a simultaneous videocast around the topic of children and films. Six film directors, three American, three Soviet, accompanied by hundreds of children on each side, spent an hour together via satellite, showing film fragments and talking about their reactions. Coming at a time of intense international conflict, this project had associated with it a level of social demand that is quite outside anything that the Laboratory had been associated with before. A second experiment was planned, but terminated because of the KAL disaster in September. Because of the close ties between the Laboratory and Soviet psychology on the one hand and the tie with the Communication Department and its students on the other, this project seemed for a time like the kind of activity that might serve as a medium for our research into culture and cognition. However, it soon became clear that a focus on cross-national interaction undermined, rather than supported, our attempts to focus on cultural and ethnic variations within the United States; it distracted attention from our pressing concerns.

Happily, faculty in the Communication Department, some of whom were instrumental in the success of the early work, have greatly elaborated on these earlier efforts and are proposing interesting cross-national experiments.

The major residue of this work is current efforts by people associated with LCHC to take advantage of some of the lessons learned for organizing video exchanges between schools paralleling the work on XLCHC. We think that this idea has great potential for addressing a number of pressing issues in basic skills acquisition, school motivation and interethnic harmony which we are currently exploring with the San Diego School System.

UCSD Summary:

Achievements. The context selection formulation which organized our summary of the crosscultural data in the early 1980's has continued to be extremely useful in formulating a cultural theory of human mind. It allowed us to link our observations to major eco-cultural forces shaping the daily activities of economically productive adults on the one hand, and to analyze the interactive dynamics within everyday activities that shape individual human cognition on the other. Using people acting in context as the basic level of analysis, our approach studied links "up" into the social structure and "back" into history with studies "down" into skills and psychological processes. Our work over the last three years, shaped heavily by the projects I have described in the previous sections, has applied and extended these insights in terms of everyday educational activities of diverse segments of America's population.

The general line of development of our context-specific approach since 1978 has not turned out to be an isolated instance in the theoretical panorama in the sciences more generally during the same period. The idea of domain and context specificity is now widely current. We see it in the emphasis on decal age in modern amendments to Piagetian stage theories. We see it in Howard Gardner and David Feldman's ideas about specific intelligences. We see it in the modularity controversy in cognitive science.

Whereas the cross-cultural work was attractive for providing us with stark contrasts and the ability to evaluate the effect of massive social variations (schooling, literacy, urbanization) it forced upon us relatively crude indices of interactions within contexts that shaped the macro outcomes. In making the move to domestic research, we sacrificed the sweeping macro variations for a great deal more precision about the within-context activities that are the primary locus for the creation of cognition. Looming over this work is the over riding imperative to prepare children to meet the demands of the new information technologies and the conditions of life that it entails.

Given the opportunity to place microphones and television cameras in contexts similar to those in which we were socialized ourselves and the tremendous importance attached to mastery of basic literacy and numeracy skills in those contexts, we have elaborated on the developmental dynamics of our cultural theory of mind, especially the dynamic relationship between development and instruction.

There are various ways to characterize this theoretical work. On the one hand, we have found ourselves rediscovering the insights of those early 20th century philosopher/teachers like John Dewey and William James whose emphasis on human agency and the central evolutionary necessity of human diversity shaped the scientific work of our teachers and our teachers' teachers. But we come to these great minds in historical circumstances which they could only dimly envision. We live in a world that survived a determined effort of political fascism, justified by an ideology that reduced human nature to biology, to dominate the world for its vision of the good of humanity. Ours is also a world in which nationalistic scientific socialism, justified by an ideology that reduces human nature to history, threatens a different kind of domination.

Seen retrospectively in this light, it seems to me no accident that the problem of *culture* is uppermost in the thoughts of our generation. The economic power of former colonial nations has increased relative to the United States and modern technologies have forced us into interactions no longer governed by starkly asymmetric power relations. In the world of 1984 the problem of culturally organized diversity forces itself on us as an escape hatch from two equally unacceptable justifications for genocide.

