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THINKING AND LEARNING SKILLS

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Social Class and Ethnic Differences in Cognition: A Cultural Practice Perspective

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As part of an extensive review and critique of cross-cultural cognitive research, members of the Laboratory of Comparative Human Cognition (cf. LCHC, 1982; LCHC, in press) outline a theoretical framework, which maintains that behaviors giving rise to judgments of intelligence, behaviors that have traditionally been treated as general mental abilities, are, instead, best thought of as performances that are specific to particular contexts.

The term context is often used without being defined adequately. In LCHC's theory, a context refers to interactions between individuals, and between individuals and objects, that are delimited by a unique arrangement of goals, behaviors, expectations, demands, and rules constructed by the participants. As Green & Smith (1982) observe, contexts are not determined by the physical setting; the physical environment may constrain the types of interactions that occur, but it does not determine their nature entirely.

For example, a baseball game is far more than a bat, a ball, people, and a field with bases. As a context, baseball occurs when people interact with each other, objects, and the environment in accordance with a set of agreed upon rules, expectations, and goals that may change over time. If too much change in any one or group of factors comprising a context occurs, a context may come to be defined differently. Presently, baseball aficionados are debating whether American Leaguers are actually playing baseball because of the existence of the designated hitter rule in that league.

Returning to the subject of intellectual skills, the Laboratory of Comparative Human Cognition maintains that cognitive abilities are organized and constrained by the contexts in which they are used, and that culture influences the presence and arrangements of certain contexts. LCHC's cultural practice theory views

cognitive abilities as skills that are adapted to the unique arrangement of factors that constitute a particular context. Aside from biological factors, the appearance or absence of a certain type of cognitive ability is seen to be a function of the intellectual demands that contexts place on individuals and of individuals' awareness of how to apply their skills.

It was mentioned earlier that LCHC maintains that culture influences the presence and arrangements of certain contexts. Because cognitive skills are organized and constrained by contexts, a basic tenet of the theory is that the cognitive abilities that constitute intelligence are culturally organized practices. To put it differently, the intellectual repertoire of a biologically sound person is largely shaped by the nature and availability of opportunities for exercising the range of behaviors that represent cognitive skills.

With its emphasis on intellectual skills as behaviors within a given context, another feature of LCHC's cultural practice theory is that cognitive activity is viewed as behavior that gets accomplished through interactions between individuals. Cognition, therefore, does not reside solely in the external world, nor in a person's head, but as an intersubjective process, a process that is socially constructed and organized and is context specific.

One major line of evidence supporting this view of intelligence comes from research showing performance differences between Western and non-Western, and schooled and unschooled groups that can be clearly linked to differences in knowledge, cultural practices, stimulus familiarity, and/or task familiarity. Research spanning quite a variety of cognitive skills (cf. Cole & Scribner, 1974) has found that the relative performance levels of cultural groups can be reversed by changes in these aspects of tasks. For example, Fjellman (1971) used a variety of tasks to gauge the classification ability of Kamba children in Kenya. Children were tested using sorting tasks with animal pictures and tools. Comparisons were drawn between Kamba children from rural and urban settings, and between those with and those without schooling. Fjellman's results demonstrated that although schooling was associated with use of form as a basis for categorization on the figures task, urban children's responses on the animal task were less "abstract" than those given by rural children. Because Fjellman had previously determined that all the children were equally familiar with the stimuli, as measured by their ability to name the items, the findings could not be related to group differences in familiarity as ordinarily assessed. It was argued, instead, that the performance differences reflected the greater knowledge of animals possessed by rural children and the fact that, through schooling, urban children know more about geometric figures. Differences in stimulus familiarity as "knowledge" derived from experience, then, was used to explain the findings.

Evidence of cross-over effects have also been found in cross-cultural contrasts in perceptual ability. Serpell's (1979) research exemplifies the methods used to produce such findings. Four tasks were used to measure the representational ability of English and Zambian children. As reported by the Laboratory of

Comparative Human Cognition (1982), one task "involved copying the positions of the experimenter's hands (mimicry), the second involved copying two dimensional figures with pen and paper (drawing), the third involved constructing copies of two-dimensional wire objects (molding), and the fourth involved making copies of three-dimensional objects from clay (molding)." As LCHC reports, the findings showed that the "English children did better in the drawing task and the Zambian children did better in the wire molding task" (p.126).

