Contributions of Cross-Cultural Research to Educational Practice

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ABSTRACT: The 40 years since the end of World War II have witnessed an explosion of cross-cultural research on cognitive development that has enlarged conceptions of the educational process. Colleagues in the Laboratory of Comparative Human Cognition describe three phases in the relationship of cross-cultural psychology to education: the application of U.S. and Western European approaches to Third World countries; the search for culturally specific modes of learning and reasoning; and currently, the testing of the fruits of cross-cultural research and curriculum innovation in addressing such pressing concerns as the education of ethnic minority and language minority children.—The Editors

To identify the contributions of cross-cultural psychology to education, it is necessary to identify the starting point of their interaction. A number of dates for the beginning of their relationship could be selected. In the period between the two great world wars, a few interesting examples of challenging cross-cultural work can be cited (see Klineberg, 1980, for a review). But it was really in the period following World War II that cross-cultural psychology and education were brought into extended contact because of an intensified interest in education and human development.

During the 40 years since the end of the war, cross-cultural psychology's relationship to education has gone through three reasonably distinctive phases:

1. In an initial period of 10–15 years, the methods of educational practitioners and cross-cultural psychologists from the United States and Europe were applied wholesale to Third World countries.
2. In a middle period of 10–15 years, serious attempts were made to identify culture-specific impediments to school success and to understand culture-specific modes of learning and reasoning.
3. Finally, in a recent period, still in progress, the lessons of cross-cultural research and curriculum innovation are beginning to produce practical solutions to domestic educational problems in a systematic way.

These periods are not discrete. They overlap, each stage growing out of (and not displacing completely) the one that preceded it.

Stage 1: The Period of Technology Transfer

As a result of deliberate policies decided on by the victorious governments that emerged from World War II, the period of postwar restoration in parts of Europe and Asia produced an increased emphasis on formal education unlike anything witnessed before. Even while the war was still in progress, many world leaders believed that if the postwar world was to avoid a repetition and escalation of international slaughter, the lesser developed countries would have to be brought into the international economic and political order in a new way. Education was viewed as a crucial resource for producing the necessary changes.

A keystone in the planning was the concept of "fundamental education." With the participation of social scientists such as Margaret Mead and Gregory Bateson, plans were set up to assist technologically unsophisticated societies to build up their economic infrastructure as they moved from colonial to independent status (Lipset, 1980). At the core of the idea of fundamental education is a kind of "literacy-in-practice" that gives people greater local control of their environment (Gray, 1969).

A less tangible, but no less important, result expected of fundamental education was a change in Third World people's political attitudes so that they might function more effectively in their new economic circumstances. Peasants in many countries, especially where clan and tribal modes of social organization were strong, had only a vague feeling for "nationhood." In many places, often with little more than the convenience of map making as the rationale, colonial powers had created international borders that cut across basic indigenous units. The consequence for many peoples, such as the Vai who inhabit the two sides of the Mano River in West Africa, was to end up in two, sometimes hostile, countries. Under such circumstances, establishing the idea of nationhood and participation in life organized at the level of nation-state was given very high priority (Inkeles, 1969).

Not all the hopes for change were directed toward such goals. Many believed that education does more: It teaches a value system and a way of life. As argued by Daniel Lerner (1958), Alex Inkeles (e.g., Inkeles & Smith, 1974), and others, involvement in schooling increases an individual's ability to "think modern." Lerner went so far as to claim that psychological modernity (as measured, for example, by a questionnaire called a "modernity scale") indicated a person's ability to take another's perspective and to empathize with another's point of view as a basic, psychological consequence of modernity. Lerner (1958) was quite specific about what his goals were: "This is an indispensable skill for moving people out of

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traditional settings. . . .Our interest is to clarify the process whereby the high emphathizer tends to become also the cash customer, the radio listener, the voter" (p. 50).

The argument that fundamental education would change the level of individual psychological functioning to make possible changes in economic and political activity fit perfectly with long-standing American beliefs in the importance of a well-educated population to the proper functioning of a democracy. Hence, fundamental education also appeared to be an excellent way for the United States to promote its form of political organization among the new nations emerging in the postwar period. In addition to making large contributions to the United Nations, the United States promoted the building of schools in many parts of the Third World, along with roads, telecommunications systems, and various other presumed prerequisites to national well being.

Looking back upon these efforts, the striking aspect is the considerable extent to which they were based, more or less directly, on the exportation of modes of social organization and curricula that were originally designed for Western European children. The schools built by the United States Agency for International Development (AID), for example, were unmistakably uniform in embodying European ideas of what constituted an elementary school in terms of the size and configuration of both the physical and social structures. Their curricula were based on curricula from "back home," often for the very practical reason that the books had been printed back home a decade earlier; they presented the standard curriculum of the day and they were inexpensive.

