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Unpackaging Cultural Effects on Classroom Learning: Native Hawaiian Peer Assistance and Child-Generated Activity

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Cultural analysis of differential minority achievement can create stereotypes and restrict expectations of child performance if group-level cultural generalizations are misapplied to individuals. Observational and interview studies of sibling caretaking and peer assistance in Native Hawaiian contexts illustrate the appropriate comparative analysis of natal and school activity settings. Results indicate Native Hawaiian sibling caretaking varies widely across households and individual child experience. Parents' beliefs about sibcare show a mix of shared acceptance and ambivalence. In natal settings, child-generated activities, carried on without adult intervention, produce most literacy-related behaviors (such as school-like tasks and increased language use). Among the classroom learning activities that are successful with Native Hawaiian children are child-generated interactions, in which children are able to use scripts similar to those observed in natal settings. Other features of natal activity settings (such as personnel, goals and motives, and everyday tasks) are discontinuous with those of the classroom centers. To reduce home/school discontinuities, these data suggest that classrooms need to be accommodated to selected features of natal culture activity settings, rather than be isomorphic in all aspects. Identification of which cultural features these are depends on "unpackaging" cultural effects on individuals by analysis of both natal and school activity settings. CULTURE AND EDUCATION, NATIVE HAWAIIAN, SIBLING CARETAKING, PEER INTERACTION, MINORITY SCHOOL PROBLEMS

Why some American minority groups encounter difficulties in the public schools has been hotly debated for decades (Cazden, John, and Hymes 1972). There is now a general consensus that attributes differential minority achievement to discontinuities of natal and school settings, rather than child deficits (Erickson 1984; Jordan 1985; Ogbu

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1982). The emergence of the cultural discontinuity hypothesis as an alternative to deficit theories was an altogether salutary development, and one in which the authors of this article enthusiastically participated.

However, a serious problem remains. Cultural explanations of differential minority achievement can "all too easily become the basis for creating stereotypes, and for misjudging the complexity of learning problems" (L. W. Fillmore 1982:24). "Both the culture of the students and the culture of the school are important in understanding the educational experience of an individual or a group. Nevertheless, a focus on cultural identity may lead to inaccurate interpretations, and stereotyped educational recommendations may then develop" (MacGroarty 1986:304); Ogbu and Matute-Bianchi (1986) caution strongly against identifying individuals in broad cultural terms, for fear of "*restricting expectations of academic performance to a generalized analytical category*" (1986:131; emphasis in original).

It is ironic that a stereotyping dilemma has emerged from cultural explanations which themselves arose in response to negative stereotypes. The dilemma arises because cultural explanations of differential minority achievement of *individuals* have treated culture as shared and patterned custom at the *group level*.

Another way to state this: Culture is not a nominal variable to be attached equally to every child, in the same way that age, height, or sex might be. Treating culture in this way assumes that all children in a culture group have common natal experiences. In many cases, they do not. *The assumption of homogeneity of experience of children within cultures, without empirical evidence, is unwarranted* (Johnson 1978; Peltó and Peltó 1978; Romney, Weller, and Batchelder 1986; Wallace 1970; Whiting and Whiting 1975). The method error that follows is to measure culture by assigning it as a *trait* to all children or parents in a group, thus assuming culture has uniform effects on every child. A similar error is to treat national or ethnic status as equivalent to a common cultural experience for individuals.

An alternative view: Cultural analysis of differential achievement must have the capacity to move between data on individuals and particulars, to summaries of shared patterns for behavior in the form of traits, beliefs, and customs. Shifting of levels of analysis is essential if cultural analyses are used to explain and ameliorate differential achievement of individuals within culture groups.

Shifting of analysis levels is possible if we construe *culture as the shaper of activity settings*, or contexts for individual action, teaching, learning, and task competence (Cole 1981, 1985; Tharp and Gallimore 1988; Vygotsky 1978; Weisner and Gallimore 1985; Wertsch 1985; Wertsch, Minick, and Arns 1984; Whiting 1980; Whiting and Edwards 1988). In this way, we can identify the ways in which culture specifically affects the learning of individual children, at both home and

school. Such a view is consistent with research showing associations across family subsistence base, cultural beliefs and values, the daily routines of children, and individual variations in cognitive development (Nerlove and Snipper 1981; Rogoff 1982; Weisner 1984).

Identifying effects on individuals involves the "unpackaging" of culture, to use Whiting's (1976) vivid term. "Unpackaging" culture includes identifying and observing at least these constituents (Weisner 1984; Weisner and Gallimore 1985; Gallimore, Weisner, Kaufman, and Bernheimer 1988):

1. The *personnel* present who teach and influence children; their availability in activities throughout the child's daily routine.
2. The *motivations* of the actors.
3. *Cultural scripts for conduct* commonly used by participants in teaching/learning contexts that arise in natal cultural and school settings.
4. The nature of *tasks and activities in the daily routine*, and the frequency and distribution of their performance.
5. The *cultural goals and beliefs* of those present in the activity setting.

These constituent elements—personnel, motives, tasks, scripts, and goals/beliefs—represent the instantiation of culture-level factors (the ecocultural niche of the family (Super and Harkness 1980, 1982, 1986)) at the individual and family level. The elements reflect evolved, adapted family responses to opportunities and constraints of the local niche. They define the activity settings in which teaching and learning take place, and which elicit the child behaviors, skills, and cognitive operations with which educators are concerned (Tharp and Gallimore 1988; Tharp, Jordan, and O'Donnell 1980).