The fact that cross-over effects were exhibited in the previous two studies is not accidental. These effects are typically found when investigators make an effort to become familiar with the knowledge and practices of the groups being studied. This knowledge is often, then, used to guide the selection of tasks and analysis of data in ways that represent local cultural practices as well as Western ones. Serpell's choice of tasks and his prediction that Zambian children would do better on the wire molding task than English children was guided by his awareness of the cognitive implications of Zambian versus English children's activities. Similarly, Fjellman's ethnographic descriptions of life among the Kamba fueled her selection of stimulus materials and aided in the analysis and interpretation of the data.

The concept of individual or group differences in general ability is clearly inadequate to account for such a pattern of results. Unlike a general ability framework, the cultural practice approach points to these findings as evidence that culture-specific knowledge and activities constitute contexts that organize the development and deployment of a repertoire of task-specific cognitive skills. This position holds that the generality of cognitive skills depends on the extent to which contexts have common features that come to be perceived as such by an individual, thus enabling a transfer of skills.

In elaborating the context-specific hypothesis, LCHC does not minimize the need for a theory to account for consistencies in performance across situations. Cultural practice theory accounts for these generalities by identifying the similarities in the distribution and organization of activities across contexts.

Though a major portion of the discussion and the development of the cultural practice theory is grounded in cross-cultural research, much of the theory is informed by recent developments in cognitive research within the United States. Recent research in this field departs from the Ebbinghaus tradition of studying intellectual processes without consideration of the effects of prior knowledge. Experiments conducted during the past decade have demonstrated that many performances, once exclusively thought to be related to differences in developmental levels or individual capacity, are a function of database or knowledge discrepancies. Chi's (in press) research, for instance, shows that, when compared to adult novices, 10-year-old chess experts do better at memorizing the arrangement of pieces on a chessboard. Chi argues that the children's superior knowledge of chess, in comparison to the adult novices', fostered the selection of strategies that led to greater recall. If we assume that the general knowledge of adults in

this study was greater than the childrens, one is left to conclude that the adults' advantage was not sufficient to overcome the children's possession of more chess-related information.

In the previous experiment, differences in the knowledge bases of experts and novices were linked to variations in memory performance. Age differences in knowledge have also been associated with developmental differences in children's classification behavior. Markman's (1973; Markman & Siebert, 1976) work on collections and classes suggests that young children's difficulty with class-inclusion problems may stem from the salience of collections over classes for young children. According to Markman, collections differ from classes in four ways: (1) the criteria for membership, (2) their internal structure, (3) part-whole relations, and (4) in the nature of the higher units that are constructed. For example, in comparison to classes, membership in collections is determined by an item's relationship to other members of the collection. In addition, whereas the part equals the whole in the case of members of a class, the same is not true for objects in a collection. Although Markman's data suggest that there is a developmental trend in the criteria used for classification (i.e., collections vs. classes), her results also indicate that this trend depends on age-related differences in knowledge that contribute to the salience of collections over classes in young children.

Differences in knowledge have also been related to differences in performance among adults and older children. In this area, knowledge discrepancies have been related to individual differences in recall performance (e.g., Bransford & McCarrell, 1974), diagram recognition (Brown, Collins, & Harris, 1978), and text comprehension (e.g., Brown, 1977).

SCHEMATA AND METACOGNITIVE SKILLS

The results of these investigations reveal that prior knowledge influences intellectual outcomes in quite specific and predictable ways. This has left researchers with the task of specifying the mechanism(s) by which prior knowledge influences cognitive activity. The cultural practice theory and researchers who adopt ability framework treat this issue somewhat differently. General ability theorists use the concept of schemata to account for the effect of prior knowledge on cognition. Schemata have been described as sets of knowledge stored in long-term memory that outline the information in a set, its significance and rules of use (cf. Adams & Collins, 1978; Rumelhart & Norman, 1978). Rumelhart even suggests that schemata are internal representations of situations used to guide subsequent processing once an appropriate match is made between input and existing schemata. Evidence of the hypothesized relation between schemata and subsequent processing comes, in part, from the story comprehension research in which individuals asked to recall stories add information not present in the original

story (cf. Bransford & Johnson, 1973). This evidence indicates that the story recall and comprehension is partially dependent on a close fit between the information related in a story and that stored in the form of an individual's schemata.