The psychologists involved in this enterprise used psychological techniques that were little more adapted to local conditions than were the schools' physical structures or curricula. Psychologists applied standard psychometric testing methods in order to select students who would be appropriate for instruction in a variety of formal and nonformal education projects (Ord, 1970; Paulston, 1972). These psychologists' aspirations were nicely summarized by Bhatia (1955) on the basis of his experiences in India:

> [It is] really in less advanced countries and among their people, who have yet to raise to the height of their nationhood, whose mental powers have yet to be fully developed, that the potentialities of intelligence testing programs are the greatest. (Quoted in Ord, 1970, p. ix)

Ord sought to demonstrate the truth of Bhatia's claim in an extensive series of studies in Papua, New Guinea, among recruits into the Army. Using a set of test items similar in many respects to the Stanford-Binet Intelligence Scale, he obtained a correlation of .57 between his test scores and officers' ratings of the recruits. He also found that "wastage" (the number of recruits who did not make it through the training program) was significantly reduced when his test was used for selection. In other studies he showed that he could also predict school success with a variety of standardized test instruments. Many additional efforts of a similar kind are summarized by Ord (1970) in *Mental Tests for Pre-Literates.*

This work can certainly be said to have had an impact on education, and it is cross-cultural in the sense that it was conducted in cultures very different from those to which United States psychologists were accustomed. However, it did not produce any noticeable change in educational practices, which were simply transferred wholesale to other cultures along with psychological tests designed only to select people who could most quickly adapt themselves to these preexisting structures of activity. Basic research on the cognitive factors underlying group performance differences that might motivate new educational practice was not yet the focus of intense interest that it would become at the next stage.

Stage 2: Adapting to Local Conditions

The second stage of development in cross-cultural research coincided with the 1960s and most of the 1970s. To understand the nature of the changes that took place, events on the international educational scene must be viewed side by side with changes in North America with respect to both psychology and education. The unexpected difficulty of attaining ambitious educational goals led to theoretical reassessments on the part of educators that both affected and were affected by changes in psychological theories.

Practical Problems

On the international front, very high drop-out rates and uncertain economic benefits forced the planners of the fundamental education movement to reconsider their previous work. Social theoreticians, too, had to reexamine their ideas. Although a good many children were provided some minimum of schooling and some children made it through into higher levels of the educational system, severe problems were in evidence. In countries like Nigeria, where the educational effort was relatively successful, the economy did not expand enough to absorb all of the school finishers, which led to widespread dissatisfaction in all sectors of society. In virtually all countries, drop-out rates were exceedingly high: 60%–70% of the entering students dropped out after very little exposure to formal schooling. This little bit of schooling was often enough to make an impact on students' values and their desire to leave their villages, but only education at the high school level had any reasonable chance of long-lasting economic impact for the individual (Lave, Mueller, & Graves, 1978).

The United States decided to intensify its efforts on

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the educational front. The Peace Corps had been formed and thousands of Americans were sent to teach and help with community development projects in the Third World. Peace Corps teachers were often the vehicle for experimental curricula that presumed to apply up-to-date methods for making modern educational fundamentals understandable to people from very different cultures.

Concerns about educational failure in the Third World had their counterpart in the failure of poor, largely minority-group, children in American schools. Here widespread school failure and underemployment threatened to create a permanent economic underclass. Within this country it was widely assumed that children of the poor began school without many of the experiential prerequisites for acquiring literacy and numeracy skills.

As part of his War on Poverty, Lyndon Johnson supported additional educational programs for the poor to "break the cycle of poverty." When Project Head Start got underway, it was shaped in large part by developmental psychologists who believed they had a scientific basis for the idea that formal preschool education could increase children's ability to learn at school. Interactions of early cognitive, social, and nutritional-health interventions, based in the schools, were expected to produce long-term effects, including fewer school dropouts, improved academic performance, and later benefits to society in the form of more well-trained citizens (Consortium for Longitudinal Studies, 1983; Zigler & Valentine, 1979).

The problems of evaluating such an enterprise and of creating the necessary new curriculum produced a gigantic social experiment. Although the Head Start effort produced significant long-term improvements in children's later school performance (see Scarr & Weinberg, this issue, pp. 1140–1146), the magnitude of these changes fell short of inflated social expectations. In failing the hopes of its founders, it opened up the entire question of formal education's role in development in a fundamental way.

Developments Within Psychology

The second postwar stage in the interaction of cross-cultural psychology and education coincided with what is now commonly referred to as the "cognitive revolution" in American psychological theorizing. Coming to prominence in the United States at that time was the work of Jean Piaget. Piaget, like several other European scholars (Pavlov, Kohler, and others) was relatively well known by psychologists in the period between the wars, but this acquaintance and the interests it reflected did not survive the war. Only during the 1960s were various European schools of thought rediscovered, Piaget prominent among them.