However, the concept of culture that we need in order to resolve the antimonies of our predecessors can be neither the elitist "Kulture" of European rationalist origin nor the empiricist-behaviorist "blank slate" culture of an a-biological humanity. Rather, it must be an evolutionarily grounded theory of humanity which acknowledges the co-evolution of culture as the medium of *human* life and *human* nature. and human nature. As we have phrased it elsewhere, the forms of our nurture define our special, human, nature.

The concept of culture which underpins our work is not the possession of anyone" school" or discipline or nation. Rather, it seems to be a common schema underlying a great variety of contemporary theorizing in science, the humanities and arts. It can be identified with names like Geertz, Bateson and D'Andrade in anthropology, Wittgenstein and Bakhtin in language philosophy, Burke, Berlin and Percy in humanities, Meyer and Gould in biology, Erickson and Vygotsky in psychology. It can be interpreted as a general systems theory applied to characterizing the unique possibilities of human beings' interaction with each other and the physical world made possible by human language.

In so far as we understand the general shape of the synthetic theory which contains our work, it is a form of historical materialism in which *culture* is treated as the structured medium of interaction through which human kind's evolutionary fate works itself out. The influence on us of the early Soviet scholar Lev Vygotsky has been enormous. Ours is a very complex view of Vygotsky and what he has come to mean through the work of his students.

Among Vygotsky's students, the continuing influence of Alexander Luria makes itself strongly felt. We have reinvented Alexander Romanovich many times in these years. The work that I did on his autobiography in the late 1970's forced me once again to go and read his work, to make it coherent in my own head. With help from my colleagues, particularly Peg Griffin, this experience led to the set of formulations which enabled us to create model systems of diagnosis/remediation for learning handicapped students. From Alexander Romanovich Luria came the deepest lessons about how one can do *positive* science while retaining a deep respect for critical theory even under the most dire of circumstances. He lived in a society that, when he was a young man, believed in Utopia. The consequence of this belief was that all public discourse was oriented in terms of a struggle toward that Utopia, a society that could effectively regulate itself to promote the maximum development of every individual.

Luria's genius resided in this ability to use the firm belief in that Utopia of theoretically guided social equality and brotherhood. He believed it in two senses. First, he believed it as a mode of being with people; he was an activist and it made him feel good to do good. When his resolve failed him, when external circumstances threatened to overtake him, *positive* critical activity as a mode of science provided guidance to his work. In his methodology of model systems, he provided not only a model of the specific task, but a model of how to do positive critical theory. As early as 1920 Luria formulated his *methodology* to resolve the contradictions (as he put it) between an explanatory psychology that could act in the world at the expense of an oversimplified account of human nature and a descriptive psychology that provided compelling interpretation at the cost of predictive impotence.

The methodology that Luria developed to accompany the theory assumed that individual minds are *not* uniquely analyzable, they are only knowable by the way in which they interact with publically available systems of activity. In this view mind is ineluctably a cultural phenomenon, partly internal, partly external to the individual.

The conception of cultural artifacts for making meaning which derives from this view of mind emphasizes their tool-like nature, while keeping constantly before us the idea that tools mediate human activity, they do not cause it. In both our work on the remediation of learning difficulties in elementary schools and our many studies with microprocessors, we have stuck closely to these ideas. So, for example, we have created artificial activity systems in which print is brought publicly into the interactions as a mediator of participants activities with each other. We have created microprocessor systems that explicitly include multiple participants, either directly in the setting or indirectly present as the assumed audience for the activity.

We can summarize the recent theoretical achievement of LCHC as the transition from a cross-cultural psychological framework to a cultural theory of psychology. Whereas our earliest work was provocative in the way it highlighted the shortcomings of various extant schools, our more recent work is provocative for showing how the concepts of a cultural psychology which we have developed can be turned to practical use in a variety of settings.