Culture practice theory handles this problem in a different way. Instead of emphasizing the representation of situations internally, this framework maintains that schemes for guiding behavior do not exist solely "in" the individual but are constructed in the interaction between individuals or between an individual and "the task" in a particular context. The distinction between the two approaches vis-a-vis the role of prior knowledge should become clearer in the following paragraphs.

If schemata are construed as internal representations of situations or knowledge sets, and if processing difficulties occur when schemata are inappropriately matched with input, then, one also must provide for a mechanism by which the appropriateness of matches is evaluated and schemata are learned, revised, and replaced. Rumelhart and Norman's (1978) classification of learning in terms of accretion, tuning, and restructuring establishes a theory of the latter process. Generally speaking, accretion, tuning, and restructuring represent three modes of learning that have different implications for the status of schemata. Accretion refers to expansions of data bases through the accumulation of new knowledge. Tuning occurs when existing schemata are modified in response to either new information, or new or greater demands. Finally, restructuring represents the development of additional schemata to interpret new information or meet new demands.

Rumelhart and Norman's theory provides a good description of the hypothetical process of schema growth and development, but the controlling, evaluation, and change mechanisms remain underspecified. These uncertainties about the source of change arise because of the framework's tendency to place these kinds of functions in the head and treat them as general abilities. Cultural practice theory, on the other hand, emphasizes the fact that these functions are a part of ongoing social interactions that are an important source of feedback related to monitoring, checking, and evaluating in specific task domains. "Thinking" in the traditional sense of the term is treated as truncated interaction in which the individual supplies both sides of the interaction. Thus, where general ability theorists see a sharp distinction between schemata and cognitive processes, cultural practice theory views them as being intertwined and separable only for purposes of very specific analyses.

The distinction between the two approaches to cognition, then, arises from the fact that one treats cognition as a socially mediated activity, whereas the other represents intellectual behavior internally. However, both cultural practice theory and recent developments in cognitive psychology have important implications for understanding the factors underlying majority-minority culture differences in cognitive performance within the United States. Unfortunately, cognitive psychologists as a group have not devoted much attention to group or cultural differences in cognitive behavior, being more concerned with identifying

common general processes, more or less of which are said to characterize one group vis-a-vis another (cf. Ginsberg, 1980). The context-specific hypothesis was developed in response to trends observed in cross-cultural studies comparing Western and non-Western groups. A viewpoint that says that contexts or schemata guide cognitive activity also has implications for how research contrasting the mental abilities of different cultural groups within the United States is interpreted.

The criticisms that LCHC (1982) direct toward cross-cultural research done in foreign settings with respect to the use of an ecocultural model, sampling problems, and task specificity also have their counterpart in the domestic equivalent of this research.

THE ECOCULTURAL MODEL IN DOMESTIC RESEARCH

Almost all the research on minority-majority culture differences in cognition has been carried out within the domestic equivalent of the ecocultural approach used in cross-cultural research done abroad (cf. LCHC, in press). Briefly, this model relates cultural differences in cognitive capacity to varying ecological, social, and economic circumstances (e.g., Berry, 1974). Applications of this model to subcultural group differences within the United States present a variety of problems in addition to those discussed in cross-cultural research.

The range of ecocultural variables explored in the United States is truncated in comparison to the variables studied in the cross-cultural literature. Ecological variability drops out, and the activities people engage in as a means of support are represented, if at all, by such social indicators as socioeconomic status, race, or ethnicity. Family, social organization, and child-rearing practices are the dominant cultural domains studied, with few exceptions (see Bronfenbrenner, 1979).

In short, when researchers apply the ecocultural model to study subcultural group differences within the United States, they generally sample a restricted range of variables within the model. This problem is compounded by a widespread use of social indicators as representatives of ecocultural variables. These indicators are themselves collections of variables at different levels in the model (e.g., education is component of SES scales, or covariation between social class and race). The amount of covariation that exists between the ecological variables studied within the United States makes it extremely difficult to isolate the unique effects of independent variables on cognitive capacity or performance.

Various Types of Sampling Problems

Sampling and Social Indicators. The widespread use of social indicators as independent variables leaves unexamined the extent to which the variables in question have equivalent meaning across subcultural groups, and the extent to

which an indicator adequately represents the domain sampled. These issues are more than hypothetical.