In the mid-1960s, Piaget himself finally began to take cross-cultural research into account (Piaget, 1966). He posited a limited role for education—it might stimulate the rate of development, but would not change the fundamental structures of mind. Only in the case of formal operations did he speculate that formal education might be a necessary experience.

Piaget's speculations were taken up and investigated by a large number of psychologists. This work immediately induced a controversy that would, before long, help to bring about a reorientation in Piaget's thinking (Bruner, 1985; Greenfield & Bruner, 1966) and a reevaluation of the relation of cognitive research to curriculum design and cultural variation.

A second developmental theory that played a significant role in this second phase of research was the cognitive-style approach pioneered by Herman Witkin (1978). Witkin collaborated with John Berry, a Canadian psychologist, so that his theory of individual function could be linked in a serious way to cultural variation. Their method (Berry, 1976) of choice was to create quantitative indexes at the cultural level to correlate with psychological indexes borrowed from Witkin's United-States-based research to show the convergence of patterning.

Developmental psychologists were not the only players on the field, nor was psychology the only discipline to influence education in the Third World. The cognitive revolution that brought Piaget to the attention of North American psychologists found its reflection among anthropologists, sociologists, and linguists as well. Members of these separate disciplines came together to compare methods and claims about human behavior and to ponder the implications of their separate accomplishments for education (e.g., D'Andrade & Romney, 1981).

This interdisciplinary impulse spawned unusual research efforts, including one directed by John Gay that attempted to understand the cognitive basis for school failure among Liberian tribal people. Gay, a mathematician and theologian by training, taught freshman mathematics at a small missionary college in the Liberian interior. After a decade of teaching he had come to the conclusion that mathematics education in Liberia was failing, and he believed that something could be done about it. What distinguished Gay's approach from previous ones was its theoretical innocence. The problem, although not devoid of theoretical interest to Gay, was primarily a practical one: how to succeed in his efforts to teach the many students he saw struggling with mathematics.

Within the academic context of curriculum reform intended to introduce the new math to Africa, Gay won support for a project that brought together a linguist, an anthropologist, a dialect specialist, and a mathematical psychologist. Their job was to advise Gay on how to find out why children in central Liberia had trouble with mathematics and what to do about it. A considerable literature eventually grew from this work (Cole, Gay, Glick, & Sharp, 1971; Gay & Cole, 1967; Laboratory of Comparative Human Cognition, 1983). In terms of the job Gay undertook in central Liberia, the "why" of children's difficulties was productively confronted, but the "what to do about it" remained.

The same can be said of similar efforts in other parts of the world (Goodnow, 1976; Serpell, 1976). All during the second stage of development, researchers from these different perspectives (and others that we have slighted

here—see Triandis and Lambert [1980] and Munroe, Munroe, and Whiting [1981] for a fuller account) collected data and developed their theories. Initially, the groups worked in relative isolation from each other, but as publications began to appear, so did the need to reconcile conflicting interpretations about the links between culture, development, and education.

Achievements of Stage 2

The major achievement of Stage 2 was recognition by the psychologist participants in cross-cultural research that theoretical progress required the development of methodologies that paid serious attention to local cultural factors. This common recognition applied to many aspects of psychological research and theory.

1. *The ecocultural framework.* At perhaps the most general level, there was agreement that studies of culture and cognition make it necessary to employ some version of an ecocultural approach (of the kind pioneered by the Whitings, [Whiting, 1980]) to the study of socialization. In such a scheme (see Figure 1) the subsistence press on a society, mediated by the accumulated cultural capital of the group, affects what people do with their time on a daily basis. These daily activities affect the childrearing patterns that organize infant psychological processes.

