

EDUCATION AND NATIVE HAWAIIAN CHILDREN: REVISITING KEEP

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The Kamehameha Early Education Program (KEEP) was a research and development program for improving the cognitive development and educational success of Native Hawaiian children. In this article, we first discuss the academic and social underachievement of children of the Hawaiian culture. We then review the ethnographic, linguistic, cognitive, and motivational data available on Hawaiian children, primarily produced by our own research. We describe KEEP's educational program, designed in response to those data, and review summative evaluation data for the program. We close the article by discussing the process of inquiry in applied developmental research. (In this reprinted version, a brief Afterword reports on two decades of subsequent research and the place of KEEP in the international development of culture-and-education studies.)

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NOTE FROM THE EDITOR

In December 1970 the trustees of Kamehameha Schools (KS) authorized a five-year initiative called Kamehameha Early Education Program (KEEP) to develop research-based programs for Native Hawaiian teaching and education. The objective of the research was to address systemic achievement gaps showing up in the education data for Native Hawaiian children while debunking myths about why these gaps exist. From 1972 to 1995, the program focused on kindergarten through third grades. In the fall of 1972, the first class entered Ka Na‘i Pono, a research-and-demonstration school below the KS Kapālama campus.

The KEEP research in the late 1970s and early 1980s sought to make a difference as Kamehameha Schools looked back on at least two decades of poor educational outcomes. A review of the data three decades later indicates that the statistics for our *keiki* (children) still have not changed much (see Kana‘iaupuni, Malone, & Ishibashi, 2005).

The good news, however, is that there have been significant promising developments in Hawaiian education in recent years, some of it featured in this and other volumes of *Hūlili*. In many ways, the work of KEEP and many others created a foundation for the innovative leaps and bounds that have occurred since then, both in and around the fringes of mainstream education. By republishing this 1984 article, we highlight KEEP’s work anew to revisit the approaches, assumptions, and main findings. Our intent is to encourage discussion and debate about what of these findings still hold true, what new approaches exist, and what changes have occurred since then to address the overall goal shared by the KEEP researchers, which was to improve the understanding and practice of educational strategies that work with Native Hawaiian children. We invite your research that builds on and advances this knowledge base for future generations.

Shawn Malia Kana‘iaupuni, Editor

This article (first published in 1984) reports on a continuous 15-year research and development program for improving the cognitive and educational development of a group of Native Hawaiian children. Interdisciplinary and multimethodological, this program has been based firmly in research but has been dedicated simultaneously to producing educational success for large numbers of children.

The plan of this article is as follows. First, we discuss the problem issue: the academic and social underachievement of the children of the Hawaiian culture. Second, we review the ethnographic, linguistic, cognitive, and motivational data available on these children. Bearing in mind that the purpose of the entire enterprise is to maintain and constantly improve instructional programs for large numbers of children—2,000 at this writing—we, third, describe and discuss the programmatic responses to this database. Fourth, we review summative evaluation data for the program, and we close the article by discussing the process of inquiry in applied developmental research and the necessity of continuing research and development.

PROPOSING A “DIFFERENCES” APPROACH

Individual consciousness (cognitive structure and function) arises from the actions and speech of others, transmitted during cooperative work and social interaction. A child learns to speak by hearing others speak. Indeed the child learns to *think* by way of hearing others speak and speaking with them; but as he or she gradually adopts private speech, and it sinks “underground” into thought, this cognition is abbreviated and finally automatized into a form that bears little surface resemblance to speech itself.

This transformation of form is a part of developmental process. The child interacts with others and performs—through assistance and cooperation—at levels quite beyond his or her individual capacity. The child need not understand the activity as the adult understands it, and need not be aware of the reasons for it, nor of its articulation with other activities. Only its performance is needed, *assisted by regulating interaction*. To the degree that the biological substrate is present and sufficiently matured, the child will gradually develop an internalized capacity for that activity, and social regulation will no longer be needed. By way of this process, the child acquires the very “plane of consciousness” of his or her society and is socialized, acculturated, made human.

A child's developmental level is assessed in terms of his or her ability to solve problems unassisted. The child's *learning*, however, exceeds the reach of the developmental level, and can be located by assessing those additional problems that the child can solve with social assistance.

In the natal cultures of minorities, children are thoroughly and successfully socialized; "planes of consciousness" are created and perpetuated; systems of assisted performance are intact and effective. Of course, many (traditional) cultures, subcultures, and social classes do not attempt to socialize their children for literacy, syllogistic formalism, or the types of verbal analytic routines characteristic of formal education (Heath, 1982); and schools are not effective in developing these skills in many minority children. This school failure is ordinarily blamed on the victims—the children and families of the minority—whom the school judges to be deficient.

The deficiency model for minority-child underachievement is like the worm that will not die, though cut shorter and shorter by logic and evidence (Cole & Bruner, 1971; Howard & Scott, 1981). That cultural *differences* have educational consequences is not in dispute; but the differences are commonly understood as deficiencies with respect to the institutional majority-culture expectations of public education. This is a common human attitude: "To be unlike us is to be less." Such ethnocentrism may to some degree be ineradicable.

But a different set of assumptions is possible.¹ The very existence of a population of children considered normal by the standards of their natal culture is *prima facie* evidence for (a) a coherent system of social interactions, values, and competencies; (b) an operative system of socialization through tools of assisted performance; (c) the receptivity of the children to such assistance; and thus (d) a developed teaching/learning system. Based on this, we have assumed that it is (theoretically) possible to change educational practice so that it accords more closely with teaching/learning patterns of a natal culture. We assume that there is sufficient capacity in minority children to succeed in such a school; that is, minority children are biologically and maturationally normal, and they develop according to the same principles of instruction through assisted performance that are characteristic of humans on a species level. These assumptions have guided our data collection and analyses on the education of Native Hawaiian children.

EDUCATIONAL AND SOCIAL PROBLEMS OF HAWAIIANS AND PART-HAWAIIANS

Members of the Hawaiian ethnic minority share many of the educational and social problems of other minority cultures. The first systematic detailing of those problems was issued by the Lili'uokalani Trust Advisory Board in 1962. Although educational underachievement and other indices of social distress may or may not be linked, a lengthy quotation from that document is instructive in depicting the general plight of Hawaiians.

Currently 10,000 Hawaiian and 90,000 Part-Hawaiians constitute 17% of our population. They rank second in the number of live births and have the largest families. Opinion has been expressed that intermingling of the Hawaiian with other ethnic groups through marriage has produced a unique "golden boy." Data regarding the economic and social status of a large number of our Part-Hawaiians somewhat negate this concept, for in comparison to other ethnic groups the incidence of social breakdown is disproportionately high.

The 17% Hawaiians and Part-Hawaiians in our population account for 35–40% of all financially destitute families aided by the community, 42% of all children arrested, 51% of all illegitimate births and 20% of the divorces. School "dropouts" are highest of any racial group, only 5% (of those) completing high school (are Hawaiian) and even a smaller percent going on to college. They are poorly represented in the professional and status occupations. (pp. 17–18)

Ten years later the situation was substantially unchanged. In 1970, we conducted lengthy interviews with administrators of elementary schools serving Hawaiian children. All respondents reported that Hawaiian children were, as a group, low achievers; however, depending on whether the schools were in rural or urban areas, the problems were (respectively) listlessness or active misbehavior (Tharp & Gallimore, 1975). Although systematic educational data by ethnicity would not be available from the public schools for another decade, it was apparent to all citizens that the annually reported achievement tests showed schools that enrolled a predominantly Hawaiian student population to be at the bottom of the state list, year after year.

In the late 1970s, four cohorts of 30 Hawaiian children each, selected at random from urban families receiving public assistance, were followed from kindergarten through third grade in the 12 public schools they attended. Average percentiles achieved on standard tests of reading achievement declined from 30.5 at end of first grade to 28.0 at end of second grade to 25.5 at end of third (Gallimore, Klein, Sloat, Tharp, & Troy, 1982). This pattern of steadily declining achievement was consistent with statewide testing data, which showed schools with predominantly Hawaiian children experiencing steady deterioration of achievement scores in language arts throughout the school years, reaching the nadir in late high school. (Mathematics scores are typically much less depressed.)

In 1980, school achievement data by individual pupil ethnicity became available for the first time. Again, Hawaiian students were the lowest achievers of all state ethnic groups. Klein and Troy (1981) analyzed statewide Stanford Achievement Test data for Hawaiian second graders. The statewide mean for the reading achievement subtest approximated the 40th percentile, with more than half of the subjects skewed below that level. These results do not yet reflect the regular decline in later grades noted in State of Hawai'i summaries for all grade levels.

Other social-problem data from 1980 reveal that the 1962 pattern has not changed. One example is juvenile arrests for crimes of murder, rape, burglary, larceny, and auto theft. In 1980, over 50% of the total arrests in this category involved juveniles of Part-Hawaiian and Hawaiian ethnicity (State of Hawai'i, 1981). An example of economic disadvantage that might be attributable to the enduring effects of the educational underachievement of Native Hawaiians is the median annual income of the head of the family. That median for Hawaiians and Part-Hawaiians combined is 25% below the median for all other major ethnic groups of the islands combined.

