

Change as the Goal of Educational Research

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This article describes two case studies conducted with working-class Hispanic students and their teachers. For each study we discuss how existing instructional conditions constrain what both students and teachers are able to accomplish, and in each case we apply local knowledge to alter instructional procedures in ways that are more productive. We argue that there is nothing about the students' language or culture that should handicap their schooling; the problems some language minority students face in school must be viewed as a consequence of instructional arrangements that ensnare certain children by not capitalizing fully on their social, linguistic, and intellectual resources. We conclude by describing a research approach that builds upon what we learned from the case studies by creating community-based research sites. CLASSROOM RESEARCH, EDUCATIONAL CHANGE, BILINGUAL EDUCATION, MICROETHNOGRAPHY, VYGOTSKY, LEV S.

For the past seven years we have conducted research in home, school, and community settings in San Diego. Our work, in general terms, has proceeded as follows: We have analyzed problematic educational situations, usually characterized by children failing. But we did not stop there. Utilizing what we have called the participants' cultural resources (e.g., the children's and adults' bilingualism), information about the children or about their communities, and guided by our theoretical perspective (discussed below), we reorganized instruction in ways that we could claim were more advantageous for teachers and students. The key point here is that the goal in our studies was to produce instructional *change*, to manipulate instructional procedures to improve the conditions for learning. It is our contention that existing classroom practices not only underestimate and constrain what children display intellectually, but help distort explanations of school performance. It is also our contention that the strategic application of cultural resources in instruction is one important way of obtaining change in academic performance and of demonstrating that there is nothing about the children's language, culture, or intellectual capacities that should handicap their schooling (Diaz, Moll and Mehan 1986; Laboratory of Comparative Human Cognition 1986).

In what follows we present two case studies that have shaped the views mentioned above. In particular, we highlight the adult's social

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mediations in creating varied circumstances for children to learn. We then describe our most recent research, which tries to combine what we have learned from the case studies by forming after-school, community-based settings within which to conduct educational research while staying in close contact with community realities. Here we highlight mediations of a different type: the strategic connections we can create between schools and communities to promote educational change.

Two Case Study Examples

The research we report below has been influenced by the work of educational anthropologists, in particular the so-called "microethnographers" who have examined in great detail the interactional dynamics of various educational situations (e.g., Erickson 1982; McDermott 1976; Mehan 1979). Central to our research is the study of what Erickson (1982) calls "immediate environments of learning"; namely, the analysis of how instructional contexts are socially constituted by adults and children. We have supplemented what we have learned from these "microanalyses" with ideas about learning and development borrowed from sociohistorical psychologists (e.g., Olson 1986; Scribner and Cole 1981; Vygotsky 1978; Wertsch 1985). These researchers also emphasize the critical role of social interactions in learning.

Vygotsky (1978), for instance, wrote that the forms of cooperation between child and adult were the central element of the education process. His famous concept of the zone of proximal development refers to the importance of these forms of cooperation. He stressed how one gets a qualitatively different perspective of children's abilities by contrasting what they do when working alone to what they can perform when working in collaboration with others. And he suggested that for instruction to be effective it must lead students; in our interpretation, it must be aimed not only at weaknesses manifested in individual assessments, but at strengths that are displayed most readily in collaborative activities.

In this section we present two case studies, one on reading and one on writing. These studies have been presented elsewhere, therefore we refer the reader to other sources for details omitted here (Diaz, Moll, and Mehan 1986; Moll 1986; Moll and Diaz 1985, 1987; Trueba, Moll, Diaz, and Diaz 1982). We use the case studies here to highlight what we consider a major problem in the schooling of the working-class Latino students, indeed in the schooling of working-class children in general: the practice of reducing or "watering down" the curriculum to match perceived or identified weaknesses in the students. This practice is best understood when considered within a more general framework or model for organizing instruction that seems quite pervasive. Heath (1986:150), for example, has called it a tendency to assume the existence of a single developmental model for learning.

She writes, "The school expects children to follow a single developmental model in acquiring uses of language," a model that assumes "a linear progression for learning in which earlier stages will not normally be repeated, and behaviors characteristic of later stages will not precede or appear in the place of those behaviors judged as simpler or more fundamental than others." For the children presented in these case studies, this model meant being stuck in the lower levels of the curriculum.

Although student characteristics certainly matter, when the same children are shown to succeed under modified instructional arrangements it becomes clear that the problems these working-class children face in school must be viewed primarily as a consequence of institutional arrangements that constrain children *and* teachers by not capitalizing fully on their talents, resources, and skills. As we have written elsewhere (Diaz, et al. 1986; Moll 1986), this conclusion is pedagogically optimistic because it suggests that just as academic failure is socially organized, academic success can be socially arranged.