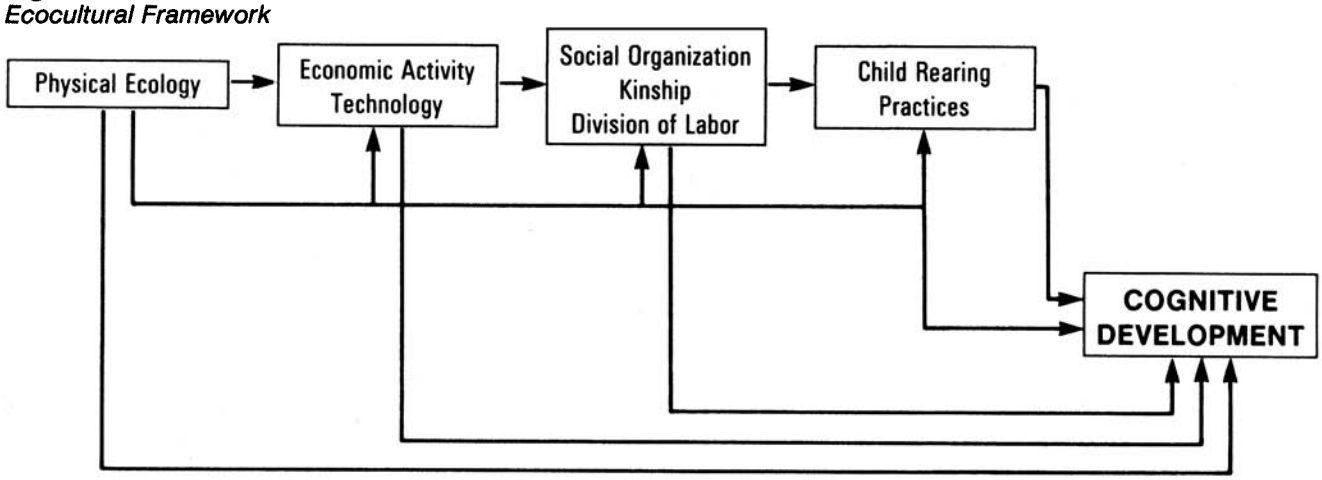
2. *Multidisciplinary methodologies.* Adoption of the ecocultural framework has coincided with a common recognition that the issues of culture and development cannot be resolved using the ideas and techniques of a single discipline, however much each discipline's contributions might be of specific interest. Hence, it became common for psychologists to collaborate with scholars from other disciplines. Owing to the differing methodological structures of the contributing disciplines, questions of methodology and the legitimacy of inferences from data became a predominant feature of cross-cultural work.

Acceptance of the need for genuinely interdisciplinary research quickly sensitized cross-cultural researchers to the shortcomings in the ways that psychological experiments were used to make claims about basic cognitive processes. These advances in cross-cultural psychology rendered especially problematic the interpretation of poor performance on standardized cognitive tasks because their structure and interpretation were taken from industrialized, literate practices.

This problem had been raised previously by developmental psychologists such as Werner (1937), but it was widely overlooked. In the cross-cultural domain, the dilemmas of relating performance to process were expressed by the following question: Was poor performance in such experiments a manifestation of delayed development and cultural deprivation or of cultural differences and weak methodology (cf. Cole & Scribner, 1977; Dasen, Berry, & Witkin, 1979)? In its shortest form (and in a particular application), this question reduces to "If 50% of the adults in Culture *X* fail to display conservation in a carefully executed Piagetian task, is it legitimate to conclude that they have failed to acquire mental structures referred to as concrete operations?" After several years of controversy it has become clearer that within some research traditions, a strong inference of cognitive deficit appears reasonable (e.g., Hallpike, 1979), whereas in others such claims reflect only the inadequacy of social science methodologies (e.g., Cole & Means, 1981; Lave, Murtagh, & de la Rocha, 1984).

3. *The distinctiveness and impact of schooling.* Because our concern in this article is with the interaction of culture and education, we do not discuss the methodological problems of cross-cultural psychology in general (see Laboratory of Comparative Human Cognition, 1983, and the Triandis and Lambert, 1980, handbook, for extensive discussions). Instead we focus on the positive characterization of schooling that emerges from the Stage 2 cross-cultural research despite continuing methodological–theoretical uncertainties.

Figure 1
Ecocultural Framework



The conclusion about schooling and its influence on development that we most favor is that modern schools confront children with activity settings that are discontinuous from the other kinds of settings they are likely to have encountered (or will encounter) in the course of their everyday lives. The teaching/learning activities that go on in schools around the world are a distinct form of *cultural practice* (Scribner & Cole, 1981), that is, "a recurrent, goal-directed sequence of activities using a particular technology and particular systems of knowledge" (Scribner & Cole, 1981, p. 236). Extensive exposure to (participation in) these forms of activity creates a special kind of expertise, which might be dubbed "scholastic thinking." As such, schooling fosters context-specific cognitive consequences with limited generalizability to nonschool settings (Laboratory of Comparative Human Cognition, 1983; Neisser, 1976).

In 1981, Barbara Rogoff summarized the literature on the cognitive consequences of extensive participation in the cultural practice of formal schooling. Her summary can serve in the present context to indicate some of the specific features of schooling as a distinctive form of activity:

> Schooled individuals have gained skills both in the use of graphic conventions to represent depth in two-dimensional stimuli and in the fine-grained analysis of two-dimensional patterns. They have increased facility in deliberately remembering disconnected bits of information, and spontaneously engage in strategies that provide greater organization for the unrelated items. Schooled people are more likely to organize objects on a taxonomic basis, putting categorically similar objects together, whereas nonschooled people often use functional arrangements of objects that are used together. Schooled groups show greater facility shifting to alternative dimensions of classification and in explaining the basis of their oganization. Schooling appears to have no effect on rule learning nor on logical thought as long as the subject has understood the problem in the way the experimenter intended. Nonschooled subjects seem to prefer, however, to come to conclusions on the basis of experience rather than by relying on the information in the problem alone. (Rogoff, 1981, p. 285)

This summary is interesting first of all for what it leaves out; modern schooling everywhere, no matter what else it does, teaches students to represent oral language graphically, to read and write. Literacy is an essential medium of the cultural practices of schooling. However, the mediation of activity via print can be ruled out as a sufficient condition for the cognitive consequences attributed to schooling. It is, rather, the enabling condition for specific forms of activity to which various cognitive consequences of schooling might be attributed.