Failures. Despite a very productive five years, there have been major disappointments in the move to UCSD. Shortly after LCHC arrived, the Psychology Department decided to terminate Alonzo Anderson, depriving us of a permanent Black colleague in that key department. Although Anderson stayed on to do excellent research, his lack of access to graduate students and the total lack of leadership for minority students in the department cut away one element of our program.

During each of the succeeding three years the Psychology Department interviewed one minority group candidate, making an offer to each. In each case the individuals involved assessed the local conditions for their development as disadvantageous and accepted jobs in other institutions.

For a variety of reasons, Third College proved a less hospitable home for LCHC than anticipated. In part the difficulties arose from internal conflicts over the identity of Third College; as the militancy of the early 1970's receded, the administration of the College found it difficult to specify in positive terms how the program of the College should be implemented. A great deal of pressure was brought to bear against the Third College programs, like Communication, which existed outside of the departmental framework; occupied with defense of earlier gains, it was difficult for the College's administration to contemplate major new efforts. Not to be discounted was the distrust held by some senior faculty in Third College, who, like Sister Hamilton and Preston Wilcox, had seen cooperation with Anglos turned into subtle forms of cultural domination on a great many occasions.

LCHC was tolerated in Third College. But its presence was more valued for what I could bring to the Communication Program/Department than what LCHC could bring to the research and training effort of the College, which viewed itself rather narrowly in undergraduate teaching terms. Minority group people who came to study in the Laboratory sometimes taught courses, which were met with enthusiasm by students.

But there was no concerned "uptake" by the College.

When we were awarded a training grant by NIMH in 1980 the site visitors, while impressed with the cooperation we had obtained from senior faculty in the social sciences, were mindful of the lack of tenure-track appointments for minority group members among those most active in the training. It was not yet clear that Anderson would not be replaced by psychology, so we received the benefit of the doubt. But we were explicitly warned that we would lose the training fellowship if we did not obtain senior minority group support.

The fate of the training program was sealed by the failure to attract minority group faculty. The site visitors who evaluated the program at the end of the first training period were very flattering in their praise of the quality of training. But the grant request was rejected for lack of institutional support.

When we were turned down for continuation of our training effort, despite the enthusiasm of the site visitors, I wrote to the UCSD administration summarizing the bind we were in and asking for their ideas about how the training and research program of LCHC could continue at UCSD. A copy of that letter is appended. Although two years have passed, I have received no answer.

At about this same time I received a phone call from two prominent Black psychologists asking for my support for their efforts to obtain financial backing for networking and training. I was happy to offer it. We discussed the difficulties of training and LCHC and I suggested that they take responsibility for the NIMH training grant activities which had been associated with the Laboratory, using my support in any way they chose. They seemed to like the idea and promised to call back the following week. That was more than two years ago and they have still not called.

During those two years we built bridges to Third College in a variety of ways. We participated actively and effectively in the Minority Biological Research program for undergraduates where we taught students field methods in conjunction with our learning disability project. We sponsored the admission of minority group students into the psychology graduate program. We approached our colleagues in Third College well before the time to apply for training funds to discuss the situation. It was decided that it would be appropriate to locate the grant in a special Third College Faculty Research Group, which included two senior minority group psychologists, and an additional two tenured minority group social scientists. This group began to function prior to the next site visit.

But our efforts were insufficient. The only public criticism of the new program was the failure of LCHC graduates to obtain jobs in the nation's leading research institutions. Privately we were told that certain members of the committee viewed Cole as a colonialist working in a racist institution.

These setbacks were coupled with the sharply increasing difficulty of obtaining research monies associated with the demise of the Carter administration and the advent of a very different group in Washington. Instead of meeting with a sympathetic staff in NIE, our multicultural emphasis met with undisguised hostility. Changes in the leadership of various foundations historically sympathetic with our efforts followed the same trend, reflected in some cases by a push toward directly applicable research, in others by a biological emphasis that downplayed social barriers to educational change. In other quarters, our interdisciplinary emphasis, which at one time had been viewed with favor, became a liability.