"Unpackaging" culture to include these activity units of analysis conceives and measures cultural features by how they are *used* to analyze and explain differential minority achievement. For example, an explanation of differential achievement in terms of the school *system* (its history as an institution, its own rules, norms and customs) requires a view of culture as shared patterns for behavior at the group level (e.g., Ogbu 1982). But if culture is used to account for differential achievement of individuals, an additional cultural analysis is required—an activity setting analysis, at home and school, of teaching styles, peer relations, implicit goals, and personnel available.

In this article, we present Native Hawaiian cultural and classroom data that explore the perspective presented in this introduction. However, we did not start with this perspective. Our original studies of Native Hawaiian families assumed cultural homogeneity and were used to argue from cultural data at the level of custom to classroom data at the level of individual learning: we now have cultural data at the level of activity setting that bear on individual classroom learning and the stereotyping dilemma of the discontinuity hypothesis.

Native Hawaiian Sibling Caretaking and Classroom Peer Teaching

Our Native Hawaiian cultural studies began in 1965 (Gallimore, Boggs, and Jordan 1974; Gallimore and Howard 1968; Gallimore, Tharp, and Speidel 1978; Howard 1974; Jordan 1981a, 1985; Weisner 1982, 1988; Weisner and Gallimore 1977; Weisner, Gallimore, and Tharp 1982). Initial classroom studies by our team indicated a low level of Native Hawaiian child attention to teachers and classwork, and an extreme orientation to peers that disrupted typical classroom routines (Gallimore, Boggs, and Jordan 1974; MacDonald and Gallimore 1971; Tharp and Gallimore 1976).

Ethnographic studies suggested the extreme orientation to peers in the classroom might be a result of the extensive use of sibling caretaking by Native Hawaiian families. In the course of routine childcare, siblings had many occasions to teach the younger children, and often did so (Gallimore, Boggs, and Jordan 1974). Since Native Hawaiian children were accustomed to learning from their siblings, we suggested this might be a reason for low attentiveness to teachers and high attention to classroom peers. Using these normative, culture-level generalizations, we proposed that greater use of peer teaching/learning might help Native Hawaiian children learn better by increasing classroom attentiveness and motivation because, we reasoned, peer teaching would reduce home/school discontinuities. We left unstated the precise continuities between sibcare and peer teaching contexts; and we had no data on variability of child experience within sibling caretaking contexts in homes, nor on components of activity settings in homes which were continuous with classroom learning contexts.

Subsequent efforts to incorporate peer teaching into classrooms did contribute to significant gains in achievement of Native Hawaiian children (Gallimore 1977; Gallimore, Boggs, and Jordan 1974; Gallimore, Tharp, and Speidel 1978; Jordan 1981b, 1984; MacDonald and Gallimore 1971; Sloggett 1968). Given these results, it was plausible to assume that peer teaching assists Native Hawaiian children because it is more continuous with sibling caretaking than adult-centered classroom formats.

However plausible and appealing this argument is, it assumes sibcare to be an invariant experience of Native Hawaiian children. If we look closely at the original data base on Native Hawaiian sibcare and the shared management system, there are indications of some variation both in the practice of shared management and in parental endorsement of its use (Gallimore, Boggs, and Jordan 1974; Jordan 1981a, 1981b, 1985; Weisner 1986; Weisner, Gallimore, and Tharp 1982). However, we had never fully examined the amount of variance in sibcare. We had always treated it as an invariant culture-level category, and generalized it to individual child response to peer teaching and learning centers in classrooms. But how was sibcare viewed by parents

and enacted in the everyday circumstances of children? How, in other words, was it instantiated in activity settings? What aspects of natal sibcare were reproduced by our classroom-based peer teaching experiments?

We undertook a series of studies to explore these issues. We now turn to a summary of each of these studies.

Sibcare in Natal Settings: Methods and Sample

To examine the variability question, we conducted interviews and observations in households whose children attended the KEEP research school (Kamehameha Early Education Project). From 1972 to 1979, the Kamehameha Early Education Project operated a kindergarten to third grade research and development school in urban Honolulu (Tharp and Gallimore 1988; Tharp et al. 1984). The goal of KEEP was the development of a reading program that was effective and accommodated to the culture and language of the children. A new cohort of kindergartners was selected each Fall that represented the population at risk for underachievement (Weisner, Gallimore, and Jordan 1982; Weisner, Gallimore, and Omori 1975). Seventy-five percent were randomly selected from lists provided by the State of Hawaii of families receiving public assistance.

It took five years of research and development to evolve an effective reading program (Tharp 1982; Tharp and Gallimore 1988). As a group, children taught with the KEEP program achieved on standardized reading tests at or above national norms, while comparison groups continued to score well below average. Internal and external evaluations of the project are available (Calfee et al. 1981; Gallimore et al. 1982; Tharp 1982).¹

Cultural Beliefs, Family Circumstances, and the Practice of Sibcare

The first task was to determine parental views on sibcare and to report on its use, benefits, and problems. Our goal was an assessment of sibcare as a "culture-level" phenomenon, and some indication of its variability of reported use. These data provide information on several features of cultural activity: parents' motivations for encouraging the custom; their statements regarding rules for practicing the custom and how to implement it—their scripts; and parents' goals and values regarding sibling caretaking. As we shall see, the Hawaiian-American parents in our sample differed widely along each of these dimensions.