The reading case study reported herein took place in an elementary school within a Latino working-class community in San Diego. All of the children in the study were labeled limited-English speakers, especially the ones in the lower reading groups. We also conducted the writing study in a predominantly Latino community in San Diego. The students were in junior high school, and those who participated in the work described here were limited-English speakers. In both cases the students were doing poorly academically. In the elementary school, they were reading approximately three grades below grade level; in the junior high school they were doing poorly in writing as measured by districtwide tests.

Reading

The research took place in a bilingual program that featured an instructional model in which children received academic instruction solely in Spanish and then moved to the classroom next door to receive instruction in English. So, the children spent part of the day in one classroom and part of the day in the other, providing us with the opportunity to observe the same children in two distinct yet related sociolinguistic environments for learning. Other relevant factors were: the teacher in the Spanish-language classroom was female, bilingual and Mexican-American; the teacher in the English-language classroom was male, monolingual, and Anglo-American. The first part of the study took place in third-grade classrooms, and the second part in fourth-grade classrooms. All of the children were considered limited English speakers, but all of them were judged by the school, using language assessment instruments as well as teacher opinions, to be sufficiently fluent in English to benefit from instruction in that language.

Our first study, patterned after Mehan (1979), revealed how the focus of instruction and the instructional procedures varied according to

ability grouping. In brief, the teachers organized lessons in both classrooms according to a hierarchy of reading skills reminiscent of Heath's (1986) claim of a single developmental model. They assumed that decoding must precede comprehension of text and that advanced forms of comprehension (what we have called "text-free") could not be taught until simpler, text-bound skills were mastered. Consequently, instruction in Spanish ranged from an emphasis on decoding and simple, text-bound comprehension questions for the "lower" reading group, to more difficult but still text-bound comprehension questions for the "middle" group, to a more advanced text-free comprehension focus with the "high" group. This instructional bias, a skills-based approach ranging from simple to complex, characterized both classrooms, but it was particularly problematic in the English-language classroom. Here the emphasis, regardless of ability grouping, was on decoding. Even students who were among the better readers in Spanish were treated in English as low-level readers. We could not find any resemblance within the English language reading lessons of comprehension questions characteristic of the advanced group's lessons in Spanish. We have suggested that because the children decoded in English with an obvious Spanish accent, as second-language readers are bound to do, and because accurate pronunciation is the best index of good decoding, the students never quite sounded right to an English monolingual teacher; therefore, he did something that within context seems quite reasonable to us—he organized plenty of decoding practice to get the students ready for more advanced reading.

We should be clear that we are not interested at all in blaming the teachers. We believe that the "model of learning" implicit in these classrooms, as well as other organizational constraints, helped misguide the teachers into treating their classrooms as self-contained environments: the teachers were unable to relate what was going on in Spanish reading, especially with the high group in Spanish, where the children were obviously competent readers, with reading in English. Put another way, there was no transfer from Spanish to English reading, a goal of most bilingual education programs, because the organization of instruction was such as to make reading in English dissimilar from reading in Spanish. Comprehension, the key to reading, did not enter in any important way into English reading lessons. You cannot transfer what you are not allowed to display.

Our "intervention," therefore, consisted of creating instructional conditions in which the children could fully display their reading abilities regardless of language. For the sake of brevity we will summarize our procedures into four steps.

First, we asked the regular English language teacher to teach a lesson with the children classified as the low reading group. We knew from our observations in the Spanish-language classroom that these children read with differing ability, but they could all read in Spanish with comprehension.

"Reading" in English

The lesson began with a brief discussion about the topic of the story, as the teacher attempted to establish the context for the story. The teacher then told the children that they would take turns reading aloud. In the transcript we present below (from Moll and Diaz 1985), note that the children were unfamiliar with some relatively simple English words and that they also mispronounced some words (e.g., "said" as [seyd]).