The net effect of these changes was to undermine the principle of division of authority which had underpinned LCHC since its founding. Minority group research faculty continued to analyze data and write, but they could no longer conduct field research which provided a training context for fellows. Only grant proposals that de-emphasized social factors in favor of individual change, or which promoted new technologies in a culturally neutral way, won support.

The other day a Black graduate student at LCHC working in the black community received a phone call from a Black researcher. The student was advised that in working with the community, he operate on his own, because the community would not welcome" "Europeans" and he might find himself isolated. We have, I believe, come full circle to our starting point.

LCHC: Plans for the Future

The conditions we find ourselves in at present call for a very serious reassessment of the activities of LCHC. A decade ago we set out to determine if the conditions for importing cross-cultural research methods from Third World countries to New York could be created. The answer was yes. We set up a working environment which embodied the necessary elements: researchers from different cultural/ethnic groups and a variety of academic disciplines came together under conditions where each participant controlled his/her own research program, including its financial base, entering into collegial relations with others on more or less equal grounds. Progress was made on the basic research issues. But institutionally the effort had a very restricted future; the barriers to change began to undermine the program.

The move to UCSD seemed a promising way to provide for institutional success of the idea of LCHC while providing a fine research environment. The promise of including graduate students and undergraduates from a variety of backgrounds in the group so that there could be continuity in the training effort was especially appealing. A vital research group was assembled, several projects were mounted in which minority group people controlled their own research projects with funds they obtained for themselves, and many students were effectively trained. But more or less the same pattern of institutional restriction has repeated itself in our current circumstances. The creation of an interracial, inter-disciplinary social science research group to study the social organization of inequality is no more a priority for UCSD than for Rockefeller. Despite several years of effort, no tenure track minority group scholar has joined LCHC since our arrival in California, nor are there any prospects for a change in this situation.

The implications of these facts seem clear enough. On the one hand I believe that theoretically and empirically we have successfully demonstrated the feasibility and practicality of our approach to culture and cognition. On the other hand, we have created two relatively powerful model systems at the institutional level only so see the group structure erode owing to the inability to sustain institutional support for the minority group participants. Since there is no rival effort of this kind that we know of, and the success of our efforts is widely acknowledged with respect to the substance of the work, it seems inescapable to conclude that a consensus exists that such activities, while laudatory in their place, have no place in a first class American University. Consequently, while I will continue to conduct research and fulfill my teaching duties at the University, for the foreseeable future, LCHC will not engage in research on culture and cognitive development involving ethnic minorities in the US, nor will we attempt to train people in such research. A social consensus of a very powerful sort disqualifies me from long term leadership of such a research program owing to the color of my skin.

Fortunately, our success in converting from a cross-cultural psychology laboratory to a cultural psychology laboratory has left us with a great deal to do. The principles and methodology of a practical cultural psychology which we have put together in recent years have many areas of application that we have only begun to exploit. As our report indicates, the various people who have participated in LCHC's activities, many of them minority group scholars, continue to find the ideas they helped to develop here useful in their work. Consequently, the goal for LCHC in the coming years will be to continue as a research center within which to work out practical models of educational transformation using the principles of cultural psychology and to serve as an information center coordinating researchers with an interest in comparative cognitive research.

The LCHC Information Center Program

Three activities areas will serve as the focus of our attention in the area of information exchange in the near future: networking among institutionally separate research groups, selected cross-national cooperation, and publication through the LCHC newsletter.

LCHC: **Cooperation across institutional barriers**. As reported in an earlier section, our experiment in linking research groups interested in the kind of work LCHC has been conducting has proven very successful, despite a modest level of support funds. Although we may not be able to overcome barriers within specific institutions, we seem to be able to connect people through computer networking systems. Moreover, computer networking is modish and attention catching, so there is some prospect for obtaining support from external sources to make XLCHC self sustaining.