An interview sample was identified, consisting of 56 mothers of the children in KEEP school, grades two and three. Interviews were conducted in family homes by research staff of the KEEP school. Questions covered child rearing and sibcare, including tasks assigned to children, and the parents' attitudes and beliefs about sibcare. We also asked a number of questions concerning domestic group and family ties, how parents teach and train their children, and parents' own ex-

periences with sibling care when they were growing up. These data were compared to mothers' reports concerning the practice of sibcare in each family. Parents were asked directly about their family incomes, occupational status, and formal educational levels. We divided families at the median on socioeconomic and other variables, and then cross-tabulated these data by the reported use of sibcare and reported parental beliefs about the practice or its outcomes.²

Personnel is a powerful feature in cultural activity theory influencing behavior, and so we carefully examined differences in available family personnel to engage in shared caretaking as an influence on parents' cultural beliefs about the practice. Large families (over six members) and mothers with a heavy workload (both outside employment and domestic tasks) were more likely to utilize sibling caretaking, if they had available children of the appropriate ages in their households. Families without available older children did utilize occasional child care provided by kin living in other households, but they did not have *regularly available* child caretakers.

If sheer availability of personnel determines attitudes toward sibling care, the "sibs available" and "sibs unavailable" groups should look very different in their beliefs and attitudes about sibcare. However, there were no differences between the 36 families with sibs available and the 20 with no sibs available. Comparisons included parents' overall attitude toward sibcare, and beliefs regarding whether there are bad outcomes from its practice, and whether it is too heavy a responsibility (see Table 1). In this sense, sibcare is a culturally endorsed practice, even by those who had no opportunity to practice it on a regular basis (at the time of the interview). In addition, parents with or without children available for caretaking were equally likely to indicate that teaching and learning occurred in the context of joint caretaking (see the "adult or sib teaching" items in Table 1).

In response to other questions, however, those families with several sibs available did differ from those without. Families with available sibs were more likely to report that *nurturance toward others* is an outcome of sibcare experience. They were also more likely to mention that sibcare produces short-term conflicts among sibs. Many parents had a mixed and ambivalent view of shared management of children by other children, along with a more widely shared expectation that it is a potentially usable form of child care, given the appropriate circumstances.

Some comments from the interview materials illustrate the ambivalence. One parent said that sibling caretaking is good because it balances (for the older child) what otherwise would be the tyrannical influence of the younger child on the older. Another parent commented that sibling caretaking is useful and a good thing—but how much of it were we (the interviewers) talking about? If used too often by parents, it can indicate possible parental neglect of parents' own duties, and

Table 1
Parental Attitudes Toward Sibcare

	Column Percent of Informants Reporting by Sibling Availability				
	Not Available (<i>N</i> = 20)	Available (<i>N</i> = 36)	Totals (<i>N</i> = 56)	χ^2	<i>p</i>
<i>Sibcare Outcomes</i>					
No bad outcomes of sibcare	50	64	59		
Bad outcomes of sibcare noted	50	36	41	1.02	ns ^a
<i>Mother's Evaluation of Sibcare</i>					
Too heavy responsibility	40	39	39		
Opinions mixed	20	28	25	0.475	ns
Sibcare is a good idea	40	33	36		
<i>Mother's Attitude to Sibcare</i>					
Unclear/ambivalent	24	33	30		
Negative	48	36	40	0.72	ns
Positive	29	31	30		
<i>Adult Teaching of Children</i>					
No adult-child teaching noted	55	61	59		
Adult-child teaching noted	45	39	41	0.198	ns
<i>Sib Teaching</i>					
Sibs teaching sibs not noted	85	72	77		
Sibs teaching sibs noted	15	28	23	1.17	ns
<i>Sibcare Nurturance</i>					
Mothers did not mention	80	50	61		
Mothers did mention	20	50	39	4.85	< .03
<i>Sibling Conflict</i>					
Sib conflict not noted	80	56	64		
Sib conflict noted	20	44	36	3.34	< .07

^ans, not significant.

can be carried too far in some families. Another parent said that it was important and useful—because the parent might die at any time, and then the children would know what they need to know to carry on on their own. Another mother said that sibcare is good—but only if the child responsible has already shown some special proclivity or interest in doing it. Several parents in large families said that it was very important because how *else* could one run a large family? It was important, in other words, for the functioning of the whole family, and could not be judged as a distinct practice in and of itself.

These varying, often pragmatic parent comments also indicate that sibcare is not an emotionally charged institution associated with in-

tense moral sanctions. It does, however, play a significant role in Native Hawaiian life and is an available childcare strategy. But it is not an aspect of family life that *must* be practiced within the Native Hawaiian community.

Socioeconomic Status and Sibcare

Parental differences in beliefs and attitudes regarding sibcare were not directly related to socioeconomic status differences among the families. With sibling availability controlled, income and socioeconomic measures were not associated with how sibcare is culturally valued or understood, nor whether it is reported to be practiced in the home. Only three relationships (out of 21 analyses) were statistically significant: Families with higher incomes made more mentions of and reported more use of direct adult teaching of their children, and families with a high occupational rank reported more nurturance and a more positive attitude toward the practice of sibcare. In general, however, jobs, occupations, formal education, and incomes make little difference in the practice of or beliefs about sibcare for this population.

Observations of Families and Children

Mothers' reports suggest sibcare is neither uniformly practiced nor required. To check on the pervasiveness of child experience of sibcare, we conducted direct observations of Native Hawaiian child care arrangements and the practice of sibcare. For the observation study,³ eight KEEP children were selected, one boy and one girl from each of the four classrooms at the KEEP school (kindergarten to third grade). Boys and girls were randomly selected from those living in or near low-income housing areas nearby, from which most of the children in the school come.

To assess the degree of variability in sibcare across families and in individual child experience, seven of the eight children were observed at home on 20 different days and one on 16 different days (this child moved after 16 visits). On each visit, each child was observed for approximately 30 minutes during the after-school period.