All data available over this 20-year period support these general conclusions: Serious and pervasive social problems exist for this ethnic group. From the first year in school, Hawaiian children begin to experience a steady educational decline. Their school problems are worse than those of any other of Hawai'i's many ethnic minorities. Reading and language arts are much more seriously affected than mathematics. It is reasonable to assume that the deterioration in achievement throughout the school years may be attributed in part to a poor preparation in early education, particularly in reading and other language arts. The possession of these skills is assumed in ordinary fourth-grade curricula: The student who cannot read well by then receives little further reading instruction and is confronted by texts of advancing difficulty.

For this reason, the research and development program described herein took as its task the creation of an early education program in the language arts, specifically concentrating on a reading program for Hawaiian children from kindergarten through third grade, with extension to upper elementary grades to occur at a later date. Whether this strategy will be sufficient to prepare students for high school success is a question to be answered by follow-up data in the next decade. Whether improved education will result in improved general social conditions will be answered in the next century.

In 1970 prevailing classroom practices and pedagogic methods in Hawai'i differed little from their mainland U.S. counterparts, and they differ little now. This has allowed members of some ethnic groups to thrive: Japanese, Chinese, and Caucasian children in Hawai'i's schools learn as well as children in the schools of any other state. How does education go so consistently wrong for Hawaiian children? The problem is parallel to the academic underachievement of many U.S. minorities, notably Blacks and Hispanics. When this problem was addressed by the Kamehameha Early Education Program (KEEP) in 1970, reliable educational solutions were no more available for Hawaiians than for any other minority and had to be created. The KEEP research and development process has been divisible into three sequential, though overlapping, stages: (a) the creation of a base of research knowledge about Hawaiian children in their natal culture and in the school; (b) the creation of an effective education program in the language arts within a laboratory school; and (c) the export of that program into public schools that serve Hawaiian children. These three stages will be described in turn.

HAWAIIAN CHILDREN: DESCRIPTIVE STUDIES

The first stage of the task was the creation of a research base of knowledge about Hawaiian children in their natal culture and in the school. Many methods and many theories contributed to this research base. For all, however, the basic aim was to create an integrated understanding of the parameters of Hawaiian teaching and learning as they are relevant to school education. The aim was to understand the regulation and assistance to child performance provided in the natal culture and to determine Hawaiian children's levels of performance, both assisted and unassisted, in basic social, cognitive, and linguistic repertoires.

Socialization of Hawaiian Children

Contemporary Hawaiian culture is only a few generations away from its traditional, Polynesian, oral heritage. Many features of the traditional social organization, if somewhat attenuated by time and wide-scale intermarriage with immigrant groups, persist in urban Honolulu and even more in rural areas of the state. Cultural features similar to those throughout Polynesia (Ritchie & Ritchie, 1979), and thus presumably more traditional, tend to be present more often in lower-income families. Thus, "Hawaiian" culture is a continuum, and no description fits all its members. Let it be understood that the description given in this article is more characteristic of the rural (and lower-income urban) families, whose children are educationally at risk. We do not intend to describe the disproportionately small group of middle-class Hawaiians.²

Families tend to be large and to be started early: In a survey of one Hawaiian community, the average number of children per completed family was between six and seven, and the average age of beginning a family for a woman was under 18 (Gallimore, Boggs, & Jordan, 1974). Household composition tends to be extended beyond the nuclear family: Young women often remain in the parental household after their first child is born; older couples frequently live with a son or daughter and family; cousins and other kin come to stay for longer or shorter periods; and there is a high rate of formal and informal adoption, especially between related households (Howard, Heighton, Jordan, & Gallimore, 1970). Related households

tend to live near each other, when possible, and to share activities and resources. Even if they cannot actually live in close proximity, as in public housing, two or more households may function in many ways as one. The child's life is peopled by a wide variety of both real and fictive kin.

The socialization system is not organized to train children for leaving the family but to teach responsibility and competence *within* the family system. Basic values of the family are interdependence, responsibility for others, sharing of work and resources, cooperation, and obedience and respect toward parents. Youngsters assume critical family responsibilities early; they contribute as members of a workforce of siblings who are responsible as a group for getting work done. Child care is shared by parents and older children; older siblings are often the primary caretakers. By the age of 2 or 3, children operate as part of the sibling group and turn to siblings for help with routine problems and needs (Gallimore, Boggs, & Jordan, 1974; Jordan, 1978a; Weisner, Gallimore, & Tharp, 1977, 1982). Children learn to make requests of elders indirectly and accept their decisions without arguing.

Hawaiian children are socialized to think of success in terms of contributions to the kin or peer group rather than as a matter of individual achievement (Gallimore, Weiss, & Finney, 1974). Families are organized in a *shared-function* system that involves role flexibility and joint responsibility for family tasks and obligations. Children are accustomed to flexible rearrangement of work schedules and responsibilities worked out within the sibling group. Adult supervision is usually mediated through older siblings. Thus children have considerable independence, felt autonomy, and competence.

Of course, things do not always go smoothly among siblings, and there are disputes and disagreements. If these affect chore completion and household harmony, they may provoke a parental response. Parents typically punish all siblings involved in an altercation rather than adjudicate the conflict and mete out individual sanctions; or older children may be punished for the misbehavior of younger children under their care. The predictable effect is to encourage siblings to resolve problems before they come to parental attention and, therefore, to increase sibling-group solidarity. For this system to work, it is necessary for parents to tolerate some bickering and disagreements to allow children the opportunity to learn how to resolve conflicts among themselves.

There is some differentiation of roles by age and sex. By the age of 6 or 7, the roles and responsibilities of boys and girls begin to differentiate within the sibling group. Usually one child, most often the eldest girl, sees to it that major jobs get done, that younger siblings are tended, and that problems within the sibling group are sorted out. Expectations are that boys, especially, will be “a bit of a rascal,” will try to get around adults, and will break the rules a bit. “Rascality” is one aspect of the assertiveness that all children (especially male) are expected to show, particularly with peers. Hawaiian children are not supposed to “make trouble,” but they are expected to stand up for themselves, even to the point of fighting, and not turn to adults for sympathy or help with peer problems. Thus Hawaiian children, particularly boys, become sensitive to dominance relationships and are loath to accept a position inferior to another child. This is part of the quality children admire as “toughness” (D’Amato, 1981a, 1981b).

It is in the social interactions within the sibling, companion, and gang groups that a great deal of children’s learning takes place. Children learn skills for household, child-care, and self-care tasks by participating in those tasks with and, initially under the supervision of, older children. Consequently, they soon develop repertoires for teaching and learning from other children (Jordan, 1978b).

How do children learn from adults? Much knowledge filters from adults through older children. In addition, children participate as part of the sibling or companion group in many activities alongside adults. There they have opportunities to observe the full, correct performances of adults and to have errors corrected by them. Finally, children are often unobtrusively present at adult activities and have ample opportunity to learn from modeling (Jordan, 1981b).

In an experimental setting, Midwestern and Hawaiian mother–kindergarten child pairs were asked to work on three different tasks or “games,” and their interactions were videotaped. Overall interaction rates were the same for both groups. However, the Midwestern mothers had significantly higher rates of verbal-controlling techniques, a finding generally replicated in a similar sample by Rogoff (1982). The Hawaiian mothers had significantly higher rates of mixed-mode teaching—coparticipation or modeling/demonstration combined with task-oriented verbalization. They were also significantly higher in nonverbal communication.

In the Hawaiian home, then, emphasis is on learning from models, shared functioning, and direct assistance by intervention in performance when error occurs. Learning occurs in a mode of *enterprise engagement* in which the learner is actually engaged in performing, to some degree, the skill or task that he is learning (Jordan, 1981a, 1981b). Emphasis is not on “I’ll tell you how to do it” but on “watch, listen, participate, and try.” Hawaiian adults continue to learn new skills in this way (Boggs & Gallimore, 1968).

Hawaiian Children in the School

THE CHILD SOCIETY. The preference of Hawaiian children (as well as adults; see Boggs & Gallimore, 1968; Gallimore & Howard, 1968) for working in groups carries over into the school environment, although the opportunity to exercise that preference is seldom provided. In three separate classroom experiments, low-achieving high school students working in teams showed significant increases in academic performance, attendance, and deportment (MacDonald & Gallimore, 1971). Two other experiments suggested that rewards shared by a classroom work-group were more effective than individual rewards (Kubany, 1971; Sloggett, 1968). MacDonald and Gallimore (1971) found that Hawaiian students spontaneously engaged in group work about 35% of the time (even when it was discouraged by the teacher). This was a substantially higher rate of spontaneous group work than the 10% reported for their mainland Caucasian comparison school.

