



THE QUARTERLY NEWSLETTER OF THE *LABORATORY OF COMPARATIVE HUMAN COGNITION*

Luis C. Moll, Jacquelyn Mitchell and Warren Simmons, Editors
Michael Cole and Karen Fiegener, Managing Editors
Alma D. Salcido, Production Manager
Peggy Bengel, Subscription Manager

October 1983, Volume 5, Number 4

Center for Human Information Processing
University of California, San Diego

A Socio-Historical Approach to Re-mediation*

**Michael Cole
Peg Griffin**

Laboratory of Comparative Human Cognition

At an intermission in the conference, somebody was reporting an overheard conversation that went sort of like, "Who's that Russian they are talking about? Vic who?" Vygotsky is his name. The formal title of this talk is "A Socio-Historical Approach to the Study of Re-Mediation." Lev S. Vygotsky founded the socio-historical school of psychology. What we want to do is give a little bit of background about why his ideas, and those of his followers, are of practical interest and how these ideas might apply to children who are having extraordinary difficulty learning to read in our schools.

Let us back up, however, and describe what it means to adopt a socio-historical approach to literacy. First, this approach emphasizes that we are talking about *uniquely human* characteristics of human behavior, ones which are not likely to have been invented spontaneously by individuals or to be related directly to our near animal neighbors. Whatever else there is about reading and writing, if you grew up and lived for a long time on an island with no reading or writing and no one had ever heard of it, and you were there by yourself, it is extremely unlikely that you would invent the alphabet. It took about ten thousand years from the earliest signs of writing to the invention of the alphabet, and one individual is not likely to get it done in a lifetime. Aspects of human behavior with a long social history are what Vygotsky called higher psychological functions. They arose a long time ago, they were there in some form at the dawning of *homo sapiens*, and they have been changed in social interaction as a result of histori-

*Our thanks go to Sandro Duranti for helping to prepare this manuscript. Originally, Cole and Griffin developed a short paper and a video-tape as the basis for two presentations. Griffin delivered a version at the Language Experience Special Interest Group of the International Reading Association. Almost simultaneously, Cole delivered a version at the Erikson Institute's conference on New Directions in Studying Children. This article is based on Cole's talk. We also wish to thank the school principal, children and families with whom we work and the staff and undergraduates who have assisted us in working with the children and families.

cally accumulated experience.

Now, let's apply that idea to the notion of reading and writing. On the one hand, you can argue that the existence of writing as a function is about two or three thousand years old, depending upon how you measure it. Writing is definitely a "new" human acquisition so you wouldn't go looking in the brain for a particular writing area if writing was hurt by some kind of a brain deficit. The socio-historical approach pushes you deeper into the past, to trace the basis of literacy all the way back to the beginning. We could go back to *Australopithecus*, perhaps 300-400 thousand years ago, where you have the first evidence that somehow people are regulating their interactions with the world and each other using pieces of the world external to themselves. If you begin there, you find the basic property of reading and writing. The basic act of mediation involves regulating your interactions with the world *indirectly* . . . through objects that are artificial, made by human hands. It may be as simple as a mark on a stone that regulates when you meet somebody; it may be a mark on a stick to remind you that you've done something before. In each case, the simple mark reorganizes your coordination with the world by virtue of its properties as a mediator.

There are many remnants of this early manifestation of pre-writing. If you go to the caves at Lascaux, if you go through all of Alexander Marschak's work on ice age people, you'll find that the activity of mediation through external signs is as old as *homo sapiens*. If you stop for a moment and think about Stonehenge, you might begin to ponder about the fact that *very* big rocks, were carried a *very* long way by people with no trucks or trains. Those were people who *really* cared. They weren't carrying those rocks for their own sake. They were carrying them because they were told that if they arranged those rocks in a certain way they could discover regularities in the universe that would allow them to predict what was going to happen next, and roughly when it would happen.