Trotman's (1977) research investigated the equivalence and effects of social class indicators across racial groups. In comparing the features of the home environments of middle-class black and white families, Trotman found that the homes of whites were characterized by the availability of more educational resources and the presence of a learning orientation more consistent with that found in school than was true in black homes of "equivalent" SES. Trotman also found other interesting differences between the homes of blacks and whites whose SES status was assumed to be equivalent. For instance, the findings showed that more black mothers worked full or part time; the number of prior generations achieving middle-class status were fewer for black families than for white ones; and that black children in the sample experienced greater academic pressure concomitant with more household responsibilities than their white counterparts.

These differences in "cultural ecology" were associated with different levels of cognitive outcomes as measured by IQ tests and school achievement. Number of generations in the middle class was related positively to children's IQ; increasing mother's employment was associated negatively with children's IQ and school performance. In addition, Trotman created an index of home environment variables (HE ratings) and found that the relationship between HE and IQ was greater among blacks than whites. The different indices of class also related differently to alternative cognitive dependent variables; for example, HE was a better predictor of school achievement for blacks than whites.

These data speak strongly to the need for research that identifies the subcomponents of independent variables said to produce change in dependent variables while simultaneously documenting the process that accomplishes this change. If domestic subcultural research continues to rely on "indices" of both independent (most egregiously, socioeconomic indicators) and dependent variables, the enterprise will constantly be plagued by "third variable" explanations that point to some untested subcomponent of group differences as an "underlying" cause.

Sampling and Cognitive Performance. The problems engendered by the use of global indices on the independent variable side are paralleled and exacerbated on the dependent variable side by the use of cognitive "indices" within a general processor framework. Here the issue of sampling is again central. An approach to culture and cognition that uses culturally organized indigenous practices as its starting point urges us to reexamine the literature on group variation for information about the range and nature of contexts that members of the contrasting groups routinely encounter. We seek descriptions that would allow us to identify seemingly similar situations encountered by both groups as well as contexts unique to each. We would then seek experimental work that samples behavior from the set of contexts that organize people's lives for detailed explication of what people are doing.

When we survey the existing literature, we find enormous imbalances in the availability of relevant information in many domains that play a central role in a cultural practice approach. Relatively few studies sample cognitive skills in a variety of contexts. Even when this occurs, the sampling usually gets done within the general ability framework (e.g., rating scales are summarized as indices of maternal teaching styles that are related to IQ as in Trotman's work and Hess and Shipman's, 1968, research). The school setting has been sampled most widely, either through the pragmatically derived procedures of IQ testing, cognitive-psychological research of an experimental variety, or more macro, sociological descriptions. Schools are exceedingly important contexts in American society, but they are probably not equally significant across subcultures.

Several recent lines of research show that problems arise when information gathered in school settings is used to make inferences about what goes on in the home or community. A classic demonstration of this point was Labov's (1972) study of how the complexity of black children's language increased dramatically when interviews were made in informal rather than formal situations. A more elaborate view of situational variability in children's talk is illustrated by Cole, Dore, Hall, and Dowley's (1978) comparisons of black children's speech in a supermarket and a Head Start classroom. A preliminary examination of the data revealed that children's talk in the supermarket was grammatically more complex and lexically more diversified than in the classroom. However, detailed analysis of adult-child conversational acts across settings demonstrated that the frequency and complexity of specific conversational acts are what vary according to the unique task constraints of each setting, not grammatical or lexical complexity "in general." When roughly comparable constraints were identified *within* each setting, language behavior was strikingly similar. The settings could not be uniquely indexed by a global-dependent variable such as mean length of utterance, or by a global-independent variable such as "school" or supermarket. Such indexing only obscured the real variables at work.

This kind of evidence undergirds our point that the results of experiments conducted in one context warrant claims that are limited to the original context in the absence of data-linking contexts. Regrettably, generalizations about group differences in basic competence (i.e., cross-situational capacity) have primarily been grounded in the uses of central capacity sampled in school or laboratory settings. For instance, in Sigel's research on social class differences in classification ability (e.g., Sigel & McBane, 1967; Sigel & Olmstead, 1970), low-class children have shown a preference for relational sorting strategies. Middle-class children, in contrast, produce more descriptive and categorical grouping responses. These methods of categorizing pictures or objects are hypothesized indices of pervasive cognitive styles that are said to organize a great deal of these children's intellectual lives (cf. Kagan, Moss, & Sigel, 1963). However, by varying the subcultural salience of test materials, Simmons (1979) showed that the use of categorical and descriptive responses depended on the particular

pictures involved. Typical social class differences in performance were either absent or reversed in some cases; it was even possible to produce within-subject differences in "cognitive style."