Sociometry and observation of playgroup behavior in a small laboratory school (D’Amato, 1981a, 1981b) reveal that boys organized themselves into two competing gangs, each with a “bull.” Boys who did not participate in their dominance rituals were thought to be on the “girls’ side” of the classroom. At the social apex of each class was an “apical” girl. This girl was viewed with respect and affection by the other children. The apical girl is seen as something of classroom manager, filling a similar role to the “mother’s righthand.” Other girls in the classroom have status according to the degree that the apical girl associates with them. Social harmony between the gangs and between boys and girls in the classroom is managed by the girls, especially the apical girl, who is well liked by virtually all boys whatever their gang affiliation. Interviews with the children reveal that the apical girl is seen

as both cooperative and assertive, “tough” but also “nice.” Niceness is the second dimension determining social preferences among children. It includes desirable qualities such as cleanliness and smelling good, but the central element of nice seems to be generosity, helpfulness, and watching out for others.³

CHILDREN AND THE TEACHER. As we have seen, Hawaiian children are accustomed to being relatively independent of adults and free from close supervision. Also, authority is personalized—it is invested in particular personal relationships, not in formal roles. Hawaiian children do not automatically attend to and orient to adults just because they are adults or because they claim authority. Thus, the teacher must work to establish herself^t as an adult authority (Jordan & Tharp, 1979). Without specific training, many teachers are never able to accomplish this (e.g., D’Amato, 1981a; Gallimore, Boggs, & MacDonald, 1968).

In peer-conflict situations, Hawaiian children expect adults to allow them to attempt to work out their problems among themselves. This Hawaiian adult practice of limited distancing from children’s affairs is not always practiced by teachers, who tend to intervene too quickly, disrupting natal patterns of conflict resolution, often escalating the conflict as a result.

If a teacher attempts to control directly everything that the children do, the result can be either complete breakdown of discipline or a tense and unproductive classroom. D’Amato (1982), in a study of verbal responses to incorrect behavior in preschool classrooms, found that the classroom that functioned most smoothly was one in which such responses were made at a relatively low rate, and in which a high proportion of responses took a form that allowed the child some felt independence in his or her compliance with the teacher’s desire. For example, the teacher might reiterate or provide a model of the correct behavior, without directly saying that the behavior of the miscreant was incorrect; or she might let the child know that the incorrect behavior had been noticed but leave it to the child to know and to produce the correct behavior. In a classroom that was working less well, the majority of responses involved either sanctioning (punishing or scolding) or directly telling the child that he or she was doing things wrong and what it was that he or she was supposed to do instead.

Reaction to misdeeds is only one way teachers can effectively control Hawaiian students. The responsiveness of Hawaiian pupils to teacher praise has been documented in numerous studies since 1966 (for reviews, see Gallimore, Boggs & Jordan, 1974; Tharp & Gallimore, 1976). Most of this work is experimental rather than ethnographic, because teacher praise in conjunction with effective control strategies makes for the most cooperative children. Praise gives a signal to the children that the teacher is receptive, ready, and able to help. To such an adult, Hawaiian children attend very carefully.

SOCIAL MOTIVATION. This selective attention to adults who signal receptivity through social cues can be related to the ethnographic generalization that Hawaiians are affiliation oriented (Gallimore & Howard, 1968). Affiliation motivation can be defined as the tendency of individuals to attend to and orient to others.

The hypothesis that Hawaiian achievement behavior is linked to affiliation motivation (but not to individual achievement motivation) has been tested in several ways. The results, in summary, are as follows. (a) In contrast to usual patterns, affiliation fantasy, but not individual achievement fantasy (both measured with Thematic Apperception Test [TAT]-like pictures), was correlated with intermediate risk-taking on an experimental task (flight simulator; Gallimore, 1972). (b) Affiliation fantasy was correlated with reading achievement test scores, whereas individual achievement fantasy was not (Gallimore, 1974). (c) Hawaiian students from an academically elite high school wrote no more individual achievement fantasies than did low-achieving students from a public school (Sloggett, Gallimore, & Kubany, 1970).

The kind of fantasy produced by the Hawaiian students is also relevant to the issue of teacher–student relationships. Their TAT-like stories suggest that they cannot or will not perform them. A predominant theme in the fantasy stories was use by main characters of interpersonal strategies to resolve social conflicts, such as negotiation through direct confrontation and discussion with authorities. Culturally, Hawaiian children are “forbidden” these strategies with adults; it is poignant that they fantasize these behaviors, so obviously successful with teachers when used by children of other cultures. On the level of beliefs, these Hawaiian children report that such confrontation/negotiation would not work for them—this would only result in alienated and hostile teachers.

THE SCHOOL CULTURE VERSUS THE HOME CULTURE. Because Hawaiian children work to meet group needs, they value task performance as a contribution to the well-being of the group. In the typical classroom, however, personal achievement is emphasized. As the child grows older, there is increasing pressure for individual/competitive achievement behavior. School contingencies are usually fixed on the individual, and work cannot be shared or assignments shifted. Cooperation or assistance among children is viewed as detrimental to learning, or even as “cheating.” This conflicts with the children’s customary behavior of sharing functions, helping one another, and flexibly rearranging work responsibilities with their siblings (Gallimore, Boggs, & Jordan, 1974).

Hawaiian children are accustomed to being with other people. To work alone or to be alone is a foreign situation. Also foreign is the typical classroom injunction to work silently. To achieve silence in a classroom of young Hawaiian children requires shutting down cognitive or academic activity almost completely (Jordan, 1982a).

Two other task characteristics are major features of teaching and learning in the home but are often absent in school situations (Jordan, 1981a). First, in home learning, a task is *meaningful*. The task may be meaningful by virtue of being akin to something already learned and valued. For example, 5- and 6-year-olds show great perseverance in learning new insult rhymes to add to the corpus of verbal play routines, which are an important part of their social interactions. Or the task may be meaningful if the outcome is similar to previously experienced and valued outcomes, even though the actual operations may be quite different. For example, learning to play the ‘ukulele is a way to be socially desirable and appropriate at parties and other peer and family gatherings. The second feature of tasks taught at home is that they are presented *whole*: The final product is clearly related to what the learner is doing. This is often not the case in school tasks. A prime example is the synthetic phonics method of teaching reading, which drills children in the rules for decoding sound–symbol relationships. The consequence of these mismatches is that many Hawaiian children who enter school enthusiastically are already alienated by the fourth grade.

In summary, among Hawaiians, as in other traditional societies, work and achievement contexts are inseparable from the larger context of social relationships and family organization (Gallimore, 1981; Howard, 1974). Motivation for the individual comes from participation in group-directed, collective activities, in which rewards for completion and success are inherent and shared. This pattern for adult life has an analogue in the shared-function, sibling-caretaking system, which represents a training ground in which children learn to function to suit the Hawaiian view of a proper social life. In this system, children are coparticipants in task learning and performance, sharing strategic responsibility in a manner that articulates individual responsibility and achievement. This complex of shared functioning, coparticipation, and coregulation is the natal system for assisting children in the zone of proximal development.

Studies in Language and Cognition

The original Hawaiian language is no longer in widespread use for daily communication among Hawaiians.⁵ Some older people still speak the language among themselves, but younger generations typically learn it only through study at school or university. The characteristic Hawaiian language code today is Hawaiian English, a creole that has evolved from the pidgins used by Hawaiian and immigrant groups—Japanese, Chinese, Koreans, Filipinos, Portuguese—in communication with speakers of Standard English. Hawaiian English is a speech continuum from highly creolized forms to a closely approximated dialect of Standard English. Differences between the two are chiefly in grammar and pronunciation and less in lexical usage.

Most people who are native in Hawai'i have some command of both Hawaiian English and Standard English; it is a rare child in Hawai'i, of any ethnicity, who does not have some facility in Hawaiian English, known locally as "pidgin." The educationally at-risk Hawaiian child typically comes from a pidgin-speaking family to schools where the instruction is conducted entirely in Standard English. This language situation has long been suspected to contribute to children's educational problems. There are many opinions, and the issue is highly charged politically. Research was needed to analyze the children's bidialectalism and to understand the relationships among language facility, cognitive functioning, and school performance. These relationships will now be discussed.

PHONEMIC ISSUES. Because there is a pronunciation difference between Hawaiian English and Standard English, Smith, Truby, Tharp, and Gallimore (1977) inventoried phoneme usage by Hawaiian children. Five phoneme pairs were identified as sources of potential confusion: /ð/-/d/ as in *there* and *dare*; /u/-/ʊ/ as in *full* and *fool*; /ɒ/-/ʌ/ as in *cot* and *cut*; /θ/-/t/ as in *three* and *tree*; and /s/-/z/ as in *sue* and *zoo*. Hawaiian English speakers use only the second phoneme in each of the pairs. For instance, both *three* and *tree* are pronounced as *tree*. Was this problematic for students learning phonics in reading instruction? Conceivably; but slight alterations in the order of teaching of phoneme–grapheme pairs, so that confusing ones were introduced only after the general principles of sound–symbol relationships were understood, removed the difficulty. Pronunciation differences were judged to be a trivial issue (Speidel, Tharp, & Kobayashi, 1982).

LANGUAGE PRODUCTION. The ability to *produce* linguistic structures must be distinguished from the ability to *comprehend* those structures. A major line of research on production ability has been conducted using sentence-repetition tasks. The method involves saying a sentence to a subject, who is enjoined to repeat the sentence exactly.