One hundred and fifty-four different visits to these eight families were completed for which there were usable sibcare data. There were 47 (30.5%) visits during which the target children (TC) were judged to be in the care of no one. During an additional 46.8% ($N = 72$) of the visits, TCs were judged to be in the care of their mother or (in two cases) their father. In the remaining 22.7% of the visits ($N = 35$), the TC was being cared for by an older child. In 11 of these 35 visits, children were observed both doing caretaking themselves, and being cared for by another child. Thus the number of different observations of sibcare was 46.

However, in many situations, sibling caretaking could not have occurred simply due to the personnel present. In 41.9% of the spot ob-

servations, the child was not with a sibling. If we examine only those contexts in which one or more sibs were present, and the mother was not in the immediate setting (so that joint care involving mothers and children could not occur), sibcare was observed on 48.9% of those occasions.

Thus sib caretaking is fairly frequent, but it is merged with a variety of other caretaking situations and is certainly not ubiquitous. Does it regularly occur among these families? Using ANOVA, we statistically assessed differences among the eight families, pooling all observations for each family. Dependent measures of sibcare included: (1) observations where the child was judged to be caring for another child; (2) instances where the child was judged to be in the care of another child; (3) the number of children being cared for (if child was a caretaker); and (4) a combined total for both caring for other children or being cared for by other children. All of the ANOVAs produced statistically significant results ($p < .001$). This means there are significant differences among the eight children in their experience of sibling caretaking; there were between-family differences.

However, the everyday experience of a particular child may still be relatively homogeneous and consistent. Are those individual children who are frequently involved in sibcare also *regularly* involved in it across the 20 afternoon visits; and are children who are seldom involved in sibcare consistently not involved? A second statistical test (F_{\max}) suggested a negative answer to both questions. The variance across the 20 observations for each child (16 for the one child) was computed, and the ratio of the largest to the smallest variance estimate (F_{\max}) was calculated. Every one of these F values was significant ($p < .001$). Thus the children varied significantly in their sibcare experiences across our repeated visits. Not only do children vary in their overall experience of sibcare, their experience of it is highly variable from day to day.

As a final indication of the variability across individuals and families in the observational data, we examined the homogeneity of each substantive measure of child language and social context which we assessed during our home observations. For example, we measured the use of Standard English among the children within various dyads (mother-child; girl-boy, etc.), and we recorded the activities in which the children were engaged (such as physical games, schoolwork, etc.). For each of 38 of these measures, we tested for heterogeneity of variance within each child (within subjects) and across the eight children (between subjects) over our 20 home visits. Thirty-one of thirty-eight measures (81.5%) were heterogeneous both within individuals and across families. The seven nonheterogeneous variables showed no particular pattern; language and social-interactional variables were equally likely to show both individual and family-level heterogeneity.

Although individual children vary widely in their direct exposure to sibcare, either as caretaker or charge, all children are likely to be

around peer groups where sibcare occurs, and to have friends or cousins who are involved in sibcare. It is a *pattern* familiar to all children, but an inconsistent and intermittent experience to a particular child.

Implications of Observation and Interview Studies

Although sibcare is a widely available and understood Native Hawaiian cultural mode of care, it is not uniformly practiced by our observation sample families. Parents' values and attitudes about the practice are not consistent either with respect to its importance, its effects or the reasons for its practice. Beliefs and attitudes about sibcare are not a result of differences in availability of personnel or experience, or demography and socioeconomic status of these families and parents. This result is consistent with recent work by other investigators working in natal home environments (Heath, Levin, and Tibbetts 1988), in a structured task (Farran and Darvill 1987), and in comparisons between school and home (Martini and Mistry 1987). In terms of the dimensions of cultural activity, sibcare and shared management is heterogeneous in the allocation and availability of personnel, in motivations for its practice, in cultural goals and beliefs regarding the practice, and in parents' views regarding appropriate ways to engage in the practice.

The picture of sibcare and shared management that emerges from these interviews and observations poses a fundamental challenge to earlier interpretations of the connection between sibcare and peer teaching in the learning centers at the KEEP school (e.g., Gallimore 1977; Gallimore, Tharp & Speidel 1978; Jordan 1984, 1985; Tharp et al. 1984). In several earlier papers we suggested that Native Hawaiian children responded well to peer teaching because of their pervasive experience with sibcare in the natal environment. We had reasoned that teaching/learning interactions with same-age peers was a familiar context which elicited attention and response from Native Hawaiian children.

What if any connection can we find, then, between the natal culture and response of Native Hawaiian children to peer teaching in KEEP learning centers? Is there any aspect of sibcare, peer relations, or other natal practices that could account for Native Hawaiian responsiveness to peer teaching in the independent learning centers?

These questions required an "unpackaging" of the Native Hawaiian practice of sibcare. To do this, we went back to the ethnographic data gathered during the home observation visits, and searched for the activity settings in which the Native Hawaiian children displayed school-relevant skills, such as language use or literacy-related activity. This was our guiding question—What activity settings in these children's homes appear to be supporting school-relevant interactions? We did not assume that sibcare was or was not a part of these interactions, or that peer assistance around literacy-related activities was

necessarily tied to sibcare or shared management. Rather, we started with the natal culture interactions we thought might be associated with classroom interactions and literacy development, and determined what co-occurred with these kinds of activities.

The search for school-relevant interactions (and transferable natal skills) focused on several possibilities, including children's language use, evidence of direct teaching or instruction in the home and community, and other evidence of literacy-related activity (such as reading, doing homework, etc.). We also took account of the personnel involved (adults, siblings, other children), as well as the tasks and interaction scripts present in the natal activity settings. The resulting procedure was a mix of qualitative and inductive analyses of field-notes, and quantitative treatment of ratings of specific features, such as language use.