1. Teacher: Let's start reading the first page. We are going to meet a lot of new people in this book. (Two of the girls have their hands up)
2. Delfina: Can I read first?
3. T: I am going to let Sylvia read first, she has her hand up. (Sylvia starts reading).
4. Sylvia: " 'You can't guess where we are going,' said David."
5. T: OK, just a minute, please, Carla, we need you to follow with us. (Carla was not looking at her book).
6. Carla: OK.
7. T: Delfina, we need you to follow right along. (Addressing Sylvia) Would you start all over again?
8. S: OK, I'll start over again. " 'You can't guess . . . ' "
9. T: (Interrupting) OK, what is this? (Points at a word in the text)
10. S: Can't?
11. T: Can't. What does that mean? (Pause)
12. C: Uhm . . .
13. T: OK, Carla, if I say you can guess or you can't guess.
14. D: (Raising her hand) Oh! Can't is like no . . .
15. C: Don't do that.
16. T: Uh, yeah, uh huh. Read the sentence, the whole sentence again and let's see what it says. . .
17. S: " 'You can't guess where we are going,' sayed David Lee."
18. T: Good.
19. S: "It's going to be a . . ." (Looks at teacher)
20. C: Surprise.
21. T: Surprise.
22. S: Surprise. " 'I like surprises,' sayed Isabel. 'You bet, I'll bet you can't guess where we are all going,' sayed David." (The other girls raise their hands to read next.)

This excerpt illustrates the deliberate, slow pace of lessons with students in the low reading groups, including the frequent interruptions to help with pronunciation or define words. The children display similar difficulties when they are required to report verbally what they have understood from the reading; they were tentative in their speech, and their answers were fragmentary, as in the next transcript when the teacher asked them why the children in the story thought that one of the girls, Isabel, was lost in the fire station.

1. D: Because, the boys and girls, um, looked. . . (Sylvia raises her hand)
2. T: Sylvia.
3. S: Uh, because the boys and girls, uh (pauses, laughs) the . . . um . . .
4. D: Had to go home.
5. S: Because the boys and girls go . . .
6. T: Mhm . . .
7. S: . . . out in the first place and the girls not say "I am here."

Even to an experienced observer, or an experienced teacher, as was the case here, it would be reasonable to conclude that these children could not read at this level. It seemed evident that in the present reading context the children could not do more.

Some Bilingual Counterevidence

Was this conclusion accurate? We turned to Vygotsky's ideas for assistance. Recall the premise of his concept of a zone of proximal development: children differ in their abilities in ways that cannot be assessed solely by techniques that analyze independent performance. Based on our observations of the children in Spanish, we developed a bilingual corollary: children differ in their abilities in ways that cannot be assessed solely by techniques that analyze performance in one language. To apply this corollary, immediately after the lesson was over one of the authors sat with the children and asked comprehension questions in *Spanish* about what the children had just finished reading in *English*. Compare Sylvia's answer to a probe very similar to the one we quoted above: How did the boys know that the girl was lost?

1. S: Porque él, ella, ellos le, le gritaban y, y, la buscaban por donde todo el edificio donde viven los bomberos y ella no contestaba. (Because he, her, they would, would shout for her, and, and, they searched everywhere in the building where the firemen live and she wouldn't answer.)

She later elaborates:

2. S: Porque David dijo que ya se tenían que ir. Entonces dijeron, "Quién falta?" No falta nadie, entonces dijeron, "Isabel." Entonces empeza-

ron a buscar y no la encontraban y decían, "Está perdida ella, señor." El bombero dijo, "No, no, no puede estar perdida." Pues andaban buscándola y llegaron al troque y el señor dijo que allí estaba Isabel. (Because David said that they had to leave. Then they said, "Who's missing?" No one's missing, then they said, "Isabel." Then they started to search and they couldn't find her and they said "She's lost, sir." The fireman said, "No, no, she can't be lost." So they were looking for her and they got to the truck and the man said that there was Isabel.)

It is obvious from the transcript that Sylvia understood easily the story that she read in English, a conclusion one is unlikely to reach observing her in the English reading lessons. Our analysis showed that oral language and decoding difficulties in English notwithstanding, the students could understand much more about what they were reading in English than they could display solely in that language. How could we reorganize the instructional procedures to take advantage of their Spanish reading competence to advance their English reading? In other words, how could we develop a bilingual zone of proximal development for *English* reading?

Bilingual Communication and English Reading

On the basis of the first "experiment," we asked the teacher to provide us with textbooks at grade level. We knew from the observations in the Spanish-language classroom that the children could understand more complex text, and we wanted to try matching that level of reading in their second language. Next, we asked the students to concentrate primarily on understanding what they were reading; in our terms, we made comprehension the higher order goal of the reading lessons. Finally, we decided that the students and we, the teachers, could switch to Spanish as needed, *in situ*, to clarify the meaning of the text. We labeled this strategy providing children with "bilingual communicative support" in comprehending English text.