This conclusion was established by the work of Scribner and Cole (1981) among the Vai people of northwestern Liberia. Many Vai are literate in an indigenous script that is used mainly to write letters and to keep records, either for personal use or, in some cases, for the affairs of a small community. Although Vai literacy is clearly useful, it is not used to master large bodies of knowledge that would otherwise be inaccessible to the individual; the testable cognitive consequences of Vai literacy are modest in rather direct proportion to the modesty of the cultural practices of which they are a part. The only measurable cognitive consequence that fits Rogoff's (1981) list for schooling is Vai literates' augmented skills in "fine-grained analysis of two-dimensional patterns" (they sort geometric figures by form and number more than do nonliterates). All other consequences reflect practice in analyzing spoken language, a category not explicitly included by Rogoff.

The consequences of schooling summarized by Rogoff seem to require, in addition to the bare ability to interpret familiar events through writing, repeated practice in learning new material and mastering new information-processing procedures mediated by print. This information and these procedures are themselves part of a very old tradition of analysis that can be traced at least back to the Greeks (Havelock, 1976), a tradition that is closely associated with the development of formal logic, science, and technology. The sheer mass of this knowledge base requires that students commit vast stores of information to memory, to be used at later times as part of systems of activity about which they have little understanding when they begin.

The settings where such learning goes on, and the teaching practices that have evolved to help it along, are as distinctive as the forms of knowledge and the medium for their transmission. Classrooms are overwhelmingly places where one, or perhaps two, teachers guide the learning of 25 to 30 or more students. A good deal of evidence indicates that the discourse patterns that arise in such settings must be learned along with the curriculum content (Mehan, 1979).

A few examples of the kinds of cognitive tasks that serve as Rogoff's (1981) evidence illustrate the kinds of cognitive skills that are learned as a part of the specialized cultural practices associated with modern schooling. From the many kinds of experiments that reveal these distinct ways of learning and the skills that accompany them, we have selected only two that seem to illustrate the contrast between schooling and other environments of socialization in a particularly clear way. One striking set of observations centers on reasoning in response to verbal logical problems such as syllogisms. Studies of such reasoning activity have been repeated in many parts of the world: A subject is asked to respond to a series of relatively simple syllogisms such as

All of the women from Mexico City are beautiful.
I have a woman friend from Mexico City.

Is my friend beautiful?

Hearing the question derived from the premises, college audiences smile and wonder what the point of the experiment might be. The solution to the syllogism is *obvious* from the premises.

But the answer is *not* obvious to adolescents and adults who have little or no exposure to the institution called "formal schooling." For example, Sharp, Cole, and

Lave (1979) routinely encountered answers of the following type when they presented the above syllogism to Mayan peasants residing in the southeast corner of Mexico: "Of course your friend is beautiful. You always like beautiful women no matter where they come from!" Luria or Scribner would refer to such responses as *empirical* reasoning because they draw on known states of the world rather than on logical considerations applied strictly to the particular, imaginary "microworld" specified solely by the problem.

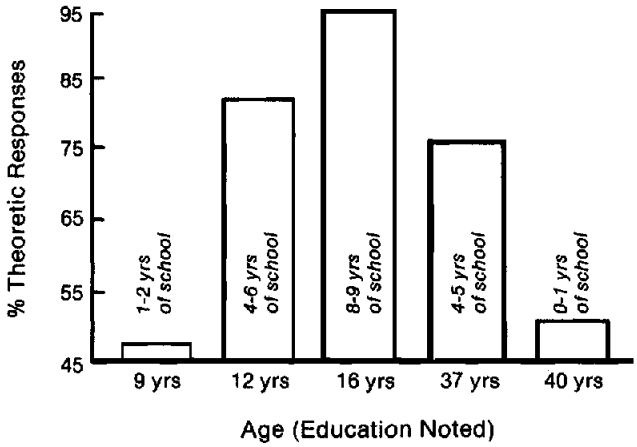
When groups of peasants of different ages and with different amounts of schooling are compared with respect to their responses to such logical syllogisms, performance varies strictly as a function of *years of schooling.* This result is shown in Figure 2, where it can be seen that choice of the logical mode of responding increases steadily through the school years so long as the subjects have attended school. For this set of problems, responding "theoretically" in terms of the problem-as-given is likely to produce an answer scored as correct; within that frame, the problems are very simple. But when empirical answers are given in this framework, they may be scored "incorrect" from the perspective of the experimenter even though they are technically correct (as in the case of the Mayan informant, who revealed his reliance on empirical knowledge about the importance of aesthetics to the experimenter who presented the task). These results are by no means unique to the Maya. They have been repeated independently by various researchers working in various parts of the world (Bennett, 1979; Cole et al., 1971; Luria, 1976; Scribner & Cole, 1981).