If you go down in the desert south of San Diego you'll come upon remarkable places that have this same property. On the winter solstice and only on that day, the sun rises over a particular hill. Its light slices through a particular slit in a rock where there are drawings of humans on rocks. One human has a dagger raised in his hand, and just at sunrise on that day, the sun creeps across the rock and hits the dagger, bounces off and hits the other man. An enormous amount of

with the physical world, and on the other hand, with our social world. Literacy then makes possible new forms of coordination in time and space. Objects mediating our interactions with the world make available the potential for new forms of higher psychological processes.

Technologies of Mediation

What's re-mediation all about from the perspective of the socio-historical school? Well, in its root meaning, re-mediation means a *shift in the way that mediating devices regulate coordination with the environment*. A very interesting early example of such a shift occurred historically when syllabaries were replaced by an alphabet. A shift from a syllabary to an alphabet creates a representation of language at a level of analysis which is qualitatively new. Alphabets make possible explicitness that can have a powerful potentiating affect on people's ability to regulate their activities with each other and, as we say, to create common knowledge.

If you are taking a socio-historical approach, you remind yourself that the beginning of the symbol systems that eventuate in the alphabet goes back to the initial forms of exchange using money. From the beginning, writing and reading were embedded in socio-economic practices, in activities which had a complex higher level goal. From the simple token systems in the Middle East, to the bronze age with the evolution of multiple tokens scratched in clay, and then to the Phoenician syllabary (Schmandt-Besserat, 1978), we can trace the history and development of various technologies of mediation. When the Greeks tried to trade through the syllabary, they ran into ambiguities which forced them to do some analysis on what the syllabary was about (Gelb, 1963). These difficulties lead eventually to the fundamental breakthrough that is now the bane of lots of children in our society: the breakthrough from representing language at the level of directly communicable sound elements (syllables) to communicating through a medium in which you cannot explicitly make clear what it is that you are doing (the alphabet). In order to make this difference clear, let's look at how we might teach a child to read the word 'cat.' In societies where 'cat' is written as a syllable, it is represented by one sign which is supposed to evoke that sound image so we can say 'cat' and thereby interpret a bit of the world. But in an alphabetic system 'cat' isn't simply made up of a single character. There are three parts to it -- C, A, and T. So we say those are the three parts of cat -- "c," "a," and "t." But we quickly have to retract our statement. "No! no, no, "c," "a" and "t" are not really the parts. What it really is, is "k," "α," and "t." But is it really k, α, t? No, it's not. Because in order to make those sounds you have to combine a stop and something that was operating as a vowel. You can't say a consonant by itself. You can only say it in combination with something else. So, what the alphabet represented was an *abstraction*, a kind of analysis that allowed the languages spoken in that area of the world to be represented with an extreme degree of economy.

But we still have the problem of how to explain to kids what it is that happens when you go from k-α-t to 'cat.' All we can do to explain is illustrate what we mean by a process that we call blending. We *simulate* the process of reading. We have a procedure. We start

out slowly with k-α-t, k-α-t, k-α-t, saying it faster and faster: k-α-t, k-α-t. But blending doesn't work. No matter how fast I say k-α-t, I don't get 'cat.' This isn't what happens in the mature act of reading the alphabetic representation of 'cat.' What happens is that there's a *qualitative reorganization* of the sound the teacher models. You start with the pieces, k-α-t, but think of it as a bird trying to get off the ground. The theory of blending tries to give the kid a start like a mother bird urging along a fledgling. You give the fledgling a push and if it can just get off the ground the right dynamic properties will take over. Applied to children and the alphabet we suppose that by blending the kids will begin to do the synthesis, because to make use of the alphabet, you can't just have analysis: that's how history arrived at it. You have to have analysis *and* synthesis. Both sides of the process are required to produce reading, and we can't communicate directly about the real nature of this two-sided process.

Consequences of the Alphabet

We are told that the alphabet made possible really new forms of organization of knowledge (Havelock, 1976; Goody, 1977). In the middle ages and late middle ages it allowed the reclamation of vast sums of scientific work from an earlier era. When combined with the ability to smelt iron in certain ways the alphabet made possible the printing of bibles. It supported an incredible notion for the time: you no longer had to mediate your interactions with God through Rome (which if you were German peasants didn't seem like a particular reasonable thing to do under the circumstances). You could reach God, as they say, through the book. You could get directly to Him through His word -- The Bible.