The Hawaiian Creole English Repetition Test (HCERT; Gallimore, Day, & Tharp, 1978) was developed to assess children's productive capacity for a variety of Hawaiian English grammatical forms. The HCERT's Hawaiian English sentences were administered to Hawaiian children from kindergarten through third grade in various schools. Even kindergarteners succeed in correct repetition on a high percentage of the items. Thus it was established that Hawaiian-English-speaking children develop a productive capacity for their major grammatical forms by the time they enter school. (A comparison revealed that monolectal Standard-English-speaking California kindergarteners were totally unable to repeat the Hawaiian English HCERT sentences.) Hawaiian children do not lack verbal expressive abilities: They also performed within age norms on the Verbal Expression test of the Illinois Test of Psycholinguistic Abilities (ITPA), which requires description of the function of common objects and does not penalize the use of dialect grammar (Speidel, 1981b).

On the Standard English Repetition Test (SERT), Hawaiian children had great difficulty in repeating exactly the critical grammatical features of these sentences. Only by the third grade were Hawaiian children able to repeat as many Standard English grammatical features as were monolectal Standard-English-speaking

Arizona kindergarteners (Day, Tharp, Speidel, & Gallimore, 1975). However, scores on the HCERT and the SERT are related in Hawaiian English speakers by significant positive correlations ($r = .59$ to $.69$). This indicates that fluency in one code does not operate simply to suppress fluency in the other but that both codes are expressions of a common linguistic facility (Gallimore & Tharp, 1982).

Furthermore, Hawaiian English speakers—when instructed to repeat a Standard English sentence—frequently *transform* the sentence from Standard English to Hawaiian English while maintaining the meaning. This suggests that Hawaiian children understand Standard English sentences better than they can produce them. In fact, when these transformations are added to correct-repetition scores, Hawaiian children perform virtually as well as same-age Standard English speakers.

This difficulty in oral production of Standard English features is manifested by Hawaiian-English-speaking children in a variety of test data. Three tests, each measuring the ability to produce one or more morphemes on a cloze, or a sentence completion task, have all revealed the difficulty. Day (1976) used the Wug Test (Berko, 1958); Speidel (unpublished data) administered the Potts Oral Cloze Test (Potts, Carlson, Cocking, & Copple, 1979); and extensive data on the ITPA Grammatic Closure Test (Kirk, McCarty, & Kirk, 1968) have been published by Speidel (1981b, 1982). On this task a child's ability to produce grammatical features, such as the plural, past tense, and comparative is assessed on a sentence cloze task, using such sentences as the following: "Here is a car; here are two ____ (cars)" or "This car is big; this car is even ____ (bigger)." In kindergarten, Hawaiian-English-speaking children perform approximately one standard deviation below the norm mean. By third grade, even though they make absolute gains, they lose more ground to the standardization sample. If they receive no special instructional program, they tend to score three standard deviations below norm.

LANGUAGE COMPREHENSION. These data suggest that Hawaiian children do not have great difficulty understanding individual Standard English sentences; on the SERT, the children readily transformed Standard English into Hawaiian English. Furthermore, when their ability to comprehend Standard grammatical forms was assessed by asking them to point to the appropriate picture in response to a word, phrase, or sentence, the children performed nearly as well as the Standard-English-speaking norm sample (Rasp, 1978).

However, comprehension of narrated stories appears to be another matter. Groups of Hawaiian second graders listened to stories narrated either in their dialect or in Standard English (Speidel, Tharp, & Kobayashi, 1982). Although they understood the Standard English versions to a fair degree, they understood the Hawaiian English versions significantly better. Moreover, they found the Standard English versions more difficult than did a group of monolectal Standard-English-speaking second graders. Similar comprehension superiority in subjects' own dialects has been found by Choy and Dodd (1976). Monolectal Standard English speakers find Hawaiian English stories harder to understand than Standard English stories.

In summary, linguistic studies indicate that Hawaiian-English-speaking children are competent in understanding and communicating in their own dialect. In Standard English they have more difficulty understanding connected discourse and producing grammatically accurate utterances.

SOCIOLINGUISTIC STUDIES. In classrooms, Hawaiian children are often perceived by teachers as “nonverbal” because they tend to give brief (or no) answers when confronted directly by the teacher, and they seldom ask questions. However, sharp differences in language behavior occur according to the social setting. Among themselves, children’s talk is rich in verbal routines, play with words, jingles, teasing, and disputing; these occur while playing, dressing, eating, working, and so forth. Among themselves, Hawaiian children swim in a sea of words. Whereas one child with an adult may be laconic, the introduction of a second child into the situation markedly facilitates child speech—a situation frequently exploited by knowledgeable teachers and researchers.

Even so, the production of narratives by children is rare. Watson-Gegeo and Boggs (1977) succeeded in contriving a social situation that facilitated children’s narrative production: a number of children with an encouraging, participating, but nondirecting adult, in an informal setting, with favorite children topics (e.g., ghost stories). The narrative produced was a group construction. Even with the children taking turns as principal speaker, overlapping speech and conarration occurred; and there were frequent references to shared experiences. This resembles a pleasurable speech event in adult Hawaiian culture, called *talk-story*, which is frequently observed by Hawaiian children. In all likelihood, children model their group narrative patterns on adult talk-story, but young children are unable to maintain the event unless an adult is present and facilitatory (Watson-Gegeo & Boggs, 1977). Some adult regulation appears to be necessary to produce this talk-story-like event throughout elementary school years. In the Hawaiian culture, verbal interactions between children and adults are not ordinarily of the talk-story sort.

LANGUAGE AND READING. The performances of Hawaiian children on the various language measures described earlier have been related to their reading achievement. Ability in speaking Hawaiian English (as measured on the HCERT) does not contribute to measured variance in Standard English reading achievement. Speaking the dialect does not in and of itself interfere with learning to read Standard English.

However, ability in Standard English is closely related to reading achievement (Speidel, 1979). All of the Standard English language measures—the Phoneme Discrimination task, the Test of Auditory Comprehension of Language, the SERT, and the Grammatical Closure Test—showed a significant positive relationship to reading achievement: Children who revealed greater familiarity with Standard English on these tests were the better readers (see Speidel, 1981a, for a review). This finding holds after controlling for other explanatory factors.

In sum, children who had greater facility with ready, automatic production of Standard English grammatical features learned to read Standard English more quickly. These findings on the close association between oral language skills and reading performance are not specific to Hawaiian children. There exists an extensive literature with Standard-English-speaking children that ties language skills to reading achievements (for a review, see Vellutino & Scanlon, 1982).

STANDARD ENGLISH ACQUISITION. The acquisition of Standard English facility thus becomes an important educational objective. Two fundamentally different approaches to language development with young children are possible. In the *direct-instructional* approach, practice of specific language forms supersedes communication as the primary focus. Instructional strategies involve rule explanation, pattern drill, repetition, and so forth. Two separate studies with Hawaiian-English-speaking children have produced poor results for direct language instruction. In one, an experimental program of instruction on particular Standard English features (e.g., plurality) did not cause children to use the forms outside the instructional setting itself (Gallimore & Tharp, 1976). In the other line of investigation, more general Standard English grammar objectives were taught, using pattern drill, songs, nursery rhymes, and other activities taken from the Peabody Language Development Kit (Dunn, Horton, & Smith, 1968). This did not foster the development of children's verbal expressive skills as measured by ITPA and Wechsler Preschool and Primary Scale of Intelligence (WPPSI; Wechsler, 1967) subtests (Speidel, 1987).

The second approach to language development may be called the *natural-context* method, in which language is acquired through communication with others, so that the teaching emphasis is on communication rather than on the form and structure of the language (Jakobovits, 1982). This natural-context approach has its roots in first-language acquisition research. Toddlers are seen to acquire language in communication with their caretakers (Dore, 1979; Grimm, 1983; Halliday, 1975; Moerk, 1983; Schachter, 1979; Snow & Ferguson, 1977; Vygotsky, 1934/1962). Compared with a similar group that did not have this interaction, the natural-context group clearly improved in certain verbal expressive skills assessed by subtests of the ITPA and WPPSI (Speidel, 1978).

There is evidence that the integration of language development with reading instruction through the natural-context method is effective. Children who have participated in the KEEP comprehension program perform significantly higher in production of Standard English syntax and morphology by the end of third grade compared with children in programs lacking this feature (Speidel, 1982; see also Speidel & Vuyk, 1983).

COGNITIVE STRATEGIES, GENERALIZATION, AND THE ZONE OF PROXIMAL DEVELOPMENT.

Early in their school careers, ethnic minority children have difficulty generating aids, mnemonics, research strategies, and so forth to enhance deliberate learning (Brown, 1978). Without these strategies, children are greatly handicapped in classrooms, wherein tasks are presented without a meaningful context.