Yando, Seitz, and Zigler's (1979) recent work uses multiple tasks to make a similar point. They investigated SES and ethnic differences in five areas of cognitive functioning presumably related to intellectual ability: creativity, self-confidence, curiosity, frustration threshold, and autonomy. With two exceptions, behaviors representing each of the constructs were sampled using at least three different tasks. The measures of behavior within each domain were made as game like as possible.

This study investigated several issues related to SES, ethnicity, and cognition, but the following points are central to this discussion. Within a particular ability domain, the pattern of SES differences varied depending on the criterion for "good" performance. Low SES children, for instance, outperformed middle-class children on creativity tasks in which the quantity of responses was the criterion for good performance. Middle-class children did better on creativity tasks that used the quality of responses as the performance criterion. SES differences in performance also varied with the "academic" quality of a task. The performance of lower class children was significantly better on game-like tasks than on tasks that resembled school activities. The reverse was true for the middle-class children. This finding was obtained even when the low and middle SES groups were matched for tested IQ.

These studies demonstrate how individual and group use of particular skills may vary across contexts and within contexts, depending on the structure of the activity and the particular stimulus characteristics. The results show that there is a need for a more sophisticated theory about the specific performance or ability (the dependent variable) being studied, because without it we are not going to find any adequate explanations of interactions such as those we have just mentioned.

The within-subject variations in performance obtained in the previous studies is not compatible with a general ability approach to intelligence. More sense can be made of such findings when behavior is viewed as being differentially organized in different contexts. It should be apparent, then, that we need more research that samples behavior to illustrate how a particular skill is used across a variety of contexts and studies that use different tasks to measure the "same" ability.

Theoretical Explanations of Task Performance

A second theoretical problem concerns explanations of the relation between independent and dependent variables. Having weak "indices" of both the independent and dependent variables, researchers face too many choices in explaining away weak correlational effects. It is this dilemma that led Mischel and Bem (cited in Shweder, 1979) to comment that: "nothing is glued together until proved

otherwise . . . The heuristic advantage of this strategy is not guaranteed, of course. But the difference in morale if $+ .30$ correlations continue to come in is itself worth considering" (p.255).

This problem is seen very clearly in the mother-child interaction work. Presumably, this work fits into the ecocultural model by relating SES to family socialization practices and family socialization practices to cognition. However, there is little explanatory power in much of this work because the research does not attempt to specify the mechanisms by which the independent variable has its effects.

This is related to the problems inherent in Kirk's (1977) work that, although carried out in Africa, embodies precisely the logic of domestic research; in one instance Kirk found that a mother's use of a relational teaching style on a construction task was related positively to the age at which her child achieved conservation of quantity. But on a second task (Piaget's Three Mountain Problem) also said to be dependent on relational thinking, mothers' teaching styles did not predict children's performance. Exposure to photographs was cited as a reason for this latter negative finding.

In this example, Kirk is forced to resort to a "third variable" explanation for want of an adequate model of the relation between teaching strategies adopted by mothers' and children's behavior on tasks in which relational thinking is thought to be a prerequisite for performance. Kirk's interpretative difficulties are further complicated by a lack of evidence in support of her assertion that both tasks require relational thinking. Even if this point was proved correct, there is the possibility outlined by Estes (1974) that the two task environments might lead children to assemble the constituents of each task differently.

Without an adequate theory of the constituents of task performance, researchers must generally resort to tenuous post hoc explanations of how the independent variable causes its effect. This is a recurrent problem in research seeking to increase children's competence through program enrichment or by changing patterns of cognitive socialization. For instance, Slaughter (1979) studied the effect of mothers' participation in one of two programs or a control group on, among other things, the cognitive development of their children. One of the experimental conditions was modeled after Levenstein's Toy Demonstration program (Levenstein, 1977); the other was an informal discussion group. The Toy Demonstration condition was specifically aimed at getting mothers to adopt cognitively more favorable methods of interacting with their children.