Alphabets and the Reduction of People to Numbers

It seems that what we were buying in the alphabet was an analytic device that enabled a new mode of cultural interaction and metaphors for living eventuating in the creation of the industrial mode of production. If Havelock and Goody are correct, the alphabet made possible modern science and modern states. Thus, mankind's recent achievements, the ability to send astronauts into space, to see the other side of Venus, to look into your body at little pieces too small to imagine, all owe a lot to the analytic power of the alphabet.

The kind of science that we developed through the analytic principles of the alphabet allows us to be explicit, and to create models of reality that operate on high speed machines. As psychologists we use it to simulate learner systems, pull out main effects and do predictions of what's going to happen later with certain margins of error. We do not want in anyway to underestimate or to denigrate the power of current psychological methodology for operating in the world. But, this way of knowing the world comes at a great cost.

Let us concentrate on the cost that has to do with education. Let us take three countries to illustrate this: Japan, the Soviet Union and the United States. In each country the applied outcome of current psychological methodology is to reduce people to a single number. This number is scaled as a value on a dimension that defines the "main effect." The ultimate embodiment of this reductionism in Japan is the score you get when

you graduate from high school on a national examination. We tell our Japanese colleagues that "We Americans don't know how to subordinate ourselves as well as you guys do, we have two numbers, verbal and quantitative." Our Soviet colleagues would deny that they had one number and they would say that human values are distributed in a lot of ways. In certain times in their history they have been. That's certainly their ideology. But clearly one of the driving concerns that heads the Soviet education system today is the alienation of labor from the university. They have reintroduced the use of IQ-like tests in industry and schooling. Such a move can recreate classes, based on educational attainment, in response to the dominant need for efficiency in a modern industrial world.

What we find in the educational systems of this so called "information age" is that high scores on one dimension more and more depend upon your ability to get access to, and to be skilled in the uses of systems for coding information. Someone was joking at lunch about computers meaning a new level of alienation. That seems to be absolutely right. Every step you put between human beings and their communication with each other requires a potential reduction of understanding between people. We do not have a good theory of all those reductions as yet. But we have a very powerful system for reducing.

Each country wrestles with this fact in their education system. To the Japanese, the whole machine-based way of thinking is external, and new. The Russians have a theory that says that there's a great teacher who knows how to deal with all this technological stuff; they say they are too savvy to be fooled by technology. We in the United States have a different way of dealing with the issue. We give everybody an equal chance and if you don't make it -- it's because there's something the matter with you. Three different countries, three different recapitulations of one-dimensional man. Culturally and politically the metaphors of analytic science are contrary to long standing traditions for the Russians and Japanese. But that doesn't seem to help them much. All three countries have the same problem; massive school failure, the problem of runaway bureaucracies, the problem of centralized control of many, many forms of individual life.

Reduction and Reading

From the point of view of a socio-historical school, research on reading must start with an understanding of how this historical backdrop, how contemporary social-historical contexts, shape the nature of instruction and the production of school failure. Educational failure is done in the classroom, it is done at home, it is done on the way from the classroom to home, it is done in the workplace, it is done everywhere. It is *systemic*. If you're going to make a difference, you're going to have to be able to do it at many different levels of the system. Before focusing on the central role of the classroom teacher in the process of changing the system, let's consider what is a social historical approach to the problem of the reading curriculum.

Current theories of reading identify units at different levels of the overall process. At a "lower" level there are features, then letters, words and finally a whole text.