We started the lessons by reading the story to the students, removing all potential decoding constraints from the students concentrating on comprehension. After the reading, we sought to clarify the meaning of the text, by finding out how much the students understood and by clarifying aspects of the text. By the third lesson, the students were able, with our bilingual assistance, to answer comprehension questions required of English monolingual readers at grade level. We should also mention that by the third lesson we no longer read to the students, we had transferred the responsibility for decoding to them (for examples, see Moll and Diaz 1985). It was not the case that the children had turned into competent English readers with minimum assistance; that is not our claim. Our claim is that reading and communicative resources can be strategically combined or mixed to provide the children with the support necessary to participate profitably

in reading lessons. This point, we believe, has to do with the social organization of instruction and how it interacts with the children's and teachers' characteristics. We showed that the level of the lessons need not be reduced to accommodate the children's English language constraints, and that there are reasonable and credible ways to fruitfully relate lessons across languages for the benefit of the children. In our specific case, we took advantage of the children's Spanish language and literacy skills to facilitate their performance in English. Transfer, when it occurs, is always socially arranged.

Writing

The goal of this study was to document how writing was used in home and community settings and to explore ways of using this information to improve the teaching of writing. As such, we conducted this case study in collaboration with 12 teachers from three junior high schools. In contrast to the reading study, we did not intervene directly in instruction; rather, we created a research site within the community under study in which we met with the teachers every two weeks for three hours or so to discuss changes in their teaching of writing. More specifically, we met to discuss the latest research information and how this information could be used by the teachers to change or improve how they were teaching writing.

We realized quickly that very few of the students, especially the limited-English proficient students, were doing any extended writing. Most classroom writing was in response to teachers' questions or to worksheets. There seemed to be a similar reduction to what we described in the reading study: the students were assumed not to possess the necessary English skills to participate in essay or expository writing; therefore, teachers adjusted lessons to the students' low levels of English oral skills. Other relevant factors that helped frame the study included the following: We found little writing in the homes studied, and most of the writing that did occur was very functional (e.g., a shopping list, a telephone message, and so on). However, most of the literacy-related events in the home occurred in response to the students' homework assignments; so, in short, when writing occurred it had something to do with homework. We should add that all of the parents stated that they valued education highly and that they considered good writing to be part of being well schooled. Further, all of the parents were eager to discuss with us problems and issues having to do with living in that community. These issues ranged from immigration problems to gangs and drugs. Regarding the teachers, only one had been trained in the teaching of writing, and she believed that the methods that she learned did not apply readily to the student population she was teaching.

Therefore, regardless of differences in the two case studies, we were facing a similar phenomenon: how to maximize the use of available

resources to overcome reductionist instructional practices. In contrast to the reading study, however, the disconfirming information was not available in the classroom next door; no such asset was present. We needed to turn to community-based information for help.

Communicating Meaning

We started our interventions by using state-of-the-art information (e.g., Graves 1983) in helping teachers to teach writing as communication. We then asked them to select a topic for writing from among the community issues our field studies were identifying as important. We wanted to change not only the process of writing but the *motive* for writing: it was to become an activity to communicate with someone else about something that mattered. The teachers were reluctant to use community-related issues in their lessons. Some expressed concern that the principal or the parents could complain. However, the one teacher who was willing to try met with instant success in getting her students to write. She got them to produce sufficient text so that it gave her plenty of opportunities to teach, where few existed before.

Using this teacher as a model, we encouraged the others to experiment with their teaching, keep a journal of their activities, and bring it to our sessions for discussion. After the teachers had had some practice and some success, we asked them to think of ways of using homework as a way to extend their writing lessons—that is, as a way of helping the students and themselves increase their knowledge base for writing. Having overcome their initial reluctance, the teachers agreed to implement a series of writing activities in which community information collected through homework assignments would be used to produce and revise written text. The teachers asked the students to write about an issue of significance to them or their community (e.g., societal bilingualism or cheating). They then helped the students create a questionnaire through which they could collect others' opinions about the topic; the students interviewed parents, peers, siblings, neighbors, and adults in the school. The next step included the teachers helping the students compile this information in ways that could be used to revise their articles. An *unedited* example from one student's writing will suffice to make the point.

First, in my school, I asked students and adults. If they are bilinguals, some people are bilingual and someones are not in my school. Some them tall me they are bilinguals. somea_____ they're not bilinguals about the 50%. Senconly, in my community some people is don't inersting about to be bilingual because they think, they don't need other language because they are in America and in America only speak English. Thrith, I don't feel so good, because I think they are a little dum people because they think to be a bilingual person is a waste them time. Also, I think the people who's don't interesting to be them selfs bilingual arre going to the wrong way because the prsons who speatwo language or more have the opportunity to know other

culture and language. Finally, in my family they think to be a bilingual is to important because they learn other culture and language, And we speak spanish and we speak English because we live in U.S.A. but like in different countries is important to know other languages for we can talk with other persons. [Diaz, Moll, and Mehan 1986:218]

Obviously, the student's writing could stand improvement. But that would be to miss the point. Grammatical mistakes aside, the teacher was able to organize the lesson in ways that minimized the constraining influence of the student's lack of fluency in his second language, while maximizing the use of skills the student did possess in getting him to write for communication. Whether students were fluent or not in English, they participated in comparable, demanding intellectual activities; the goal of writing for communication remained invariant, ways of achieving the goal varied depending on the characteristics of the students and the resources available for teaching. (For additional results, see Trueba et al. 1982.)