A second result that turns up persistently in the literature on consequences of education is a reorientation of word meaning as manifested in free-association tasks with words and various classification tasks. In the literature on free associations, it has been found that the mode of free associating to words undergoes a change (at around five to seven years of age) from a predominance of "thematic," "syntagmatic," and "situational" associates to "categorical," "paradigmatic," and "decontextualized" modes of organizing meaning chains (Nelson, 1981).

As with syllogisms, this phenomenon has been shown to be subject to a school, rather than an age, effect. An example can be taken from data gathered by Sharp et al. (1979) in their study of the cognitive consequences of schooling on the Yucatan peninsula. When adolescents who had attended one or more years of high school were asked to provide associates to "a duck" they produced mostly associates of the paradigmatic kind: fowl, goose, chicken, turkey. When traditional adults from the same area were presented the same word, their responses were dominated by syntagmatic associates: "swim," "fly," and "to eat" (Cole & D'Andrade, 1982).

The examples of syllogistic reasoning and free association clearly illustrate the phenomena upon which Rogoff (1981) based her generalizations about schooling, but they raise their own questions about cognitive demands and consequences of education. There is abundant evidence, for example, that highly educated Europeans and Americans fail to use the logical mode when reasoning about syllogisms that have no ready and appropriate real-world interpretation or when a strong real-world context is involved (Henle, 1962; Wason & Johnson-Laird, 1972). There is equally good evidence that Mayan peasants know the paradigmatic relations relating duck to fowl and use them in a variety of experimental circumstances (Sharp et al., 1979).

Figure 2
Theoretical Responses to Syllogisms as a Function of Age and Education



Note. Data are from "Education and Cognitive Development: The Evidence From Experimental Research" by D. W. Sharp, M. Cole, and C. Lave, 1979, *Monographs of the Society for Research in Child Development, 44*(1-2, Serial No. 178), p. 53.

Taken together, these and many other such results (see Laboratory of Comparative Human Cognition, 1983, for a summary) strongly recommend Rogoff's (1981) summary with its emphasis on the context-specificity and unevenness of the cognitive effects of schooling, but, at the same time, they force recognition that schooling adds a new set of possible cognitive skills and proclivities to people's knowledge-acquisition repertoires. Both sides of this conclusion bear on the implications of cross-cultural research for education. On the one hand, it is important for participation in modern industrialized societies that children be taught the practices of schooling as they relate to the needs of adult life. On the other hand, when people perform poorly in school contexts, one should not be tricked into thinking that all that their home culture provided them with was a weaker mind. Fortunately, these lessons of Stage 2 research have had an impact on both psychological theory and educational practice. It is to the positive applications of cross-cultural psychological research that we now turn our attention.

Stage 3: Applying Cross-Cultural Research

A small but growing body of data illustrates ways in which cross-cultural psychological research is relevant to educational practice. Because the variations across cultural settings are many and the research examples few, no

overarching generalizations about when and how to apply cross-cultural research seem appropriate. But the existing corpus of examples provides the basis on which such generalizations will eventually become possible.

Reevaluating Traditional Pedagogies

Before considering cases where pedagogical practice is changed as a consequence of cross-cultural research, we consider an important case where cross-cultural research helps people discover the virtues of practices they had undervalued. Daniel Wagner and his colleagues have been conducting research on Quranic schooling in Morocco (see Wagner & Lotfi, 1980; Wagner, Messick, & Spratt, in press). The project is the most ambitious attempt yet undertaken to understand the social history, contemporary practices, and educational consequences of Quranic literacy practices. Data include ethnographic studies in classrooms and the community as well as the results of careful testing of children to determine Quranic schooling's impact on academic skills and various measures of cognition ordinarily associated with schooling.