Each time we go "up" in the system, we get to a larger and larger set of materials. It has been traditional to break the processes involved in reading into two kinds, corresponding roughly to unit size: *decoding* and *comprehension*. Creating such dichotomies is a process that our analytic traditions are good at doing. But dichotomies routinely produce a boring argument: Which comes first, decoding or comprehension? There are people who will go for phonics and decoding and there are other people who will go for comprehension; everybody will show that the others are leaving out *the* essential half of the process. But the joke is on us. Our friends at the Center for Human Information Processing who model reading processes on computers say, "We can demonstrate in infinite detail that any one level of the system is constructed of the interaction of elements operating on at least two different levels of the system." *It takes three to tango*. This rule applies to both the simulation of letter recognition (McClelland and Rumelhart, 1981), and the mature process of reading, which requires at a minimum (the writer and the reader) two people and the system they create between them.

Now the question is, if you have any idea that reading requires two people and a system of agreed upon symbols, what do you do with it? The people at the Center for Human Information Processing can simulate part of the process. The largest unit that they deal with is a single word. Their theories seem roughly correct. They're certainly modeling something very important. But they don't go far enough for the classroom teacher. Their theories and models break down when an adult is faced with a child who cannot read.

This is where a socio-historical approach can help us. We have documented how educators and psycholinguists try to teach reading to kids who failed to learn to read in school. Our data show the way in which, without special support systems, special *cultural* support systems, the individual teacher is at an enormous disadvantage in trying to get the kid over a major misunderstanding. The misunderstanding is that reading means "read the individual words so that they sound right." Reading as we see it most often in the classrooms of elementary school children is reading aloud. The fundamental nature of reading, from a socio-historical perspective, is that reading includes looking at the sign, knowing what's coming, knowing where you've been, knowing where somebody else is. These crucial facets of reading are absent for these children. Reading as a process of interpreting the world, is left out of the information processing theory altogether, and left out of systems of re-medial reading instruction.

Some children arrive at school with a pretty good notion of what their teachers understand the mature process of reading to be. Even though they have not begun to read themselves, they have been read to a lot, they have been around adults who do a lot of reading, or they have simply absorbed it from the larger culture. Other children arrive at school with almost no idea of what reading is about, or perhaps a very different understanding than the school wants to promote. In either case, many hours of observations in schools have shown us that if the child does not arrive at school with the notion that reading is a way to interpret the world, there is very little in early instruction that is likely to

convey that idea. They are initiated to letters of the alphabet and start in at what we think of as "the beginning." Once the beginning is mastered, the next steps can be provided.

The difficulty with this approach, theoretically, is that our theories of reading require that somehow the "top down" constraints of the next levels be present *at the beginning*. Practically, this means that children have to be able to comprehend at the same time that they decode. Creating a way to break the typical, common sense sequence (after all, how can you comprehend before you can decode?) is the goal of our research.

Reading as a Whole Activity

To solve the obvious paradoxes of re-medial reading instruction we create artificial social systems as information that embody the critical processes demanded by psychology. In order for the reading process to occur, in order for a unit to be formed between two people and the printed word, then there have to be interactions from "above" and "below." The fundamental necessity of reading-as-interpretation of the world is that you hold in *the image of reading as a whole*; you hold in the constraints of the whole so that the acquisitions of the parts always come under those constraints. Then you'll never create a byway that will lead the kid into a wrong mediation of his activity with print that then has to be re-mediated.

What we did was to use the idea of script and dramatic metaphor in a variety of different ways. Ann Brown and Joseph Campione at the University of Illinois worked with the project and gave us one protocol to follow. Their work employed a reciprocal questioning procedure with seventh graders who were good decoders, but poor comprehenders. It involved setting up a dialogue about the main idea of a text between a good, flexible tutor and a child: this dialogue eventually produced remarkable changes in those 7th graders' ability to read.

We changed the Brown-Campione procedures to fit our situation. We went to work with a population of poor readers from a public school. We ended up with 24 children in grades three, four, five and six. We gave them all the standard tests that would allow you to discriminate who's learning disabled from who's this or that. We elaborated on the Brown-Campione reciprocal questioning procedure, converting the two person game, into a script for reading which included the use of 3" x 5" cards to determine who got to play what role in the script for each paragraph that was read. The children and adults in the reading group/script pick a card from among these possibilities:

- The person who asks about words that are hard to say. (You do not have to admit that they are hard for you to read.)
- The person who asks about words whose meanings are hard to figure out.
- The person who picks who gets to answer the questions asked by others.
- The person who asks about the main idea.
- The person who asks about what is going to happen next.