Patterns of Language Use and Dyadic Interaction

The spot observations of eight children included, as well as frequency of sibcare, the occurrence of various kinds of adult-child and child-child interactions, including data on language use during child activities. Observers also made ratings of child activities and speech within kinds of dyads (mother-child, older boy-younger girl, etc.). These data were also supplemented by ethnographic notes recorded at each of the 154 home visits. (The ratings represented a reasonably accurate if crude picture of the kinds of interaction and talk observed; they are rough estimates, certainly not intended to be a substitute for transcriptions of field recordings of language.)

A summary of the *quality* of talk and language interactions among these children indicated that the children were often involved in joint vigorous social interactions which included talk if needed. Whether children talked about their activities depended on the kind of activity in which the child was involved. Sex, age, dyadic context, and activity setting all also influenced the use of language; however, the occurrence of sibcare by itself was not associated with more talk. We searched through our quantitative observations and qualitative field-notes for clues as to the activity settings associated with differential language use, beginning with the effect of mother-child versus child-child dyads.

Figure 1 presents the frequency of mothers' verbal interactions with children, which we call talkativeness; it was rated on a four point scale. Talkativeness *declined* from ages five to nine years between mothers and children. At the same time children's verbal exchanges with each other (child-child dyads) remained constant between younger and older ages. Mothers were much more often observed in closer proximity to their younger children. When mothers were with their younger children, they were more likely to be talking with them as compared to older children.

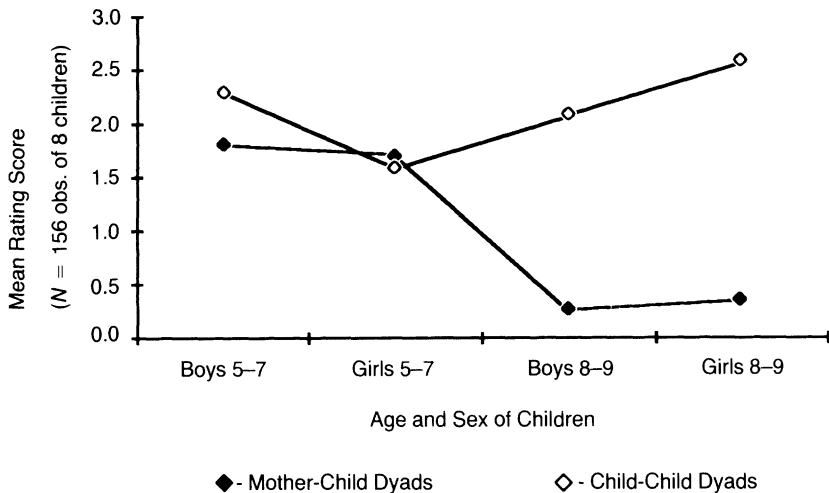


Figure 1
Overall Talkativeness/Volubility, by Dyad, Age, and Sex of Child

We did similar analyses for two other summary measures of language use in the home environment: the use of Standard English (SE) in children's interactions, and the complexity of the sentences or phrases that were used. The three language measures were all significantly correlated with each other at beyond the .0001 level: talkativeness and SE (.66); talkativeness and complexity (.81); complexity and SE (.73). Both complexity and SE use show a pattern similar to that for talkativeness: mothers were *less* likely to use Standard English or complex sentences with their older children. Children talking with each other, however, were likely to do so at about the same rate at younger and older ages.

Table 2 shows the language data by sex and age of the children combining all dyads. The trends shown in Figure 1 for talkativeness are statistically significant, and hold for SE and complexity as well: younger children were more talkative and used more SE and complex sentences than older children. In addition, girls showed more language facility in home activities than boys, both within child-child and mother-child dyads. These data indicate that personnel present makes a difference in the use of different kinds of child language. Older children are active and talkative with one another, but less so when with their mothers. What about other activity setting features, particularly the tasks children were engaged in, the scripted events which produced or were associated with literacy-related activities, and children's own goals and motives?

Contexts for Teaching and Learning Activities: Adults and Peers

To account for differences in patterns of language and teaching-learning interactions, we searched our fieldnotes for all instances of

Table 2
Four Language Measures by Sex and Age of Children, Across 156 Observations

	Sex Differences			Direction	Age Differences (5-7 vs. 8-9)			
	χ^2	df	p		χ^2	df	p	
Talkativeness/ volubility	15.00	3	.002	Boys <i>less</i> talkative	50.76	3	.0001	Younger children <i>more</i> talkative
Amount of Standard English	8.35	3	.04	Boys <i>less</i> SE (at lowest level—none heard)	77.11	3	.0001	Younger children <i>more</i> SE
Complexity of sentences	10.25	3	.016	Boys <i>less</i> complex	48.34	3	.0001	Younger children <i>more</i> complex

these activities. The observers had recorded such activities at each visit, since the field observation protocol specifically prompted the observer to include such data. Absence of information was not a false negative; no information indicated that these kinds of interactions did not occur.

Both teaching and school-related activities were observed fairly often during the home visits. Discussions among children or children and parents regarding school-related activity occurred in 17.9% of the observations, and collections of books or educational materials were noted in most homes.

Observers also indicated if "there were any attempts to duplicate or simulate school-related work, activities, situations, etc., by children." This occurred in 27.1% of 156 home visit protocols. Of these, half involved groups of children, and 38% involved the target child alone. Only 12% involved any adult.

Direct "teaching or skill/task-oriented information exchange" involving the target child was noted in 35% of the observations. Only 17.5% of these exchanges involved parents or other adults; the remainder involved children with siblings or other children. Verbal interchange was used about half the time (47%), and combinations of demonstration and mutual participation were the dominant techniques used in the remaining interactions.