The Newsletter. Now under the editorship of three former fellows, the Newsletter reaches an unusually broad readership interested in issues of culture, cognition, and education. Income from subscriptions is more than enough to cover production costs, minus labor. It has been some time since we have mounted a subscription drive, but the new editors have prepared a mailing list and are actively seeking a wider readership, hopefully one that will make the Newsletter completely self-sustaining. In the meantime, LCHC will give all the logistic support it can to this enterprise.

International cooperation. One of the major areas of success for LCHC has been the formation of international working groups which have functioned effectively despite the impediments of distance, money and political conflict.

In the fall of 1984 we will participate in the fourth of a series of conferences with Japanese colleagues to be held in Tokyo on the topic of "Technologies of Understanding." Specific topics will range from the use of text editing capacities on microprocessors (we have just learned that our colleagues in Japan have been able to create a screen editor using kata-kana, their syllabic system), to print orthographies and television. For the following year, our Japanese colleagues have asked if we would hold a conference on the dilemmas of schooling and development during which we would conduct an interactive intercultural simulcast of the sort that we successfully completed with the Soviets last year. In this case junior Japanese and American researchers who have been working together would be given major responsibility for the experiment.

Our colleagues in the Soviet Union have also indicated their desire to continue international cooperation in the sphere of research on learning through joint activity and the identification of basic units of analysis appropriate to the study of cognition and communication. These proposals, initially written into the protocol of the joint Soviet-American Commission in the Social Sciences last July have been reiterated in a recent telegram from the Soviet Academy of Sciences to IREX (the International Research and Exchange Board). As international conditions permit, we will certainly seek to continue this longstanding cooperative effort which has provided both a working model of international cooperation through joint activity and substantive results with respect to contemporary American interests in cognitive development. The target populations in this work are children in the lower 20% achievement range who do not seem to be benefiting sufficiently from regular instruction according the school's criteria. This research will combine our experience working with learning disabled children at our Field College research site, our very popular undergraduate practicum course, and our successful experiments with systems of microprocessor activities to teach computer literacy and basic skills.

Basic Research Activities

The basic goal of our research will be to solidify the empirical basis for the inclusion of culture as a basic factor in human development. The conception of culture which underpins this work emphasizes the way in which the historically accumulated understandings coded in language create a structured medium within

which human potential can be developed. We have concentrated on various "tools of mediation" in pursuing this work because such tools, properly understood, provide both an analytic entry into the nature of processes typically counted "psychological" and a necessary link between the individuals and the activity settings where development occurs. As indicated in the overall summary of our work, this perspective renders natural a close link between areas of research in cognitive development ordinarily dichotomized as "basic" and "applied." Three specific research areas are of paramount concern in the years immediately ahead.

Re-mediation. Our research into the sources of difficulty for children who are failing to learn to read in the ordinary school curriculum has shown very clearly that the difficulties cannot be considered a simple "failure to learn." All of the children we have worked with have learned a great deal in school, but what they have learned about reading is distinctively and solidly wrong. From instructional settings where other children have caught on to what the teacher understands reading to be, these children have learned a highly consistent and very persistent wrong way to understand reading. In our terms, their activities with print are mediated, but incorrectly so. The pedagogical problem is to provide them with a new system of mediation, to "re"-mediate their understanding.

This work has been very well received by the remedial instruction community where we have given invited addresses this past year and from the San Diego educational establishment. We have applied for federal research funds to continue working out the implications of these model reading systems. We hope to obtain some supplementary funds from private sources to fund what the federal government will not; links between the university, the schools, and the local community so that such efforts can be disseminated more broadly than the basic research effort will sustain.

New technologies as educational prosthetic devices. Our interest in the way that tools are connected by definition on the one hand to a theory of the person using them and on the other to the contexts of their use has led us to emphasize the way that cognitive tools can act as prosthetic devices to provide access and enable performance in the educational arena.