Everyone in the reading group/script needs the text to be read, and a card to remind them of the role to play, and paper and pencil to jot down words or phrases or notes so they can be ready to ask or answer the questions implicit in the roles.

Remember that we are dealing with children for whom school is *not* teaching them to read. For these children teachers can be really hard to deal with: a teacher is a person who comes in and drills them on phonics and drawing in books and psycho-motor skills but they are not learning to read. The teacher is part of their public problem. We look and often act pretty much like teachers, and get a certain amount of disability from the identification.

To help unlock the process, we bring in undergraduates, and we make those undergraduates big brothers and big sisters to the kids. The undergraduates don't know exactly what they're doing in the reading group but that's okay, neither do we and neither do the little kids. If you're going to have a drama, if you're going to have communication, you have to have several participants, and no communication takes place if everybody knows ahead of time exactly what's going to happen. If we want communication to take place, there has to be discordinances; people have to be able to do some adjusting. If you take the communication notion of what a script metaphor is about, it's not something you build in a machine, it's something you construct *with people*. So, we hand out the cards. It could be that there are two undergraduates and let's say three little kids at different levels. We don't know precisely what's the matter with the children, we don't know what they can't do (except they don't read much). We don't know what they are doing. We want to see if we can trap them into doing the whole task. And if we can get them into the whole task, we then can do the diagnosis, that is, we can figure out what part of the whole task of reading these kids really don't do. At the same time, we are putting them into an environment where they can use their intelligence to discover what they can do about a problem. We distribute the cards, and the paper and pencils, then we hand out the text. There's no reading out-loud.

Why won't we allow reading out-loud? Because we discovered the same problem over and over again. As we have said, the theory of reading that we subscribe to is that reading is about interpreting the world. Therefore, when you're reading you're looking at the world and trying to figure out what's going on there. You're using the text to help you. Maybe it's the world of your own future; it is certain that you're not reading for its own sake. There is no such thing as reading "for its own sake." Reading always is, eventually, about something to do with other people. Reading, as Freire said, is a way of theorizing about the world.

The children we work with have a different notion. Their notion is this: reading is a system of mediation restricted to them, the teacher and text. In a particular question and answer frame where the questions are always given to them ahead of time, they only have to follow the learned grammatical and phonetic script. We found the following kinds of wonderful things happening: kids will read out loud, "John--accidentally--hung--himself--while--he--was--playing--after--school. The--police--didn't--know--why--he--did--it." They go all the

way through this. They pose questions about tough words. Someone picks the answerer. Then they arrive at the question, "what happened to John?" Written down on the page is "hung himself." They write the correct answer.

When a child reads aloud and it sounds correct, and then she correctly answers a comprehension question, the teacher has every right to conclude that the child is reading in the grownup sense of the term. But wait. In the next paragraph there is reference to a boy named Eric. We adults see immediately that Eric is a friend of John, the boy who hung himself. The young girl who displayed her reading ability a few minutes before starts calling for help. "Ms. Griffin! Ms. Griffin!" When Ms. Griffin appears the young lady complains. "How can I answer this question about Eric? He appears everywhere. It's not fair." We could see that there were several uses of the word Eric in the paragraph; maybe "everywhere" was okay to say. But what made that unfair? What was not fair?

What we now suspect is that the previous "comprehension" wasn't what it seemed. Our suspicions are confirmed when, after working through the second paragraph, the girl exclaims incredulously. "Is this true? He hung himself?"

Our subsequent analysis shows that even when she delivered correct answers, this girl was not "reading with comprehension." She was seeking physical matches between words: where the same name appeared in several places, she denied the possibility that it could be part of a single answer. This was unfair: the text was discriminating against her procedure for answering questions by using the word Eric too many times. Her earlier answer about Johnny hanging himself didn't mean that Johnny hung himself, it meant that there was something in the paragraph that could be copied to serve as the answer to the comprehension question. Only when her glances at the print were integrated into her real world knowledge did her reading activity come into contact with our usual concept of comprehension.