The discussion program focused exclusively on discussing strategies for alleviating the mothers' general problems; children were not directly involved in this group. It was hypothesized that children of program participants would achieve greater cognitive development than the children of control-group mothers. It was also expected that the cognitive development of children with mothers in the Toy Demonstration group would be slightly better than children of mothers in the discussion group, because the latter mothers did not receive any direct instruction in how to facilitate their children's cognitive development.

As it turned out, where significant differences between program- and control-group children were obtained, the scores of children with discussion-group mothers were higher than those whose mothers were in the Toy Demonstration group across a variety of measures directly and indirectly related to intellectual development. Correlations, unfortunately, were generally in the range lamented by Mischel and Bem.

Slaughter did not do any normative observations of the program mothers' interaction with their children; hence she was unable to document specific changes in the program mothers' behavior that may have heightened the skills of their children. But even if Slaughter had been able to identify modifications in the program mothers' approach to their children, the absence of a good theory of the relation between particular aspects of mother-child interaction and children's development makes it difficult to ascribe increases in children's intellectual abilities to change in the way mothers relate to their children.

Slaughter's research is certainly not alone in having this problem. Few studies have been able to specifically demonstrate the process by which parents mediate their children's acquisition of cognitive skills. Werstch and Stone (1978) advocate microgenesis as a method for this kind of investigation. Microgenesis refers to examining "the development of a skill, concept, or strategy within a single observational or experimental session" (p.8.). Such an analysis requires the identification of the component processes underlying task performance.

This criterion returns us to our concern about the analytical deficiencies inherent in many of the intervention studies. Slaughter's research, for example, would have provided an excellent opportunity to observe the changes over time in the program mothers' guidance of the intellectual behavior of their children in tasks that were related strongly to the cognitive tasks that were administered. Such a strategy would allow mother-child interaction researchers to make stronger claims about how intervention affects other behavior that facilitates children's competence. Moreover, one would be able to ascribe the increased benefits of one program over another to specific types of interaction. Presently, this kind of research program is hindered by a dearth of tasks for which we have both strong models of behavior and that assess cognitive abilities of widespread significance. Resorting to IQ tests because of their correlation with schooling does not solve this problem.

EDUCATIONAL APPLICATIONS

Evidence that some intervention programs are able to influence positively the cognitive performance of minority culture children in relatively short periods of time (e.g., Sigel & Olmstead, 1980; Slaughter, 1979) indicates that, rather than changing basic capacities, these programs narrowly affect children's understanding of how to go about solving the experimenter's or school's tasks. Brown (in

press) suggests that the academic deficiencies of low-SES children may largely be due to problems they have generating strategies that guide the processes they use in academic problem solving. These strategies or metacognitive skills are generally defined as processes that control, direct, and regulate other cognitive processes (cf. Brown, 1980; Flavell, 1978).

An individual's ability to complete successfully an academic task requires that s/he understand the goal and be able to regulate and select the processes that will lead to the successful solution of the problem (Wertsch & Stone, 1978). Following Vygotsky's line of reasoning, Wertsch claims that the capacity for self-regulation grows out of social interaction. A potentially important topic for future research dealing with subcultural differences in cognitive aspects of socialization, then, is exploration of the contexts in which the self-regulatory capacities of minority culture children develop. Another important issue is the focus of these capacities and its relation to academic tasks.

Moll, Estrada, Diaz, and Lopes' (1980) recently completed study represents a step in this direction. They videotaped the *same* third-grade native Spanish-speaking children as they participated in reading lessons in separate classrooms—one teaching in Spanish, and one in English. Only those children judged by their teachers as sufficiently fluent in English to take part actively in lessons participated in this dual arrangement. The analysis focused on the communication systems that the teachers set up in order to implement the bilingual reading lessons. Moll et al. observed that in all the lessons the teacher acts as a mediator between the curricular materials and goals and the children; that is, the teacher regulates the level of difficulty of the lessons by modifying, changing, and adjusting task demands and characteristics on the basis of the behavior of the different groups and individual children. This regulation of difficulty is usually accomplished by varying the requirements for communication and independent work. For example, in the first language classroom (Spanish), the role of the teacher was observed to change in systematic ways as she interacted with the different groups. These role changes ranged from adjusting the extent to which the teacher actively directs and, in fact, does much of the task for the student (in the low group) to subtle "distancing" as she deals with children more experienced with the problem and able to take over more of the task themselves (the middle group), to having the children apply all the skills found in the previous contexts independent of the teacher's help and direction (the high group).