These and other studies that have analyzed in detail the "immediate environment of learning" provided us with a good understanding of the interactional mechanisms of teaching and learning; these same studies convinced us how much the ways we routinely organize instruction limit children's thinking. We have also shown, however, that this does not have to be so; even relatively minor changes in the social context of learning can produce important changes in performance. How we are going about creating conditions for change as part of a general research strategy is what we describe next.

Instructional Experimentation in Community Context

A direct result of our previous research, a logical and necessary progression of it from our perspective, has been the development of community-based research sites. We think of these settings as educational "laboratories." As with any laboratory, they are places especially designed to address specific issues in a reduced, manageable way. At these settings we continue our research on reading, writing, and more recently, on computer communications, an important new addition to our work, as we shall explain (Diaz 1987; Moll 1987). As is now becoming known about laboratories, however, these settings are not isolated from the world at large (Latour 1983). In our case, we try to link them strategically to different social institutions and practices. In line with the laboratory metaphor, we have called studies that we conduct at these settings "ethnographic experiments." As we implement our instructional studies, we try to retain important classroom or school characteristics while exploring ethnographically the nature of the community and what resources may be available to improve instruction. That is, these settings are intended as permanent locations that allow us to study dynamically and continuously schooling in the context of the community. And in the ethnographic spirit, we try to relate,

through a computer network among researchers, teachers, and students, our community and instructional findings to work being conducted in a similar mode in other cities.

For example, at both the San Diego and Tucson sites we meet with 15 to 20 students at least twice a week for approximately two hours. These students are usually working-class Latinos in the bottom 20th percentile of their class, and they represent the type of linguistic diversity common in the schools. On a typical day the students participate in reading lessons, do writing and editing, try our software, and communicate through the computer with students locally and internationally. Reading, writing, and the use of computers are conceptualized as related activities in carrying out broader research projects. Recently, for example, the students in Tucson and San Diego conducted research on murals, a common sight within each community. At each site the children analyzed murals and learned about their purpose, why they were painted, how they were assembled, their messages, and so forth. The students shared in writing all of the data collected with their peers in the other city as well as prepared newsletters to report their work. This arrangement allows us, as part of the same system, to conduct research on reading, writing, and the use of computers, and on how to take advantage of what their respective communities have to offer.

Beyond being sites for instructional research, however, these sites enable us to establish new relationships with key social institutions and players. For example, both undergraduate and graduate students do research at the sites or in the communities. We also use the university's computing resources in facilitating the networking activities. In both instances, through the work, we are establishing a new connection between the local schools and communities and the universities. Similarly the local school districts have contributed to the sites, installing a new telephone line for our use, providing us with access to local schools, or providing funds to remunerate teachers who work with us during after-school hours. We are now planning on increasing the participation of parents; similar research in New York has combined literacy courses for parents with computer-mediated activities for the children (Pedraza, personal communication, January 1987).

Conclusion

We think that these community-based, educational laboratories provide us with a leverage point in the study of educational practice (cf. Latour 1983). Our work is simultaneously instructional and community analysis; it entails a microanalysis of instruction, so essential to understanding that those events we call lessons are always social constructions, and to an analysis of the role of extracurricular factors in this social accomplishment. In this sense we see our approach not so much as dissolving but as mediating the interactive and structural ex-

planations being examined in this issue of *Anthropology & Education Quarterly*. Our analysis does not neglect either the inside or the outside of schools; it is in this interplay that our settings function. While we study instruction and change we analyze the social factors that make our settings possible or impossible, relevant or irrelevant, successful or unsuccessful.

The key to understanding school performance is not in the study of mental aptitude or attitude toward schooling; it is in understanding the dynamics of material, local settings. To succeed in school one does not need a special culture; we know now, thanks to ethnographic work, that success and failure is in the social organization of schooling, in the organization of the experience itself. No amount of inquiry into attitudes toward schooling would have revealed the social entrapment of students in the two case studies we reviewed, or the social moves necessary to overcome the status quo. Why and how students succeed or fail, we would argue, are inseparable questions whose answers must be found in the social manipulations that produce educational change.