This scene is typical of systems of mediation for poor readers; they are truncated, artificially truncated, and the kids can get incredibly good at operating in them. They can get so good at it that you actually think they can read. You believe that they just do it very badly, but you don't get to question whether they are doing what you think they are doing or doing something totally different and somewhat bizarre. Most of our children don't have the slightest notion of what the system of mediation we call reading is about. How will they come to have it? At this point, let's go back to the alphabet and back to the problem of reductionism. And to the question of re-mediation. The system of re-mediation most commonly used is one that goes back to the system of the basic unit again. It doesn't re-mediate the overall understanding of what reading *is* or is for; it instantiates the reductionist theory and the analytic strategy that grew up with the alphabet: start with the small, the simple, and proceed to the complex. Of course you start with the simple. Only you've kidded yourself by calling letters of the alphabet or simple words simple forms of reading material. Insofar as the child *completely* follows the procedures you're talking about, for example, sounding out C - A - T, there can be no progress. In contrast, we argue that the pro-

cedures need to be taught as *cultural vehicles* to help children experience that emergent activity which will allow them to understand what you're talking about when you say reading.

The reductionist theory violates the fundamental principle that development always occurs within the framework of the whole. But psychologists and educators traditionally never teach reading as a whole activity embedded in a communicative system because it requires a social level of analysis that cannot be simulated on a computer. The activity of reading happens to have a social element in it and therefore our theory must also. It is for this reason that a socio-historical analysis of reading is so important to understanding what it means to re-mediate this activity for some children: it is also a good guide to the necessary conditions for acquisition of reading in the first place.

Now, it is not the case that people can get the idea of what reading is only if they go to school, and if their parents have been to school. And it is not that nobody can come to discover it in school. But, if you go and look in San Diego, California at what gets taught in remedial classes or the first grade, it is the bottom part of the basic activity of reading only. They don't get to the second part -- the act of reading as a whole, until they get the first part, correct reading aloud.

First things first. What a socio-historical point of view shows us is that we should be trying to instantiate a basic *activity* when teaching reading and not get blinded by the basic *skills*. Skills are always part of activities and settings, but they only take on meaning in terms of how they are organized. So, instead of basic skills, a socio-historical approach talks about *basic activities* and instantiates those that are necessary and sufficient to carry out the whole process of reading in the general conditions for learning.

When we create such lesson contexts we find that the kids who can't read in fact can do it! Are they all reading perfectly? Is this a miracle? Of course not; they have problems, a number of them have serious problems. For some you see across the board, successful take-off. Teachers report "a miracle has happened." For others, the kid is worse behaved in the classroom than he was before. He may have gained a deeper insight into just how deep a hole he's standing in. When a child sees another kid leap out and begin to experience success, he begins to have a better understanding of what a deep hole he's in and he goes down. That's development; we know that development isn't always achievement of a fixed criterion. Development is *systems reorganization*. Re-medial reading instruction requires social system's reorganization. From this perspective, you can teach kids to read who otherwise couldn't be taught.

There are some battles to be fought when endorsing this socio-historical approach to understanding literacy development. First, when you have people-acting-in-a-setting as the unit of analysis in psychological development, educational, experimental and child psychologists alike all experience difficulties. When Cole first started to develop these ideas at Rockefeller University, a great experimentalist said "I'm really surprised at you, Mike, for going into social psychology." It will be difficult to develop our systems approach so that it will be obvious to people that cognition is a social activity among

human beings, whether there is one person in the room or many. In our work we worry about how to establish credible evidence, how to be scientific. If we had two more hours, we would talk about the struggles of turning video tape from what appears to be a demonstration of total chaos into something that is analyzable and the analysis of which can be used to direct teaching activities. But this is enough for now.