Variations in the systematic organization of these mediating strategies became very significant as the *second-language* lessons were examined. The second-language environments were organized to focus primarily on lower level "mechanical" tasks such as decoding skills, phonics, and simple language development activities. Practically absent from the middle and high groups in English were the types of directing activities or mediating strategies that characterized these groups in the more advanced first-language classroom. For instance, children in the high-ability group in English were involved in tasks that corresponded

to the lower and sometimes the middle group in the Spanish-speaking classroom. Moll and his colleagues further noted that these adjustments are influenced clearly by the children's characteristics, in particular, the children's ability to communicate in the form appropriate and relevant to the given lesson context. Moll et al. argued that the differential social organizations of reading lessons in great part determine the nature of the intellectual experiences for the children and the benefits they may receive from formal instruction. Similarly, McDermott (1977) recognized that one of the consequences of the different social organization of reading lessons for low- and high-ability students was fewer opportunities for learning in the low group as compared to the high group. This circumstance compounds the difficulties of students who are already deficient in academic skills.

The research discussed earlier points to the need to understand how the culture of the child and that of the school interact to produce contexts that either facilitate or impede academic achievement. Educational equity is linked directly to our abilities to organize learning environments that include activities that use a child's prior experience to extend his/her existing skills.

The Kamehameha Early Education Program (KEEP) provides a good example of the academic gains that can be achieved when an approach of this kind is adopted. The Kamehameha project was initiated in the early 1970s by a group of researchers and practitioners who were interested in improving the historically poor school achievement of disadvantaged Hawaiians, a group that includes, among others, Samoan and Filipino children (see Tharp, 1980, for an excellent overview of KEEP). KEEP adopted the much used "mismatch hypothesis" as an explanatory framework, suggesting that cultural discontinuities between the school and the communities of disadvantaged Hawaiian children were a major cause of school failure. The KEEP staff, however, went one step further than most social scientists who invoke the mismatch hypothesis. They conducted a descriptive study of the families and communities of disadvantaged Hawaiian children in an attempt to identify both beliefs and practices that might conflict with school achievement and ones that could be modeled in school to improve learning.

The results of this study showed that the child-rearing practices in these communities fostered a strong peer orientation among young children. It was also noted that young children ordinarily interacted in small groups without much adult supervision. Older siblings were largely responsible for the care and teaching of younger children. Furthermore, KEEP researchers observed that children tended to learn by doing or through observation, rather than by direct instruction from adults. When viewed against the requirements of school, many of these characteristics were seen as sources of conflict between the culture of the school and that of the community. Members of the Kamehameha project believed, however, that some of the local culture's practices could be accommodated in school settings to increase learning. For example, the social organization of the

classroom was changed to allow children to work in small groups that were heterogeneous with respect to reading level. According to Calfee et al. (1981), this was done to make the classroom environment "more consistent with the character of sibling work groups outside of school" (p. 47). The Kamehameha staff, it should be noted however, did not take a culturally relativistic position and assume that the school should mirror every facet of the local culture that it serves.

The findings from the ethnographic study were integrated with cognitive and linguistic data on disadvantaged Hawaiian children to develop a direct instruction reading curriculum with a comprehension, rather than code orientation. The latter decision was influenced partly by cognitive research showing that the decoding of written symbols is an active process in which the individual constructs meaning by relating old information to new data (cf. Tharp, 1980). The direct instruction format used a consistent lesson structure involving what were referred to as Experience-Text-Relations (E-T-R) sequences. Reading lessons were begun by teachers introducing "content drawn from the child's experience (E), followed by text (T) material, followed by establishing relationships (R) between the two" (p. 15). As part of this routine, teachers asked questions that were hierarchically organized according to their cognitive difficulty.

In summary, the KEEP program started by identifying the features of situations where learning took place in the local culture and incorporated certain aspects of these contexts in developing a reading curriculum that also reflected recent advances in cognitive research on reading comprehension. Comparisons of the Gates-MacGinitie Reading Test scores between children in the KEEP program and those receiving other types of instruction show that the scores of KEEP children are significantly higher than those of children in comparison groups.