Ethnographic observation of Hawaiian learners suggested a pattern consistent with Brown's generalization (Gallimore, Boggs, & Jordan, 1974). Hawaiian children were observed in primary grades to rely on inefficient and lower-level strategies when faced with tasks that were separated from the meaningful contexts, for example, with phonic drills. Among the observations were these: (a) When given a new or slightly altered task, Hawaiian students often failed to use the skills or knowledge that they had been observed to use on similar tasks; (b) unless directly prompted, they usually did not relate personal knowledge and experience to school tasks; (c) they were likely to adopt a passive rather than active learning role; (d) guessing and other rote learning strategies were frequently observed; and (e) each problem was approached as a new and different task rather than as an instance of a class to which an already mastered solution might be applied (Gallimore & Au, 1979). However, the more effective strategies appear to lie in

the zone of proximal development; that is, higher-order strategies are used when adults regulate and assist. For example, it helps to associate a shape name with a commonplace object (e.g., circle-plate; Gallimore, Lam, Speidel, & Tharp, 1977).

Much school-appropriate cognitive strategy use for Hawaiian children appears to lie in the zone of proximal development, where teaching must be provided by the assistance of a more capable teacher or peer. Sometimes only minimal assistance by way of prompting will be sufficient; in other cases, more substantial regulation of strategy use over extended periods will be required.

COGNITIVE MEASUREMENT. The collection of data on Hawaiian children's performance on intelligence tests has taken place during the great debate generated by Jensen (e.g., 1969) and others on the adequacy of IQ tests as measures of "intelligence." IQ has a long history of prediction of academic achievement; this probably has more to do with the nature of standard educational practice than with IQ's putative relationship to "intelligence." Nonetheless, our studies examined IQ in a sample of educationally at-risk kindergarten children, generally finding superiority in performance IQ over verbal IQ.

These findings are consistent with the patterns of socialization reported earlier; modeling, shared activities, and performance correction are more often used in teaching than are exclusively verbal instructions from adults; and performance subtests more closely approximate the *enterprise-engagement* context of natal-culture learning. Such explanations are also consistent with the finding that Hawaiian children have exceptional visual/cognitive abilities. They consistently score at least one standard deviation higher than norms on the Visual Closure subtest of the ITPA, a task that requires recognition of objects partially hidden and partially rotated. Among Hawaiian children, subjects with high socioeconomic status (SES) score significantly better on Visual Closure than do low-SES subjects (Speidel, 1981b).

Whatever explanation is offered for the existence of this pattern, for Hawaiian children at these early age levels, the particular verbal/cognitive skills measured by IQ tests may still be in the zone of proximal development, where assistance is needed, as opposed to schools' expectations of independent competence. Cognitive operations with visual stimuli and manipulanda, on the other hand, are developed at a high level of independent competence unanticipated by the schools.

PROGRAMMATIC RESPONSES TO THE RESEARCH BASE

After several years of assembling a research base,⁶ the second stage of the overall research strategy was initiated: the creation of a language arts program in a laboratory school. The KEEP language arts program design was a response to all available formal research data, as well as the personal knowledge of Hawaiian children garnered over the years by the teaching and research staff.⁷ The program has been stable in its main features for some years but, in response to emerging research, is in a continuous state of evolution. These emerging research data are of two types. First, descriptive research continues to be gathered on the Hawaiian child in the natal culture, in the public schools, and in the KEEP program itself. Second, the program is continuously altered in the light of frequently taken “stream” data on the performance of the children in the program. Tinkering with each element occurs constantly, along with balancing the entire system in response to adjustment of separate elements.

The program is an expression of a basic concept of instruction: Teaching consists of assisting performance through the zone of proximal development. This principle has corollaries:

- How and by whom performance is assisted is less important than that performance is achieved.
- Assistance should be offered by the teacher in those interactional patterns most likely to be accepted by the child.
- To the extent that peers can assist performance, learning will occur through that assistance, and peer-assisted learning should be promoted.
- The point at which *teaching* takes place is that point in the zone of proximal development at which performance can be achieved *with assistance*.
- Careful assessment is necessary to delineate two points relative to the zone of proximal development: the *developmental* level of individual competence and the *instructional* level of assisted competence.

The parameters that control the form of the program are more specific and derive from the research corpus. They can be expressed as a list of five, although they are interrelated and each is of equal importance.

1. Regulation and assistance of child learning is accomplished by making compatible the work contexts of the classroom with the work contexts of the natal culture, and by making compatible the social requirements of the classroom with the social relationships of the natal culture. This results in three specific compatibilities:
 - a. A compatible small-group classroom organization.
 - b. Teacher use of compatible social reinforcement and social control techniques.
 - c. Compatible teacher–child interactional patterns in the learning tasks.
2. The goal of reading instruction is comprehension of text rather than mechanics of reading.
3. The goal of language development includes increased facility with Standard English and increased general linguistic/cognitive skills.
4. Individualized diagnostic-prescriptive instruction with continuous monitoring of student progress.
5. A quality-control system for teacher performance.⁸

On the operational level, the KEEP program is organized in a classroom divided into several “centers” of activity. A rotational system schedules each child into five centers each day for about 20 minutes each. Over a week’s time, each child may attend as many as 12 different centers—from library center through game center to listening-skills center, and so forth. The focal point of teacher–child interaction is *Center One*, where the teacher instructs groups of five or six children of homogeneous achievement level. Every child attends Center One every day. After a brief period of early-morning orientation for the whole class, the teacher works

entirely in Center One. Groups of children rotate to her in Center One every 20 minutes; all other children are working in the other learning centers, largely on their own recognizance, on materials that support each child's instructional objectives. Specific programmatic responses to the research base are discussed in the following five subsections.

The Teacher–Child Relationship

As discussed earlier, Hawaiian children do not automatically attend to adults, much less automatically grant them authority. Every teacher in every class in every year must reestablish her legitimate claim to authority. To do so, a personal, affective link must be established between child and adult; the adult must control and dispense fairly some desired resources (Jordan & Tharp, 1979); and the teacher must prove herself to be both “nice” and “tough.” Only then will the children judge her worthy of respect and obedience (D’Amato, 1981a).

To be nice, the teacher must be warm and nurturant toward the children: She dispenses rich doses of social reinforcement, such as touches, hugs, and pats to the younger children, and praise and approval to the older (D’Amato, 1981a; Jordan & Tharp, 1979). She signals her receptivity to the children’s overtures by tone of voice and expression (Jordan, 1981a). She provides help when needed without being bossy (D’Amato, 1981a). She does not punish or scold for trivial offenses or a touch of rascality (Jordan & Tharp, 1979). Like a Hawaiian parent, she allows the children to “win” a little; when they must lose to her, she does not let it cost too much of their pride or status (D’Amato, 1981a, 1982). She does not attempt overcontrol; she allows the children some measure of that independence in their own activity that they have been socialized to expect and manage.

To be tough, the teacher must be firm, clear, and consistent in insisting that the children obey prescriptions for classroom conduct and comply with her directions and requests (D’Amato, 1981a; Jordan & Tharp, 1979). She must dispense contingently the resources she controls, such as recess, access to peers, and praise (Jordan, 1981a; Jordan & Tharp, 1979; Tharp & Gallimore, 1976). And she must do all this without losing control of her emotions, especially anger (D’Amato, 1981a).

Achieving all this is not simple for the uninitiated. In addition to providing teacher training for these skills, KEEP developed one program element that had as its specific purpose the creation of a setting that resembles a natal-culture context in which adult-child relationships reach the conditions just described. The *Open Door* feature allows the children to collaborate in the housekeeping operations of the classroom—setting up and cleaning up the centers and selecting and arranging materials for them. Hawaiian sibling groups are heavily involved in the maintenance work of the home. By the first grade, Hawaiian children are competent enough in such tasks that they are virtually able to take over the physical operations necessary to maintain the centers. In the *Open Door* feature, the teacher borrows aspects of the Hawaiian adult role: modeler of skills, setter of tasks, and overall supervisor. She allows the children independent organization of their activities, and she lets them work out any interactional problems according to their own understandings of their social relationships. She intervenes only when the skills of the group are not adequate to the task or if serious disruption occurs. In Hawaiian society, cooperation over tasks is one of the main ways to initiate, confirm, and signal friendship and good feeling among a group of people. The *Open Door* feature allows this to happen between teacher and children, and also between child and child.

Regulation of Classroom Comportment

The teacher concentrates on the small groups of children in Center One, one after another, throughout the language arts period. This means that students must work productively at all the other learning centers without direct teacher supervision. With few exceptions, primary-school Hawaiian students are capable of such independent work, provided that adequate regulation is provided to assure that the natal repertoires are transferred to the school environment.

The first two to five weeks of each school year are focused on training students in desirable classroom comportment, some of which is fully developed in existing repertoire and some of which is not. The proportion of academic content is gradually increased as the children learn and relearn the rules and routines of the classroom. Teachers use a variety of means and direct, verbal instructions to assist

this student learning. Teachers explain what students are able to do; in addition, teachers demonstrate desirable performance, ask questions, provide performance feedback, use peer models, and supply positive (and occasionally, negative) consequences to student behavior.

On the average, KEEP teachers give significantly more praise than do teachers in local comparison schools; compared with “mainland” normative data (White, 1975), the KEEP rates are also notably higher (Tharp & Gallimore, 1976). In response to previously cited ethnographic and social-motivational research, the preponderance of social reinforcement and other forms of regulation are directed toward groups of children rather than individuals, for example, “Center Three is working very hard!” or “Curious Cats Group has finished their work! They can go to recess early.” Also in response to previous research, reinforcement is preponderantly social rather than material. Some stars, tokens, and privileges are dispensed contingently; but the KEEP system relies in the earlier grades on reinforcement by hugs, smiles, and praise, and as the children grow older, by public, verbal recognition of progress and diligence.