This work is of great practical importance because at present a good deal of the schooling available to nonaffluent citizens (our comments are directed at the research in Morocco, but these comments may apply more broadly) comes in the form of literacy focused on the Quran. Yet Quranic schooling has very low status. As Wagner and Lotfi (1980) explained this situation,

> Western scholars, joined more recently by their Muslim colleagues, have condemned the reliance of traditional teachers on "rote" pedagogical techniques, and have pointed to possible negative influences on children's cognitive abilities. Memory skills of the students are said to develop at the expense of logical and creative thinking, though little or no empirical evidence has been gathered to support this assertion. (pp. 7–8)

When Wagner and his associates began making the necessary observations, they discovered that, quite contrary to expectation, attendance at Quranic preschools had a positive influence on children's later education, particularly their reading achievement. This improvement occurred despite the fact that a good deal of rote memorizing did occur in the preschool classrooms they observed. Because it builds on a traditional form of literacy instruction that retains great importance to common people and is widely available (whereas European-style preschool education is not), the work of Wagner et al. (in press) promises a means of improving educational performance *within* existing educational structures.

Culture-Sensitive Approaches: Cross-Cultural Research Comes Home

The remainder of the studies we describe all attempt to take explicit account of the special features of educational activity settings in relation to the sociocultural context of the communities in which the schools are located. These efforts share certain other important features: First, the studies focus on children who come from homes and neighborhoods that are culturally and linguistically different from the "mainstream" responsible for producing the curricula and teachers encountered in school. Second, the researchers avoid both the "importation" strategy we described in Stage 1 and the simple cultural "match" strategy that reduces classroom activity to match everyday activity settings, as advocated by supporters of "deschooling" (Illich, 1970).

It is, of course, possible to describe problems encountered in the school/minority-child interaction somewhat accurately by pointing out the "mismatch" between teaching/learning experiences outside of school and those inside school; however, the solution is not necessarily to arrange a "match" (cf. Shuy, 1969). Having the school copy the out-of-school situation or vice versa would be just a newer form of "importation." Instead, the existing successful systems mix, match, and sometimes invent novel educational activities. These efforts may best be characterized as a kind of planned syncretism where goals and experiences of the school as well as the community can meet, with payoff for children's education.

These examples demonstrate that culture-sensitive pedagogy can make a difference where it is possible to be explicit about cultural patterns and there is not much cultural heterogeneity in the classroom. In each case, it is important to note that culture sensitive does *not* mean a focus on the traditional arts, foods, and folklore of a group. Instead, culture sensitive means sensitivity to "relatively subtle aspects of interactional etiquettes [that] are likely to go unrecognized by [non-native] teachers" (Erickson & Mohatt, 1980).

Project KEEP. The Kamehameha Early Education Project (KEEP) works with Native Hawaiian children. Early interventions with structured, code-emphasis instruction in reading did not succeed at KEEP (Au, 1980). As KEEP moved into the direct teaching of reading comprehension, a lesson format evolved that seemed to catch the children up in an active and effective way. An analysis of the successful teaching techniques revealed that the procedures that were developed mapped onto an indigenous cultural activity, "talk story" (Au, 1980). The children had all been present on many occasions of "talk story," but they were not old enough themselves to participate in "talk story" at home. So when they came to school they encountered reading as a variation of an already familiar (and desirably "grown-up") pattern of social interaction.

The KEEP program has achieved an important step: Scientifically, we may call it limited generalizability or replicability; educationally, we may call it effective dissemination. The program has demonstrated success in special KEEP classrooms, and it has been taught to new generations of teachers who have used it successfully in new classrooms in other Hawaiian public schools.

A characteristic of the KEEP project is that participants are cautious about the extent of its generalizability (Gallimore, 1985; Jordan, 1985). Inquiry into both theory and practice continues. Perhaps the correspondence between "talk story" and the successful KEEP reading procedures is an accident. Perhaps their teaching strategy is simply a good teaching strategy for *any* children learning

to read. Perhaps only certain teachers can use the strategy. The evidence on these questions is not in yet, but preliminary results from our own research group suggest that there are elementary school populations for whom the procedure is *not* effective; further pursuit of the reason why the KEEP program does and does not work will teach more about both reading and Hawaiian culture.

Odawa project. A different kind of demonstration is provided by Erickson and Mohatt (1980) from work among the Odawa in Canada. In this case, too, a successful educational strategy was connected to discourse modes prevalent in the children's community. The analysis, based on ethnographic techniques, was specific enough to warrant treatment-specific claims about the effect of the discourse strategy.

The phenomenon that Erickson and Mohatt addressed was the apparent passivity and silence of Native-American students in regular classrooms (cf. Philips, 1972). Very different modes of discourse feel comfortable to Anglo and to Native-American children. In particular, it was found that

> the notion of a single individual being structurally set apart from all others, in anything other than an observer role, and yet still a part of the group organization, is one that Indian children probably encounter for the first time in school. (Erickson & Mohatt, 1980, pp. 166–167)

Native-American children who find themselves with an Anglo teacher encounter a single, powerful person regulating the behavior of many others. They adopt the observer role that they know to be appropriate. Like good observers, they are quiet. They adhere to the rule that it is not acceptable to single out individuals for praise or censure on a public occasion, and so they also remain silent, or experience difficulty, when singled out to provide an answer to the teacher's questions. The result is what Erickson and Mohatt (1980) called the "often reported phenomenon of the 'silent Indian child' in the classroom." The child's behavior is inappropriate to the standard mode of instruction in which the teacher acts as a "switchboard operator" who allocates speaking turns, calls on individual children, and expects active participation.