Both older and younger children were engaged in similar activities associated with language use. Examples include getting a toy airplane off a roof, asking about vehicles driving by or in the parking lot, asking others to identify people, eliciting names and the kinship classification of people walking by, talking about food, and debating game rules.

In school-related information exchanges, children did homework, helped others with homework, read books and other materials, played counting games, and solved "school" and practical arithmetic problems (deciding how much candy could be purchased with the pooled funds children had, for example). Children occasionally requested assistance of parents and other adults for help in sounding out words, correcting spelling, and checking accuracy of computations. Parents and siblings sometimes initiated literacy- and numeracy-related conversations and activities, but over 70% occurred without parental involvement.

Examples of teaching/learning interactions taken from the observation notes show the nonsustained style of most adult-child interactions involved in school work or teaching, compared to child-child interactions:

Irini (F6) found a notebook which fell out of her mother's purse, and starts scribbling and writing in it. Mother: "You write your name? Write? You smart."

Mother is helping older sister of Irini with homework (math). Ipo and mother discuss KEEP work, and Irini says, "I do her work sometimes, Mommy, I do her work." Mother does not comment further.

Alicia (F7) asks her mother to help her with saying some words. She is reading from a book. Mother pronounces these words and helps her to pronounce them. But she also ignores Alicia during this session while talking to others in the room.

A great many of the teaching or information-exchange episodes occurred among children who were playing or hanging around the house. One child shows others how to do a chore or play a card game, or comments on others' competence or explains what something means. Some examples from our observation field notes give the flavor of these exchanges.

Kenny asks what traffic bumps are, which were built into the parking lot. "That is to cover up the street, because sometime the cars just go boom whooosh, braaaah."

Marty asks mother if one of the keys on a key chain is a house key for a certain room. He asks again. Mother shrugs, and does not reply. Marty leaves apartment, goes to 17th floor, uses key on the door, and it works. He then returns to his own apartment, and silently returns keys to mother.

Marty is reading from a storybook and is having trouble with words. Asks mother for help. Mother reads word in a slightly irritated tone, and then turns away: repeats with another word. Mother does not decode word or notice anything about the context of story, etc. Marty asks about the same word three times. Mother gets annoyed and criticizes child; child acts embarrassed, hesitant. Silence.

An older sister posed an arithmetic problem for Noesa, and instructed her to do it on her fingers. Noesa stood eagerly in front of her older sister and attempted to solve the problem.

In summary, children were seldom observed to be individually directed and monitored by adults or by older siblings (whether acting as caretakers or not). They are left considerable latitude both in what they do and how they do it. Children were expected to adapt to a situation by observing, and then to adopt competent performances without relying on verbal instruction and give-and-take. Children were not regularly treated as co-equal interlocutors by parents, nor did adults and children engage in negotiations over whether or how to do tasks and activities. It was far more common for adults to create commentary frames rather than elicitation frames (cf. Heath 1983; Ochs 1982). Rationales and reasons were seldom used by Native Hawaiian adults, and children infrequently negotiated with adults concerning resources and activities.

However, our analysis suggests that peer assistance was important in these children's daily activities, and that *teaching and learning activities occurred most often in child-constructed contexts*. What stands out in the ethnographic data on activity settings in which language or literacy-related events occurred, are child-initiated, child-managed, and child-driven contexts for behavior. Mothers were seldom involved in these situations. Although they were more likely to be involved in

talking with younger children, these interactions were not often "scaffolded" by mothers to guide their children, through questioning and example, to perform activities they otherwise could not have sustained alone.

Overall, these observations reveal children who shape their own style of interaction, communication and language use with parents, siblings, and peers. They have a great deal of influence over the sorts of interactions—verbal and otherwise—that occur in their daily routine. The children were inventive and vigorous in their play, and in engaging other children in their activities. Almost without exception language-mediated interactions emerged from, and were secondary to, activities the children were motivated to begin and sustain.

The activity settings in which language and literacy behaviors occur appear to involve child-generated tasks and largely child-assisted teaching and learning. Such activities are not directly tied to cultural institutions such as sibcare, but are related to the presence of peers and multi-age play groups of children in the natal environment. *Our revised cultural hypothesis, then, is that Native Hawaiian activity settings which have child-generated and assisted features (scripts requiring literacy-related behavior in child-generated activity) are the most likely sources for accommodations usable in classrooms.*

We turn, now, to an examination of KEEP classroom data on peer assistance and learning activity with this new hypothesis in mind: Child-generated literacy and language activity, in the context of child-generated tasks in which parents do not actively intervene, appears to have specific analogues to peer assistance patterns in KEEP classrooms.

Comparison of Child-Generated Activities and Peer Teaching Interaction Styles in Classrooms

At KEEP, peer teaching was and is encouraged in independent learning centers in which groups of three to seven children work together. Although the center work is teacher-assigned, adult monitoring—as in the home—is often distal. So long as each child produces, *how* the peer group in a learning center manages the tasks is left to them. This provides the children with considerable latitude, just as in the natal setting (Gallimore, Boggs, and Jordan 1974; Tharp et al. 1984).

For example, although students are encouraged to help each other, no specific guidelines are enforced for helping behavior in the peer centers. As a result, there arises a phenomenon Jordan (1982) called "scanning." She described two varieties: children scan the classroom environment for a possible source of assistance when they encounter difficulty; they also scan their own center for indications that others need help, and many peer assistance sequences begin by one child volunteering help to another.