Two such projects by LCHC faculty are planned for the coming year. First, Carol Padden and Tom Humphries (an associate of LCHC who is Associate Dean of Special Education in the San Diego Community Colleges) are conducting an experiment with deaf college students who have difficulty producing acceptable text in written English. Using microprocessor-based text editors and a local network via Apple computers, Padden and Humphries are seeking to employ previous LCHC ideas to the population of special concern to them.

Simultaneously, Shelia Broyles, an LCHC graduate student in the Psychology Department, has begun a project with learning disabled students on the UCSD campus. Pilot work conducted last year (in collaboration with David Laitin, an LCHC associate in the Political Science Department) demonstrated that for some handicapped students who are native speakers of English and strong enough academically to be admitted to UCSD, production of text can be dramatically facilitated by word processors. But this work also showed that existing technologies are not a universal panacea. Not all such students benefit equally from any given system. Working through special student services, we plan to conduct a combined research/service project in which students can help to invent their own solutions to text production problems while LCHC personnel, led by Ms. Broyles, provide the analytic work to specify why certain systems work on certain occasions, thereby allowing for generalization of the effort.

Elementary school networking. In addition to expanding XLCHC to include participants in remote locations, we would like to continue research linking children in elementary schools located in different parts of San Diego via our microprocessor-based computer network. This work would bring together several strands of prior LCHC efforts and offers one of the principle routes through which the prior history of inter-ethnic research may retain a legitimate foot-hold in the Laboratory's activities.

From our prior research we know that parts of the school population who routinely fail to master basic reading and writing skills can be effectively drawn into activities which lead to dense, "self motivated' practice in just those parts of the curriculum that are of deepest concern to teachers and parents. While the long distance connections between Alaska and UCSD have gotten the lion's share of the attention, pilot work connecting children isolated from each other in distant neighborhoods suggests strongly that the same benefits can be obtained by proper organization of interaction from remote, often racially isolated, schools, within the same city.

This line of work is being pursued actively at the present time by Esteban Diaz, Luis Moll, Alonzo Anderson, and Billy Vaughn, all minority group members of LCHC. Unfortunately, it is very difficult to organize activities in which disparate constituencies such as local churches, the school system bureaucracy, and the University of California all cooperate. Lacking firm institutional support, our colleagues are finding it quite difficult to proceed with their work.

Discussions are under way with officials in the San Diego school system as well as the Teacher Education Program, Community organizations, and state educational officials attempting to see how computer technology can be used to increase educational performance among school children in the state. All of these groups are interested in seeing the current performance gaps between rich and poor districts closed at the same time that the

overall level of performance is raised. From all existing evidence, differences between rich and poor are already being magnified by new technologies in the schools.

It is too early to say with any certainty how this line of work will go. It is currently blocked by the absence of organized community input and insufficient ties between the major parties involved. So, our efforts will concentrate on establishing such ties wherever it seems possible. Perhaps, at some future time, the minority group communities of San Diego will be well enough organized and represented to permit joint research of the kind that used to characterize LCHC in the past.

APPENDIX

The Quarterly Newsletter of the Institute for Comparative Human Development
The Rockefeller University
September 1976, Vol. 1, No 1

In recent years, we have become convinced that there is a logic to research in comparative human development which is basically similar, regardless of whether one is looking at comparisons across cultures, across species, or across ages within a species. The notion of using naturally occurring contrasts between human groups to find out more about people in general is a very old one, whose history needs no recounting. What seems new at this juncture in the history of the social sciences is an intense and growing interest in understanding the significance of group differences as a problem of basic research, as well as a necessary accompaniment to applications of that research in the areas of mental health and education.

Thus, it is no accident that the contributors to this first issue of the Quarterly Newsletter of the Institute for Comparative Human Development are card-carrying members of several social science disciplines. If our basic premises are correct, comparative research should be interdisciplinary by its very nature.

While this state of affairs may seem like a good thing (who criticizes the idea of interdisciplinary research?) it also carries with it a rather sizeable set of problems (a lot of people criticize the products of interdisciplinary research). It is these problems which we hope to address.