Erickson and Mohatt showed that it is possible to construct rules of participation in the classroom that are a functional blend of Anglo school curriculum and Native-American discourse styles and that make the classroom run much more smoothly. These patterns seemed to be learnable: Over the course of the school year, an Anglo teacher was observed to change the participation structures in his classroom in the direction of those found effective with the Odawa children.

The KEEP and Native-American examples are interesting precisely because they map on to identifiable cultural structures that, despite their divergence from the usual pattern of the school, are appropriate for instructional purposes. The next example is one where the classroom manipulation highlights the language of instruction.

Bilingual discourse for monolingual reading. Moll and Diaz (1985) worked with Hispanic children who had fairly good literacy skills in Spanish but were failing to learn how to read in English in spite of organized bilingual instruction. When English was being taught in the classroom, the children could not rely on their Spanish skills. The instruction was organized so that a teacher who spoke only English taught them English reading. They worked with a Spanish teacher for other parts of the day, including times when they worked on reading in Spanish at quite a high level—not only complicated comprehension work but even book reports. Yet, when they went to the English class they were faced with what looked like first-grade work. The instructional program was arranged so that, until the children could do fairly well in oral English, they would be kept at a beginner level in reading. These children did quite poorly. They did not advance.

The teachers were surprised to see videotapes of the children reading in the two settings: It was hard to believe that children who were so competent at reading in one language were so incompetent at learning to read in another language. No one was happy with the situation.

Moll and Diaz created an intervention that was later picked up by a "real teacher" who had the necessary attributes: She was bilingual, biliterate, and could teach reading. Moll and Diaz discovered a way to move the children into English reading, and at an advanced grade level. They gave the children English books to read—the very same fourth-grade books that their classmates were reading. The children read the English text, getting a bit of casual help from the teacher, if they asked for any, using either Spanish or English as the medium of communication. Because the teacher and the children could both use Spanish, sometimes the questions and answers were in Spanish. When the children had finished a first reading of the text, the group conversation turned to what it meant. Again, the conversation was in Spanish or in English, whatever seemed most helpful. The children understood the story very well; the problems they had in comprehension were on the same sorts of text and questions that their monolingual English classmates had trouble with.

The children were, very suddenly, reading English at grade level. Granted, if they had to carry on the discussion in English only, they could not display their ability as easily. But reading English they were. An "extra" ability of theirs had been the ability to speak Spanish—and they used this ability from home to *read* English. The interesting punch line to this case is that the children changed in another way: Once they were allowed to use Spanish to do English reading lessons, they started to use much more English. Their lack of ability in speaking English had kept them from reading English in the ordinary instructional program; ironically, Moll and Diaz (1985) created a way to "get around" the first problem, only to end up finding an indirect way to solve it!

Concluding Remarks

In the period to come, we hope that cross-cultural psychology will be able to build on its developmental history,

both to resolve enduring paradoxes that continue to bedevil the field and to render its findings of greater relevance to educators. In this article, we have tread lightly on the difficulties facing the field because they are adequately dealt with in other sources and because the field's shortcomings should not blind us to its utility.

American educators face great challenges in the years ahead. There are demands on educators to produce higher levels of literacy and numeracy skills in line with the high-tech future projected for our children. (e.g., see *A Nation at Risk,* National Commission on Excellence in Education, 1983). Simultaneously, educators will have to deal with the unprecedented degree of diversity that our heterogeneous population presents to the practicing classroom teacher. We know from existing research that it is possible to create classroom activities that retain the school's goal of specific forms of educational achievement and that simultaneously take advantage of various unique configurations of children's background experience.

These examples can serve as models for others to learn from. But as Gallimore (1985) cautioned, no simple translation between models applicable in one setting to models applicable in others can yet be made. The formulation of such translation principles and their testing will be two of the important tasks of cross-cultural psychology in the decades to come.

Using the relatively rare, locally successful model systems as a starting point, future research on culture and education within the United States needs to develop methodological principles that will support *diffusion.* That methodology will require longer term commitments than are usually granted psychoeducational research, and it will require the joint efforts of people with expertise in several academic disciplines. Such a task cannot be fulfilled without the willing cooperation of classroom teachers and their school districts.

However, it is such synthetic research enterprises that will be required if we are to take advantage of the lessons reaped from past cross-cultural research relevant to education. If the needed levels of cooperation and resources cannot be coordinated, we can expect little more in the future than the demonstration of a latent potential.

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