Thus children in the learning centers are quite industrious, a condition presumably attributable both to a natal-culture repertoire of group work on one’s own recognition and to the effective regulation of this repertoire by the teachers’ social reinforcement practices. On-task rates in KEEP classrooms have averaged about 80%, some 20% higher than average comparison classrooms (Tharp & Gallimore, 1976).

In these classrooms, authority remains highly personalized. On-task rates fall sharply when untrained substitute teachers are introduced. Teachers themselves must acquire their regulation skills through training and development (Speidel & Tharp, 1978), and ongoing (though diminishing) regulation of teacher skills must be provided. For teachers to achieve independence in the use of these regulatory techniques, the same approaches are used by consultants with teachers as the teachers use with the children (Johnson & Sloat, 1976; Sloat, 1981; Sloat, Tharp, & Gallimore, 1977). Program operators provide regulatory assistance to teachers by clear specification of performance expectations and by performance feedback. It should be emphasized that teacher training and monitoring are of the utmost importance to program success.

Center One

The focal point of teacher–child interaction is the event called Center One. The specific activities vary from one group to another and from day to day, but in each the children and teacher are engaged in a lively discussion. The Center One lesson teaches not only reading but also listening, speaking, and thinking; the basic goal of instruction is development of cognitive/linguistic abilities. All of the subgoals and parameters of the program are orchestrated in this single event. Although they are intertwined, five aspects of Center One can be discussed separately: (a) the work context, (b) participation structures, (c) the comprehension–teaching strategies continuum, (d) language development, and (e) responsiveness to the zone of proximal development.

THE WORK CONTEXT. A teacher assists children through the zone of proximal development by participating actively with them in joint enterprise. In Center One, children do not perform individually for the teacher in one-to-one or large-group patterns; rather, a small group of children interact with the adult, a pattern demonstrated by research to maximize Hawaiian children’s linguistic, cognitive, and performance activity. Within this group context, each child’s contribution is voluntary. There is mutual participation by teacher and children in the task, rather than the children performing while the teacher observes. This mutuality of enterprise is an attitude constantly demonstrated by the teacher. She will even occasionally feign errors; as children correct her, the mutuality of task engagement is reconfirmed. Learning takes place in a mode of enterprise engagement; that is, children and teacher actually engage, in whole-task form, in the enterprise that is to be learned (e.g., decoding, comprehending, and integrating with previous knowledge the information carried by text), rather than the teacher trying to teach small out-of-context pieces of the task or rules for how to go about it (Jordan, 1981a, 1981b).

PARTICIPATION STRUCTURES. Participation structures are differentiated by the nature of the rules governing speaking, listening, and turntaking at different times in an event (Schultz, Erickson, & Florio, 1982). The participation structures of the KEEP Center One lesson resemble those in talk-story, mentioned previously as an important speech event in Hawaiian culture (Au, 1980; Au & Jordan, 1981). Both the Center One lesson and talk-story are characterized by joint performance or the cooperative production of responses by two or more children. Teachers in the KEEP lesson do not require the children to speak one at a time but allow them to cooperate with one another to frame answers to questions. These lessons encourage learning by allowing the children to engage in text discussion in participation structures, compatible with those of the natal culture (see earlier discussion on sociolinguistic patterns).

Au and Mason (1981) assessed the probability effects of talk-story participation structures on student learning. In a microanalysis of sample lessons, they found lessons incorporating talk-story participation structures to be associated with higher rates of academically productive behavior at times when interaction was judged to be more talk-story-like than when it was judged to be less so (e.g., when the teacher called on the children to speak one at a time).

THE COMPREHENSION-TEACHING STRATEGIES CONTINUUM. At all levels of instruction in Center One, at least two-thirds of the 20 minutes is spent in *comprehension instruction*, which is realized in talk-story conversation. A continuum of comprehension-teaching strategies has been developed (Hao, 1983; Vogt, 1982). Different strategies are used, depending on the level of the children's familiarity with print (see the Appendix for a detailed description of the key stages in this continuum).

LANGUAGE DEVELOPMENT AND STANDARD ENGLISH ACQUISITION. The development of reading comprehension is inseparable from the development of language. In the words of Carroll (1972), development of understanding requires "the ability to understand language and through that ability to acquire new knowledge" (p. 1). To decode and understand what they are reading, children must be familiar with the language and network of word meanings that they are asked to read. The teaching of language and comprehension is united in the Center One lesson. There, the instructional conversation is also guided by the natural-context approach discussed earlier.

In the natural-context approach of Center One, teachers use a more self-conscious and orderly system of assistance toward language development while maintaining the “natural“ focus on communication itself. The Center One strategies of scaffolding (i.e., filling in words when the learner is struggling) are tailored to the children’s stages of language comprehension and expression. The use of the strategies is embedded in the instructional conversation, which is typically bidialectal. Particularly in the earlier years, Hawaiian English is offered by the children, and respectfully accepted by the teacher, although she speaks to them entirely in Standard English. One of her main goals for this conversation is the development of language ability in general, and Standard English in particular.

The scaffolding strategies of Center One are as follows:

1. Careful *listening* to what the children attempt to say.
2. *Extending* the children’s utterances, incorporating some of the children’s own words. Extensions include substitutions of words, phrases, grammatical morphemes, or syntactic frames and additions of words, or obligatory grammatical structures of information.
3. *Paraphrasing* or semantically recoding the child’s utterances. For example, “the guys that supposed to drive the plane” becomes “pilots.”
4. *Decreasing the complexity* of the conversation in response to signs that the children are not understanding. This is accomplished by the teacher adjusting her own speech in rate, enunciation, and grammatical and lexical complexity to the instructional level within the children’s zone of proximal development.
5. *Eliciting* language from the children so that teacher-talk does not dominate the conversation.
6. *Providing opportunity* for the children to use some of the language patterns and word concepts that they are in the process of mastering (Speidel & Vuyk, 1982; Vuyk & Speidel, 1982).

All of these techniques must obey the overarching rule: They are used only when they facilitate communication. Overuse of any one of the above will quickly stifle the required fluid discussion.

RESPONSIVENESS TO THE ZONE OF PROXIMAL DEVELOPMENT. The entire strategy of inquiry for KEEP involves a program that is responsive to the research base on Hawaiian children. Daily instruction of children is also responsive to emergent data. In the Center One lesson, children produce immediate evidence of their developmental levels and their instructional levels. An alert teacher will have no trouble determining the points at which assistance is needed. To provide this assistance, she must be *responsive* to that rapid flow of evidence. She must alter her teaching “in flight.” This is a strategy radically different from that of some other instructional programs, which carefully preprogram scripts for both teacher and child.

The KEEP Center One lessons are responsive in at least four different senses (Au, 1982). The first involves using children’s prior knowledge and abilities as the starting point for instruction. This responsiveness can be seen in the early use of cognitive/performance abilities to enhance comprehension (e.g., using Hawaiian English in Language Experience Approach lessons and the entire natural-context approach to language/cognitive development). Second, choices about appropriate levels of difficulty need to be made. Teacher questions should be challenging but not discouragingly difficult. The third sense is the moment-to-moment in-flight responsiveness that allows a teacher to formulate questions on the basis of pupil contributions as they are made (Gallimore & Tharp, 1983). The fourth sense is how a teacher incorporates children’s language and ideas into his or her comments or paraphrases.

The Learning Centers

Affiliation motivation, peer orientation, and the interpretation of situations in terms of personal relationship are just as important for Hawaiian children in school as they are in their natal-culture settings. In the school context, Hawaiian children are greatly concerned with organizing, maintaining, manipulating, and utilizing peer relationships. KEEP kindergarteners were engaged in peer interactions 50% of the time, and first graders 70% of the time (Jordan, 1978a). Rates of peer interaction in KEEP’s first, second, and third grades have proved remarkably stable across teacher, grade-level, subject-area, and time-of-day variables.

A program feature designed to harness natal-culture repertoires, particularly those pertaining to peer interaction, is the learning-center system. In the learning centers, children work most of the time at that edge of the zone that is closest to the child's independent competence; there, performance requires only the assistance of peers who have perhaps only slightly difference competencies. A study of peer assistance in learning centers (Jordan, 1978a, 1978b) showed that one involvement in a peer-assistance interaction per child occurs every 3 minutes in kindergarten and every 2½ minutes at first grade. Of these interactions, 50% in kindergarten and 75% at first grade have academic content. A wide range of assistance strategies is found. Dominant among these are modeling and intervention—in the latter the assisting child actually performs or physically causes the assisted child to perform the required behavior. Also frequently used is the error signal—an (often unsolicited) statement that what another child is doing is incorrect—usually followed by an intervention, a model, or some other provision of information.