Partial References

- Gelb, I.J. (1963). *A study of writing* (Rev. ed.). Chicago: University of Chicago Press.
- Goody, J. (1977). *The domestication of the savage mind*. Cambridge, MA: Cambridge University Press.
- Havelock, E.A. (1976). *Origins of Western literacy*. Toronto, Canada: The Ontario Institute for Studies in Education.
- McClelland, J.L., & Rumelhart, D.E. (1981). An interactive activation model of context effects in letter perception: Part I. An account of basic findings. *Psychological Review*, 88(5), 375-407.
- Schmandt-Besserat, D. (1978). The earliest precursor of writing. *Scientific American*, 238(6), 50-59.

Cognitive Theory and Chicano Children's Oral Reading Behavior*

Richard P. Durán

Educational Testing Service

This paper presents ongoing research on Chicano children's discourse. The work has involved collecting naturalistic data in Spanish and English from four 7 to 10 year old children as they interact with teachers and other students at school and with parents and other children at home. Our research team is interested in studying how bilingual children's knowledge of a social speech situation and a speech activity affects the way they communicate, and in particular how children deploy various strategies to sustain interaction with others. We want our descriptive accounts and analyses of speech behavior to reveal how children understand the demands and constraints of interaction and how children accommodate their speech and accompanying behaviors in ways that reveal their communicative competence. We believe that studying the range and character of different kinds of knowledge that children bring to bear in control of their social interactions will greatly increase our understanding of children's oral behavior. In effect, we are suggesting that an enhanced understanding of the nature of communicative competence is enabled by examining how children's knowledge about how to communicate stems from both sociocultural and cognitive resources. This cognitive orientation to the

*This research has been supported by the Educational Testing Service and the National Institute of Education.

study of communicative competence (without diminishing the fundamental improvisational nature of social communication) may also increase our understanding of how individual children learn to use language in the early school years and how their style of communication grows, develops and is accommodated to the learning and literacy contexts faced in school.

In regards to literacy, for example, elementary school children's oral reading of stories represents a significant communicative activity that functions as a precursor to extended literacy development. In the oral story-reading contexts we are studying, children are required to understand the individual words and sentences in a story as they read them and as they cohere as a narrative. They are further required to "tell a story" as they read it. This "telling of a story" as it is read builds on children's knowledge of what stories are like. It also builds on knowledge that children have about sociocultural conventions of story telling and on knowledge about the sociocultural characteristics of the audience toward which they are directing their oral reading. An additional, but very basic and necessary kind of knowledge concerns how to improvise an activity of "story telling" as it fits within the everyday, unpredictable exigencies that underlie any real discourse context. In particular, children's knowledge of what social structures are possible within a discourse setting and what the proxemic and social characteristics of a context are like as it evolves, affects the way they proceed in a task such as an oral reading of a story. Thus, the overall activity of oral story-reading is complicated in terms of the knowledge forms required to accomplish the activity. Because oral reading of stories assumes a social context and social contract for communication, the accompanying speech and paralinguistic signals indicate the many different forms of information required to establish and regulate the conduct of oral reading as a social activity and as a simultaneous referential communication activity.

Before describing our work, it will be useful to mention a few previous studies of minority or Hispanic children's discourse that have guided our own efforts. We will also mention some recent work by cognitive scientists and sociolinguists that has introduced the notion of "scripts" to describe knowledge structures that hypothetically underlie peoples' ability to recognize social contexts and to use language in recurrent social contexts. It is our present contention that in acting-out scripts, plots or plans for speaking that have a recognizable order and structure, children show that they rely in a strategic fashion on their linguistic and sociolinguistic repertoires when enacting a speech activity in specific contexts. Our work on Chicano children's narrative delivery points out some ways in which these connections can be made.

Some Relevant Research

A fairly substantial number of ethnographic research studies on minority and other children's communicative competence have documented the common-sense expectation that children's skills in communication are dramatically affected by the participant structure, the setting, and the nature of speech events. Here, we will just mention three studies relevant to our work rather than overview this research area in detail.