There is considerable shifting between the role of assisted and role of assistant. A study of peer learning at the KEEP research school indicated one act of peer assistance per child occurred every 3 minutes in kindergarten and every 2.5 minutes in first grade (Jordan 1978a, 1978b). A wide range of peer assistance is provided, including modeling and direct intervention. For example, one or more children in a center may show a peer how to perform part of a task, or physically help another child perform. An "error signal" is also frequently used—an often unsolicited statement that what another child is doing is incorrect, which is in turn frequently followed by an offer to assist.

The personnel available in peer learning centers are more restricted than any circumstance we observed in the natal community. Although both sexes are present, the age range is more limited than at home since the KEEP school operates standard "age-graded" classrooms. However, there is substantial variability in performance and achievement levels among children in the peer centers. This provides for a range of expertise available when a child requires peer assistance. The mixed sex composition of both natal and learning settings may also represent an important cultural compatibility. Sex-segregated centers may produce less helping and more disruption among Native Hawaiian children (Tharp 1988; Vogt, Jordan, and Tharp 1987).

Tasks are assigned by the teacher and skills are practiced in which children are not equally competent. But with reciprocal aid, they can perform beyond the level at which each child could perform alone (Tharp and Gallimore 1988: chapt. 8). This creates many opportunities for peer teaching, which somewhat compensates for the restricted age range. Nevertheless, in absolute terms there is little similarity between the diversity of ages present at home and the narrow range in the classroom.

The tasks in the KEEP learning centers represent the range of contemporary educational practice. For example, on most days the children will be asked to complete comprehension activities that are intended to reinforce what was done in teacher-directed small group reading lessons. The children are also likely to do word decoding and sight vocabulary work. Depending on the grade level they might also work on dictionary skills, writing, and free-choice reading, among other activities.

At least some of these activities are present in the home environment. In fact, we sometimes observed that school papers were brought home from school and used as part of sibling group-created play activities. For example, in one family the target child "played school" with older siblings, and used KEEP workbooks to make the play more realistic; the children erased the pages already completed at school, and then did them again. However, it is also the case that such overlap in activities between home and school was not of high frequency, and there was little overlap between tasks assigned by adults at home and the tasks in peer learning centers.

Thus, in terms of personnel present and types of tasks there is limited similarity between home and the peer learning centers. Although males and females interact freely, the age mix of available peer teachers is far more restricted than the natal environment; the emphasis on literacy activities is far greater in the peer centers, and the range of activities available is more restricted. More importantly, unlike the natal environment, the freedom to select, initiate, and modify activities is less in the KEEP centers. The only compelling similarities are the absence of direct adult regulation or scaffolding of performances, and the opportunity for children to engage in shared activities, organized more or less as the children prefer.

Thus, what is most similar between the two settings is the interaction script involving child-managed assistance in tasks that we observed at home. As at home, the learning centers provide an opportunity for the children to "creatively" use a context, relying on self-regulated and mutually regulated sequences of activity. Natal settings and the KEEP classrooms share in common the following elements:

1. Flexible access to other children, both male and female, who are of equal, greater, or lesser skill.
2. Influence over the sorts of interactions—verbal and otherwise—that occur in their daily routine.
3. Opportunities to actively explore the allowable range of activities permitted in both settings.
4. Opportunities to create and redesign their activities and respond to their self-generated changes.
5. Low levels of immediate adult direction and monitoring.

It appears to be the interactional flexibility and opportunities for child-child assistance within the peer centers that the children find culturally compatible, since in most other respects the centers are clearly not isomorphic mirrors of natal activity settings. Centers are not similar to sibling caretaking as we observed it in the natal home settings (either as cultural pattern or implemented family practice). Rather, the family childcare structure—including but not limited to the use of sib caretakers—emphasizes the importance of the child's companion group rather than continuous mother monitoring and involvement. This in turn creates opportunities for child-directed and assisted activity in the natal culture. Some of these involve literacy-related activities. These limited parallels between classrooms and natal activities are what make peer centers at school familiar and comfortable as activity settings for the children.

Discussion and Conclusions

In broader terms the findings support the argument for selective accommodation of instruction to culture (Jordan 1981a, 1981b, 1982, 1983, 1985). Not all aspects of the classroom must be familiar to chil-

dren; and not all aspects of the peer learning centers must be similar to natal contexts. Selective accommodation is an alternative to the view that classrooms must reproduce an isomorphic representation of natal practices to resolve home/school discontinuities. In addition to the practical problems of an isomorphic solution to differential minority achievement, such a strategy would lead to segregation on an unimaginable scale. It could also produce rigid teaching based on a stereotyped and romanticized vision of minority culture. Unpackaging culture to identify accommodations crucial to child learning offers hope of a middle ground between home/school isomorphism (the stereotyping dilemma and "resegregation" described by Fillmore, Ogbu and Matute-Bianchi, and MacGroarty), and the equally dangerous neglect of cultural differences in schools.

There is much appeal in this strategy. Schools are places to learn *new* skills and behaviors. What a child brings to school from the natal culture is a foundation on which to build. Culture is a tool of adaptation, not a straitjacket, or cake of custom. Culture can, but does not necessarily, prevent a child from adapting to an unfamiliar situation. Quite the opposite can be true: culture can aid adaptation to the unfamiliar by providing options to resolve discontinuities between home and classroom.

Similarly, the family is a powerful agent of proactive adaptation to the world through socialization of children—not merely a transmitter of a uniformitarian cultural pattern. Cultures and families are not handicaps that require dramatic reformation of schools. They can be sources of innovative ideas and solutions because they are the storehouse of a range of adaptive solutions to ecocultural pressures (Weisner 1986).