Peer-to-peer assistance operations are marked by *scanning*. Scanning involves the mobilization of multiple resources for a particular task. There are two varieties. Children scan the environment for possible sources of assistance when they have difficulty. They look to the most likely source, perhaps an adult if one is available, and then to alternative sources. Children also scan for indications that others need help, and many peer-assistance sequences are initiated by one child noticing that another is in difficulty and volunteering (or even imposing!) help.

Linked to scanning is the phenomenon of the *resource child*—most often a girl—who is generally acknowledged to be academically competent, who is nurturant toward the other children and willing to assist them, and who is sensitive to their feelings and sense of pride. (She is in some cases the apical girl.) Other children turn to her regularly for assistance, even coming from other centers for her assistance, feedback, and approval (Jordan, 1982b).

As one might expect in a situation in which children are close to one another in age and competence, there is a good deal of shifting between the role of assisted and the role of assistor. The same child may, within a very short span of time, be both, depending on available competencies for a particular task. There is often joint, cooperative work on a common task, in which information and ideas are shared back and forth, advice is given, and models are offered, so that a task may be worked through by two or more children cooperatively. Each produces his or her own individual piece of work, but with continual, mutual assistance.

One might note here, as a hypothesis, that for at least some non-Western societies and subcultures, like the Hawaiian, independent, individual performance may be inappropriate as the ultimate goal and measure of skill acquisition. Although sufficient individual independent performance may be achieved, in Hawaiian culture, the mark of fully developed competence may be the ability to assist others rather than the ability to perform unassisted. One does not do things alone in Hawaiian society. Although individual competence is respected, solo performance is rare except in a few limited contexts. Thus, measuring developmental level by individual-performance displays is of questionable validity for Hawaiians. Further work is needed in this area, but one may propose that, for traditional cultures, the developmental level begins where full assistance can be offered to others.

Further Programmatic Response to the Research Base

So far, the discussion has been restricted to program elements that are reasonably stable and well articulated. However, KEEP continues to use research and development strategies designed to improve the language arts curriculum and to add elements that are not specifically language arts directed.

One of these areas is indirect training of cognitive strategies. Recall that although Hawaiian children may use effective strategies in the particular context in which those strategies were learned, they use lower-level strategies in noncontextualized transfer tasks. Strategy transfer would appear to exist, however, in the zone of proximal development, because with adult prompting or regulation, high-level strategies are used. How can the development of such strategies be assisted?

For example, divergent or creative thinking has been the goal of instruction in art. Exploring the implications of Hawaiian children's superior cognitive abilities in visual and performance contexts, a prototype art instruction program (particularly with paint and clay) has been tested for a number of semesters. Divergent or creative thinking is increased by this instruction and does generalize across modalities (Speidel & Pickens, 1979).

SUMMATIVE PROGRAM EVALUATION AND EXPORT INTO PUBLIC SCHOOLS

However well the instructional practices may be designed from the research base, any applied developmental program must challenge itself with evaluation. Summative evaluation—comparing program subjects with nonprogram subjects—must be conducted regularly (Tharp, 1981; Tharp & Gallimore, 1979, 1982).

Summative evaluation of the KEEP language arts program has occurred in three stages. The first, preliminary, stage involved a cohort design. Following a semester of the pilot program in first grade only, the program was introduced into the laboratory school (see note 6) in all grades—K, 1, 2, and 3—simultaneously. Because each cohort of children entered kindergarten and moved upward through the grades, different cohorts experienced the program at different grades. Thus, it was possible to compare across and within cohorts for program effects. These effects suggested major superiorities for the KEEP language arts program (Tharp, 1982). However, cohort design is inherently weak, and it was used only to establish confidence in the stability of program effects sufficient to justify the use of an experimental versus control design.

The second stage of program evaluation involved a comparison between four KEEP program classes (our cohorts IV, V, VI, and VII) and four cohort classes of comparison subjects. These subjects were located with the assistance of the state's Department of Social Services; they lived in the same low-income area of Honolulu as did the program subjects and attended a number of public schools in that area.

The evaluation instruments were two tests of reading achievement: the Metropolitan Achievement Tests (Durost, Bixler, Wrightstone, Prescott, & Balow, 1971) and the Gates–MacGinitie Readings Tests (Gates & MacGinitie, 1965). Statistical analyses were performed separately for these two data sets and have been reported in detail (Gallimore et al., 1982; Klein, Calkins, Troy, Tharp, & Gallimore, 1982; Tharp, 1982). The combined results of the two tests at each grade level are presented in Figure 1 for the four classes of children. Achievement results

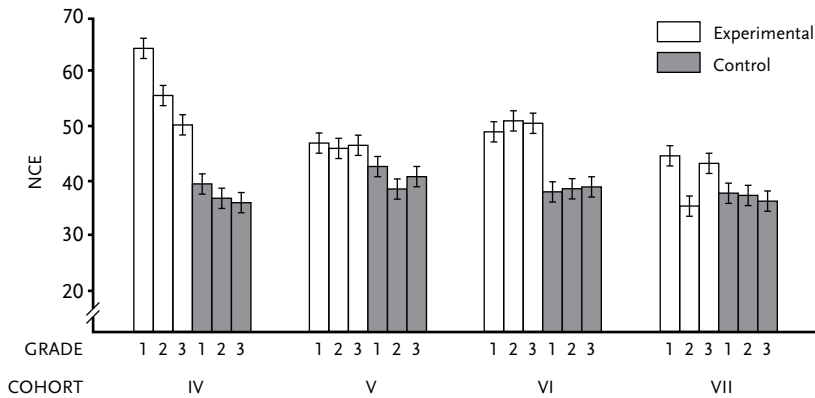


FIGURE 1 Mean, \pm standard error (1), for the average of the Normal Curve Equivalents of the Gates-MacGinitie and Metropolitan Reading Tests for cohorts IV, V, VI and VII, for DSS children in the KEEP Program and their controls, by grade level.

are displayed as averages of the two tests on a scale of normal curve equivalents (NCE), which has a mean of 50 and a standard deviation of 20.6, based on the test's standardization sample. These data indicate that the children from low-income families in the public schools were achieving at a level approximately one-half standard deviation below national norms, whereas the average achievement of their counterparts in the laboratory school approximated an NCE of 50.

These accumulated evaluation data justified a limited field test of the curriculum; thus, the third stage of the overall research strategy was initiated: the export of the program into public schools that serve Hawaiian children. Two elementary schools were selected as sites for the field test of the program. One was located on the leeward area of O'ahu and another on the Island of Hawai'i. Both schools enrolled approximately 50% Hawaiian students, and both were located in primarily rural, economically depressed areas. This third stage of evaluation achieved random assignment of subjects into experimental classes and control classes. This evaluation stage lasted two years. At each grade level in each year, the achievement of the experimental classrooms approximated national norms and exceeded that of the control classes at each site. The differences were highly significant except for one grade at one site (Gallimore et al., 1982; Klein et al., 1982; Tharp, 1982).

As a result of the demonstration of the program's effectiveness in the field test, additional classrooms were added at second and third grades on the Island of Hawai'i, additional public school teachers were trained to teach the KEEP program at the leeward O'ahu site, and four additional schools have adopted the program. Two thousand elementary school students were in the KEEP program. Annual summative evaluation continued showing average reading test scores at the 50th percentile for all subjects collapsed across site and grade.

Research and Development as a Continuous Process

KEEP set a three-stage process for research and development: (a) the creation of a base of research about Hawaiian children in their natal culture and in the school; (b) the creation of an effective program in a laboratory school; and (c) the export of that program into public schools. We suggest that this general outline may be useful to applied developmental research. Gathering the research base may be aided in other cases by assembling previous findings, whereas in our own case members of the same basic team conducted the preponderance of necessary studies. The creation of a "laboratory" model of any applied program is a strategy also to be recommended. Although the laboratory, to be useful, must replicate the ultimate field conditions in all important operational respects, there are enormous advantages in a preliminary controlled environment. These all devolve upon the issue of researcher authority. Vital formative evaluation procedures cannot be undertaken without the authority to produce program variations. Researcher expertise can insulate against the problems of false starts, failed variations, and necessary imposition of experimental conditions. Our third stage, the export phase, is analogous to any applied program that helps toward a dissemination broader than the small laboratory version. The export phase, however, does not mean an end to the inquiry process.

Local Versus Universal Knowledge

One tension in this discussion is between the value of *local* and the value of *universal* knowledge. Social science, and particularly psychology, have valued knowledge to the degree that findings are generalizable—to the degree that data contribute to general laws. Psychologists often act as though the particularities of their subjects

and settings are irrelevant to their findings. The inquiry that attempts a frontal attack on universalisms, however, risks being applicable to nothing in particular. So we have psychological theories that describe no individual, and we have research that will not replicate for the next population or locality. Yet purely local knowledge is incomplete knowledge. This paradox is familiar, and to some degree it is inescapable and energizing.

With applied developmental work, the issue emerges in stark clarity: Applied developmental research must be uncompromisingly local. Applied developmental work attempts interventions that are locally effective for local individuals in local environments and communities. The purpose of applied developmental work is not to establish generalizable laws or to make universally applicable statements. There is no paradox and no tension. Applied developmental research is local research.