Implications for Educational Policy

Demonstrations such as those provided by the Kamehameha reading project represent positive examples of the research promoted by cultural practice theory: By identifying the content and social organization of analogous intellectual activities in two cultural settings, Tharp and his colleagues were able to develop an approach to instruction that maximized the reading achievement of disadvantaged Hawaiian children.

However, a little thinking about how to construct other curricular activities along the lines of the Kamehameha project reveals a fundamental restriction of the straightforward application of a cultural practice framework to improve academic skills. Because studies like the Kamehameha project are extremely useful for demonstrating the presence of intellectually valued skills in populations where they might have been assumed to be absent, they may be of limited utility in our schools as presently structured. The fact remains that in order for our school system to succeed in educating all our children, children's activity must be

organized to give them the requisite kinds of practice both inside and outside of school. This is the basic idea behind all compensatory education programs, no matter the rationale that brings them to organize extra practice. It is correctly assumed that success within a restricted activity domain (e.g., reading) is dependent on the amount of practice one gets in that domain; but a theory of how such practice can be organized and generalized to occur in environments where its occurrence is low (e.g., after school time) is lacking. Compensatory education programs generally proceed by changing aspects of either the school or the family environment, changes that often produce short-term gains in achievement. Few of these programs, however, have considered the complementary changes necessary in both educational institutions and communities to support the continued success of students once they leave a program.

Educators and parents alike generally recognize that the success of compensatory and regular educational programs depends on community-school collaboration; yet, there is little agreement about the precise form such collaboration should take and the functions it should serve. Part of this uncertainty is due to a lack of understanding of how schools and communities interact to produce academic successes and failures. Ogbu's (1974) descriptive analysis of education in a low-income community is one of the few that documents both the community's and the school's role in the academic failure of certain students. Ogbu identifies school policies, parent and teacher attitudes, and economic constraints affecting the school and the community that produce failure in children from specific minority groups.

Similarly, McDermott et al.'s (as part of a final report in preparation) study of homework in working-class families shows how homework can extend academic failure when used, or perceived to be used, for reasons other than practice. Ideally, homework is used by both teachers and parents to diagnose problems and to give students an opportunity to practice old skills and develop new ones without being concerned about grades. Parents', teachers', and students' responses to homework, however, vary when it is used (or perceived to be used) for reasons such as the school's accountability to the community or parents' commitment to their children's education. When schools use homework as a window into the child's family, many parents respond by exerting tremendous pressure on children to do it correctly. McDermott et al. describe how one family's concern with doing it "right" undermined the function of homework in the ideal sense. The family managed to recreate "school" in the home, an experience, which for this particular child, was filled with failure.

Although Ogbu and McDermott's studies underscore the need for understanding and improving community-schools relations, more research is needed before general prescriptions for collaboration are handed down. We must know more about the ways some of the contexts encountered by minority culture people produce school failure. Unfortunately, most of the ethnographic work done on minority groups (e.g., Liebow, 1967; Stack, 1974) restricts the analyses to ways

the local culture gallantly perpetuates failure. The majority group's role in failure among minority groups is less clearly analyzed.

CONCLUSION

From the perspective of cultural practice theory, the fact that some social groups outperform others in valued social contexts like the school needs to be explained with the same rigor that we demand of our cross-cultural work. We clearly recognize differential performance; it is when seeking causes that our strategy for research and our guesses about social policy differ. We seek to explain cultural differences in performance by examining differences in the experiences people have in a given context, recognizing, of course that differences in experience often amount to differences in practice. To bring about change, we seek changes in the contexts that are available to a given group both within and outside the local culture.

Thus, cultural practice theory acknowledges the existence of domain-dependent cultural differences that can, in some circumstances, be called "cultural deficits." However, as Cole and Bruner (1971) pointed out several years ago: "Cultural deprivation represents a special case of cultural difference that arises when an individual is faced with demands to perform in a manner inconsistent with his past (cultural) experience" (p. 874).

We believe this statement to be true. What has occurred in the intervening decade is increased sophistication in carrying out the research program that such an assertion promises. In this chapter we have offered for the first time a comprehensive statement of what sort of theory seems to best serve such a program and our recommendations for future research.

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