To solve the problem of differential minority achievement is no simple matter. Schools require many changes: in social and political support, curricula, standards, quality of personnel, buildings, and materials (Commission on Excellence in Education 1983; Gross and Gross 1985). Our data cannot address the question of the *relative* importance of cultural accommodations compared to other essential reforms. But the needed accommodations to culture, in some cases, may be fewer than are sometimes assumed in discussions of the cultural discontinuity hypothesis. For Native Hawaiians, and perhaps other minorities, our data suggest limited accommodations in classroom practice can produce significant gains in achievement.

In the development of accommodations, the necessities of the classroom, and the skills to be taught limit what can be implemented—a fact so compelling in the case of KEEP that an evolutionary metaphor was used to describe the stages of development through which the sibcare/peer teaching and other accommodations proceeded (Tharp and Gallimore 1979, 1982). Classroom modifications were made in response to student interest and performance, rather than isomorphism

with natal culture practices. What remained at the end of the evolution was what worked and was comfortable for the children, not what "looked" Native Hawaiian. The peer learning centers that survived this evolutionary process do have parallels with Native Hawaiian child management structure, but isomorphic they are not. Given the need to accommodate both instructional necessity and Native Hawaiian culture, it makes sense that among the most successful KEEP developments was one based on socialization practices that are variably and flexibly used in the natal culture.

In each cultural context, careful research is necessary to identify the necessary and sufficient features of culture to which teaching and schooling must be accommodated and to discover those aspects of natal activity settings that can be adapted for use in the classroom. The importance of further work has been underlined by an extension of the "KEEP system" to another cultural context. A team from KEEP lived for several months on the Navajo Reservation in Northeastern Arizona (Jordan, Tharp, and Vogt 1985; Tharp 1988; Vogt, Jordan, and Tharp 1987). In collaboration with Navajo colleagues, they installed the KEEP reading program (including the peer learning centers) in a third grade classroom. As the installation unfolded, a careful record was maintained of the process and of the changes needed to make a "Native Hawaiian program" work for Navajo children. They discovered some changes were needed, each of which may reflect a major cultural difference between Native Hawaiians and Navajos. For example, they quickly discovered that Navajo children responded more favorably to centers which had fewer students and were segregated by sex. Unlike Hawaiian children, Navajo students found larger, mixed sex groups uncomfortable. As a result of the KEEP Navajo project, we discovered that it is probably important for Native Hawaiians that learning centers are sex-integrated; this is an example of a "hidden" cultural compatibility only revealed by comparative research using activity setting analysis. When the KEEP learning centers were first created, no one thought to include both males and females on the basis of Native Hawaiian culture.

What has been learned about Hawaiians and Navajos, and for other groups for which there are data, cannot substitute for the same identification process applied to yet other culture groups. There are no shortcuts to this knowledge; it would be a great mistake to implement the KEEP system, or any other, in another cultural context without the careful evaluation process which the KEEP Navajo research team undertook. In time we can hope that a general set of principles will be revealed that will speed the accommodation process for all children for whom the benefits of education are denied because of incompatibility between home and school.

Nothing in our data weakens the assumption that there is a "Native Hawaiian culture." A complete cultural analysis obviously has many

components that we have omitted. We have not dealt with the metaphors and cultural codes that structure and give meaning to life in an integrated cultural system, for instance. Our analyses suggested at least two quite widely shared patterns: the importance of children's peer companion groups in everyday activities; and the engagement of children in collaborative tasks, including child care. These are a part of still wider systems of moral codes and beliefs about the self and about the importance of the extended family. It is not our aim to discount the role of culture, defined in more general terms, in the analysis of differential minority achievement. Cultural analysis at this general level is necessary, but not sufficient when the goal is creation of more effective and sensitive educational programs that are accommodated to the natal experiences of minority children. To achieve this goal, we need an understanding of how culture is variably instantiated in children's activity settings.

Notes

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1. As a result of the evaluation data, the project was concluded in 1980 and a continuing program (Kamehameha Elementary Education Program) was established as one of several educational efforts of The Kamehameha Schools/B. P. Bishop Estate. A major task of this program is the dissemination of the KEEP language arts program to public schools serving Native Hawaiians.

2. Scores for each of the 56 families in the full interview sample were created for parental reports of sibcare practices, attitudes regarding the consequences of sibcare, and socioeconomic status measures (income, education, and occupation and work roles). We also examined the number of hours parents are available in the home when not at work, and the sharing of other domestic tasks by the mother with her mate, children, and other relatives.

3. Visits to the eight households in the observational sample were done early in the afternoon (about 3:00 to 3:45) or later in the afternoon (about 3:45 to 4:30). The 20 visits made to each family were randomized and counterbalanced by household, by time of visit (early or late afternoon), and by the two fieldworkers doing the observations. Immediately upon locating the KEEP child the observer completed a "spot observation" procedure (Rogoff 1978). These procedures and the child interviews which accompanied them are reported in Weisner, Gallimore, and Tharp (1982).

In addition to this initial "snapshot" of the child and his or her setting, data on the social context around the child, the child's activities, and teaching, learning, and language data were all obtained during approximately 20 minutes of additional field observation following the initial spot observation. Some questions about the child's own perception of his or her activities, and a brief talk with the parents if present concluded each field visit.

Another sample of KEEP families, not among the eight households in the study, was used for training and reliability purposes. Repeated parallel observations at these practice households were used to establish field procedures, definitions, and reliability. The two observers had to be in exact agreement for all present/absent or categorical judgments, and within one scaled value for other rated scores such as social context (people present, activities, etc.), judgments of language use, caretaking, information exchange, etc. Observations did not begin on the target sample until 70% or better agreement was obtained. After every 10 field visits, another parallel visit to a practice household was done for purposes of recalibration and assessment of reliability. Overall percent agreement was 76.3. All major variables of interest, such as sibcare data, were over 80%.

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