Of course we can attempt to abstract those elements shared by two or more local programs or populations. We can array instances to create the best general statements. But that is a separate and later undertaking. That is the *analysis of the results* of applied developmental research. And the validity of that level of analysis is totally constrained by the integrity of the localism of the programs themselves.

The KEEP program is solely and expressly a program developed in terms of and for a local population: Hawaiian children. The degree to which it is or is not applicable to other populations can be determined only by local research with Navajos, Eskimos, or Hispanic children. It may well be that such a process—the assembling of results from many applied developmental programs on many local populations—may produce in the end the only universal statements we are entitled to make.

AFTERWORD, BY ROLAND THARP

As my colleagues and I wrote this article in 1983, our context was a national debate as to whether the success of the KEEP program was due to its congruence with Hawaiian culture or to features potentially beneficial to children of any culture. We knew without any doubt that the program had been specifically built on Hawaiian culture and for Hawaiian children. But we also believed that many KEEP elements could certainly benefit any children. Thus the concluding remarks: “The degree to

which [KEEP] is or is not applicable to other populations can be determined only by local research.... It may well be that...the assembling of results from many applied developmental programs on many local populations may produce in the end the only universal statements we are entitled to make.”

In 1983, we could argue this only in the abstract. We had no idea that the opportunity would come to do that work. Yet only one year later, we were able to test the particular/general explanations by transporting the KEEP program, intact, to the Rough Rock Community School, of the Navajo nation, in northern Arizona. To make the KEEP model effective for the Navajo, certain crucial features needed adjustment, and each necessary adjustment arose from central features of Navajo culture (Vogt, Jordan, & Tharp, 1987).

In 1990, we continued similar research in schools of the Zuni Pueblo in New Mexico (Tharp et al., 1999), and from 1995 to 2002, through the Center for Research on Education, Diversity & Excellence (CREDE), conducted similar research with every major cultural and linguistic group in the United States.⁹ By comparative analysis of those studies, we have found the general elements that all successful programs seem to share, across all cultures. We have published these findings as the Standards for Effective Pedagogy (see www.crede.berkeley.edu), generalized from all those local/particular studies.

Now in the light of the general—that is, when we imagine applying the Standards of Effective Pedagogy anew to schools for Hawaiian children—it is clear that the result would be the KEEP program as described in this original article. The general/universal has actually validated the local/particular original Hawaiian design.

But all applied developmental study must truly be local/particular. In the days of CREDE, we returned to Hawai'i for two crucial program studies: one for high school (the Hawai'i Studies Program of Wai'anae High School; Yamauchi, 2003; Yamauchi, Billig, Meyer, & Hofshire, 2005) and the Kamehameha Schools Pre-School study in the Kona classroom of Sheri Galarza (Tharp & Entz, 2003). KEEP was originally designed for grades K–3. Cultural congruence produces quite different high schools and preschools. Such work can never end; the particulars of the world and of culture will forever continue to develop.

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NOTES

1 These original assumptions have been shared by the authors for 15 years although they proceeded in each individual from a different theoretical orientation—behaviorism, socialization/enculturation theory, cognitive and linguistic developmental theory, and so forth.

2 This report is based on (a) an extended period of ethnographic fieldwork in a semirural, heavily Hawaiian, educationally high-risk area of O'ahu (overviews of this work are given in Gallimore, Boggs, & Jordan, 1974; Howard, 1974; Jordan, 1981a); (b) more focused ethnographic work in the same area (D'Amato, 1981a, 1981b, 1982); and (c) briefer studies of urban families (Weisner, Gallimore, & Jordan, 1982; Weisner, Gallimore, & Tharp, 1977, 1982; Weisner, Jordan, Gallimore, & Tharp, 1982).

3 This major dimensionality of social descriptions—tough and nice—persists into adolescence; by that time, respondents classify peers according to which dimension dominates (Gallimore, Weiss, & Finney, 1974).

4 All teachers with whom we have worked have been women; therefore, the feminine pronoun is used throughout the article.

5 The exception is on the isolated island of Ni‘ihau.

6 During the early years of the project, KEEP operated a laboratory school of one class each, kindergarten through third grade, populated with educationally at-risk Hawaiian children, as described earlier in the article. In the strategy of inquiry, this allowed researchers close examination of the child in a typical classroom with a typical curriculum: a whole-class social organization and a reading program based on phonics and word identification. That early program is of no particular interest here, except to say that child reading achievement was no better than in public school comparison classrooms. The interested reader can find a more detailed description and evaluation of that program in Tharp (1982). During these years, the research base on Hawaiian children was being assembled.

7 The prototype was also influenced by the model for comprehension instruction in reading developed at the University of Arizona and the Flowing Wells (Arizona) School District. Indeed, each KEEP program element is represented in some form in the compendium of universal school instructional practices. The KEEP strategy has not been to create school practices *ex nihilo* but to select elements familiar to educators, adapt them, and combine them in a pattern that will be culturally compatible. This strategy of “least change” (Jordan & Tharp, 1979) was chosen to facilitate the program’s wide-scale adoption into the public schools.

8 Parameters 4 and 5 are consistent with the neo-Vygotskian view of teaching as assisted performance. The setting of clear performance standards and the use of feedback to allow correction is a highly effective form of assistance, both for children and teachers. Because this line of research derives more from education than from child development, further discussion of these parameters is omitted here; for discussions, see Sloat (1981) and Tharp (1981, 1982).

9 Many of the KEEP research team continued under the aegis of CREDE: Ron Gallimore, Stephanie Dalton, Lynn Vogt, Lois Yamauchi, Larry Loganbill, and Roland Tharp.

APPENDIX

THE COMPREHENSION–TEACHING STRATEGIES CONTINUUM

The four key stages of the comprehension–teaching strategies continuum are (a) Concept/Experience, (b) Word Play, (c) Language Experience Approach, and (d) Scriptal-Text-Combinative.

In the earliest stage, called Concept/Experience, group discussion is almost exclusively centered on shared experiences, usually with concrete objects. Drawing children into discussion is the primary objective; the route is by way of their generally better developed performance/cognitive abilities.

The second stage is Word Play. Though similar to the previous stage, printed words remain more salient. Posters, pictures, and objects are used for discussion; the children then label various parts of these charts. The labeled charts are used for a variety of word finding and other verbal games. Word games are a particular skill in Hawaiian child society, and the teacher can assist the children to bring these abilities to bear in building print familiarity.

The third stage is that of the Language Experience Approach (LEA; Hall, 1976; Stauffer, 1969). A typical LEA sequence begins with a group activity at Center One, which the children discuss; subsequently, the children dictate a story to the teacher on the basis of this discussion. The dictated story, consisting of the children's own predominantly Hawaiian English words, phrases, and sentences, is then used for reading instruction. Only when the children have mastered sufficient basic reading skills is Standard English text introduced. This ordinarily occurs by first grade. While texts in content areas such as science or philosophy are eventually introduced, narratives are emphasized through the third grade.

With the introduction of increasingly complex Standard English text, the stage of comprehension strategy called Scriptal-Text-Combinative is used. The model for comprehension of narrative texts (Au & Kawakami, 1982) incorporates three phases, according to the sources of information required by the comprehension task. The sources are (a) scriptal or prior knowledge, (b) text information, and (c) a mixture of scriptal knowledge and text information. While no one source is ever exclusive, the three phases of instruction can be labeled according to the emphasized source: (a) Scriptal, (b) Text, and (c) Combinative.

During Scriptal phases, before the text is encountered, the teacher has the children call up prior knowledge relevant to the text to be read. The teacher then moves them toward the text by asking for predictions, usually on the basis of the title or pictures accompanying the text (e.g., “What will this story be about?” “Where will Freddie find a frog?”).

A period of silent reading signals the start of the Text phase. Students are then asked to evaluate the predictions made earlier and to discuss supporting details in the text (e.g., “Where did he find the frog?” “Was that the first place he looked?”). The teacher may have the students clarify nonpredicted text information and make connections among text ideas. Students are also asked to make inferences about the feelings and motives of story characters. Gradually, as students respond to text-implicit as well as text-explicit questions, their attention is shifted from Text information back toward Scriptal knowledge. During the Combinative phase, the teacher may ask questions that lead the students to relate text information to their own experiences. Such a question might be, “How would you feel if your pet frog was going to be used as bait?” This step involves the use of text information to enhance, reorganize, or change existing knowledge structures. Finally, the teacher asks questions leading students to make predictions about the next sections to be read (“What do you think Freddie will do?”). Text and Combinative phases of instruction continue in alternation until the end of the lesson.

In this way, the teacher regulates or assists the children through the steps required to comprehend narrative text. If instruction is to be effective, teacher questioning must provide neither too much nor too little assistance for student performance. The degree of teacher assistance required depends on the stage of students’ metacognitive mastery of particular steps and phases in the model, with respect to a given text. That is, the Scriptal-Text-Combinative sequence is itself a metacognitive strategy, which third-grade children have begun to master. Thus, students’ learning is assumed to have two aspects, cognitive and metacognitive (Au & Kawakami, 1982). Both aspects move through the zone of proximal development with teacher assistance. Teachers also regulate the metacognitive (e.g., “What is the next thing to do? Right! Combine what you already know with what you just read.”)