The format of the Newsletter is a response to a problem we all face-owe must keep up with events in two or more disciplines. Since it is virtually impossible to incorporate the relevant literature within anyone discipline, our best hope of increasing our research power is to be highly selective in the material we include and to be brief. Brevity is easily achieved; we will limit our contributions to "notes" six manuscript pages in length, and to annotated bibliographical entries.

Being selective and relevant is more difficult. We have sought two means of accomplishing these goals. First, our notes will be from investigators whose work has general significance for comparative research. Readers are free to submit manuscripts and we shall feel free to solicit manuscripts, as we did for this issue. This issue of the Newsletter contains no empirical papers in the "notes" section. We expect subsequent issues to contain a mix of empirical and theoretical papers concerned with language, social interaction, social cognition, methodology, and cognitive processes in general. This omission was neither an oversight nor a reflection of policy--the data were slow coming in for the empirical study we planned for this issue, so we'll include it (and perhaps others) next issue.

Second, we will ask one of the contributing researchers (or research groups) to be responsible for compiling a set of about one dozen annotated references that have been influential in their thought in the past year. The research included in the bibliography need not be comparative, but its relevance to the comparative enterprise should be spelled out in the annotation. Any reader is welcome to contribute items to the bibliography on an ad hoc basis. The editors will collate the material for each issue of the Newsletter.

We have tried to indicate what we have in mind by the annotated bibliographic entries in the second section of the Newsletter. The articles chosen represent information that was significant to the reporter. It also happens, in this issue, to represent information that we have been sharing with each other in recent months.

The "we" referred to here are members of the Laboratory of Comparative Human Cognition and its training counterpart, the Institute for Comparative Human Development

This Newsletter is designed to fulfill one of the Institute's principal functions -- to act as an information center for scholars interested in problems of population differences in cognitive performance. While cultural factors have been the focus of our interest, members of our group work with populations defined by a variety of criteria.

The major function of the Institute is to train professionals in basic, comparative research techniques from psychology, anthropology, linguistics, and sociology relevant to issues in cognition. A good deal of our work is multidisciplinary in terms of both theory and method, which helps explain why the contents of this Newsletter might seem diverse: from our point of view they are not so diverse as they appear.

It is our hope to make the annotated references, as well as the notes, reflect the diversity that organizes other people's work.

The Quarterly Newsletter of the Institute for Comparative Human Development
Center for Human Information Processing
October 1981, Vol. 3, No 4

A Note to Contributors, Readers, Journal

Editors and Faculty Evaluation Committees

A few times during the last year the position of the LCHC Newsletter with respect to its status as a publication has been brought to our attention. In one case, a colleague reports that the unpolished nature of an article was raised in a faculty review of the work. In another case, the fact that some data and ideas were tried out in a Newsletter article was held against a junior researcher who incorporated that material into a more thorough article submitted for publication to a refereed journal.

Such cases fundamentally misinterpret the purpose of this newsletter. To begin with, we do not have a carefully neutral and anonymous review process; we never intended one, for it would defeat the purposes of this publication. We are a newsletter, not an official archival journal. We are a forum for trying out ideas that fall between the accepted rules of a good deal of academic discourse on matters of human cognitive processes. This forum is mediated by our Laboratory, and thus reflects, naturally enough, the kinds of issues that we view as relevant to the field. It is also intended to be an open forum where multiple points of view can contest informally, rapidly, and in a collegial manner. It is the production of interesting possibilities, the awakening to new ways of thinking that we see as our major goal.

If authors choose to include articles in their academic files, we feel they should certainly feel free to do so. In many cases, we would be proud to have written materials that our colleagues have submitted. But we do not edit for standard canons of research and we do not view ourselves as appropriate gatekeepers of academic quality. In like manner, we do not view articles that appear here as "last words," but rather as "first thoughts" that the writer wants to get some feedback on and which we judge to be of interest to the community defined by the thematic interests of the Newsletter. May all join in making the enterprise useful, not strait-jacketing.