

Research Article

THE CULTURAL BOUNDS OF MATERNAL ACCOMMODATION: How Chinese and American Mothers Communicate With Deaf and Hearing Children

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Abstract—*Children with special needs typically require family accommodation to those needs. We explore here the extent to which cultural forces shape the accommodations mothers make when communicating with young deaf children. Sixteen mother-child dyads (8 Chinese, 8 American) were videotaped at home. In each culture, 4 mothers interacted with their deaf children, and 4 interacted with their hearing children. None of the deaf children knew sign language, nor spoke at age level. We found that mothers adjusted their communicative behaviors to their deaf children, but in every case, those adjustments were calibrated to cultural norms. American mothers, for example, increased their use of gesture with deaf children but stopped far short of the Chinese range—despite the obvious potential benefits of gesturing to children who cannot hear. These findings provide the first cross-cultural demonstration that children are, first and foremost, inculcated into their cultures and, only within that framework, then treated as special cases.*

Cultures differ in their attitudes toward children and child rearing (e.g., Ochs & Schieffelin, 1984; Smetana, 1994), and, consequently, parents across the globe differ in how they behave with their children (LeVine, Miller, & West, 1988). The cultural structuring of a child's development, the "developmental niche" (Super & Harkness, 1986, p. 546), has three components: the physical and social settings in which the child lives, the customs of child care, and the psychology of the caretakers. Part of becoming socialized is the process of adapting to one's developmental niche. But niches themselves can adapt, as they do, for example, to the varying abilities of children of different ages (Super & Harkness, 1986, p. 562).

"Family accommodation" is the term Gallimore and colleagues (Gallimore, Weisner, Bernheimer, Guthrie, & Nihira, 1993, p. 186) used for the process by which families adjust to their sometimes conflicting circumstances in establishing a daily routine for a child—any child, but particularly a child with a handicapping condition. Gallimore et al. suggested that families with young children who are developmentally delayed accommodate to those children in ways that are endorsed by the culture. Parental attempts to socialize children experiencing delay rarely exceed the bounds of cultural and social propriety—at least within American society.

These claims, as sensible and intuitive as they may be, are based exclusively on single-culture research. As Gallimore et al. (1993, p. 194) themselves pointed out, they lack a comparative base. Many studies have observed parental adjustment to children with handicap-

ping conditions within a culture (e.g., Gallimore et al., 1993; Weisner, 1993; Weisner, Matheson, & Bernheimer, 1996), and many have observed parental socialization of typically developing children across at least two cultures (e.g., Bornstein, 1991). Few studies have done both. In this study, we did just that. We observed a slice of daily behavior across two cultures (the United States and Taiwan), looking at normally developing hearing children and at deaf children whose hearing losses prevented them from acquiring the spoken language to which they were exposed. We explored the extent to which family accommodation is bounded by cultural norms, particularly in areas where the norms are not explicit, but rather are the unconscious routines of everyday behavior.

It is well described that Chinese and American parents socialize their children differently. In particular, there is a focus on work and instruction in Chinese homes that is often absent in American homes, where children are seen as coming to the learning situation with their own limitations and talents that influence parental involvement (e.g., Stevenson & Stigler, 1992). Given these differences, one might suspect that parents in these two cultures would deal differently with children who are deaf. The question is, how differently? Does deafness itself impose constraints on parents' interactions with a child, perhaps forcing them to extend beyond the limits of cultural parenting norms? Or are parents strictly bound by their cultural norms, at times finding themselves providing what might seem, from another culture's vantage point, like less-than-optimal input?

Before describing our study, we briefly review what is known about attitudes toward children in general, and children with disabilities in particular, in the two cultures that are our focus.

ATTITUDES TOWARD CHILDREN AND CHILD REARING IN CHINESE AND AMERICAN CULTURES

Chinese child rearing is often considered to be grounded in Confucian social philosophy and traditions (Chao, 1994). Two aspects of this philosophy are relevant to the questions we pursue here. First, a deep belief in the alterability of human nature (Munro, 1977) is the bedrock for the notion that change is possible and that hard work and effort are necessary to effect that change. Second, the importance of linear hierarchies, particularly the parent-child hierarchy within the family (Pan, Chaffee, Chu, & Ju, 1984), establishes parents as having serious responsibility for effecting change in the child. In contrast to Chinese culture, American culture places less emphasis on hierarchical relationships and more on egalitarian relationships between parent and child (Bornstein, Tal, & Tamis-LeMonda, 1984; Kessen, 1975; Pan et al., 1984), and places less emphasis on the importance of hard

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work and effort on the part of both parent and child and more emphasis on the child's own talents (C. Chen & Uttal, 1988; Stevenson & Stigler, 1992; Suzuki, 1980; Tobin, Wu, & Davidson, 1989).

Consistent with these attitudes, Chinese parents, more than American parents, have been found to favor practices that result in control over their interactions with their children (Lin & Fu, 1990). Although this finding is not in doubt, its meaning has been questioned. Chao (1994) suggested that applying the American term "authoritarian" to Chinese parents is an ethnocentric act, one that fails to capture Chinese concern with the importance of training rather than mere control. The motivation that leads parents to control interactions with their children may be a factor in determining whether they extend the pattern to children with special needs.

ATTITUDES TOWARD CHILDREN WITH DISABILITIES IN CHINESE AND AMERICAN CULTURES

Unlike beliefs about child rearing, which have tended to be homogeneous and stable throughout Chinese history, Chinese attitudes toward the disabled have varied greatly. For example, although traditional Chinese teachings rooted in Confucianism expounded humanitarian treatment of the disabled (Suzuki, 1980), there is also an ancient Chinese belief that a deformed child means misfortune for the whole family (Liljestrom, 1982). In contemporary Chinese society, disabled individuals are frequently viewed as second class (D.W. Chen, 1989). In the United States, individuals with disabilities are also often considered second-class citizens (Goffman, 1963; Richardson, Goodman, Hastorf, & Dornbusch, 1961; Safilios-Rothschild, 1970), although recent political movements have succeeded in raising the profile of disabled persons (Gannon, 1989; Scotch, 1988; whether these movements have substantially changed attitudes is another, open question). Do these views affect how parents treat their disabled children?

Little attention has been paid to how Chinese parents interact with their deaf children. Interestingly, however, when researchers characterize American mothers' interactions with their deaf children, they often describe them as "controlling" (Brinich, 1980; Wedell-Moonig & Lumley, 1980)¹—precisely the term that is frequently applied to Chinese mothers' interactions with their normally developing children.

Our goal here is to situate these findings within a cultural context—to determine, for example, whether Chinese mothers "control" their communicative interactions with their deaf children as they do with their hearing children, and to situate American mother-child interactions within this cross-cultural range of variation. In addition to exploring the function of mothers' communications, we examine their form, focusing on the verbal and nonverbal aspects of maternal communication.

1. Note, however, that American mothers' attempts to control interactions with their deaf children may reflect the difficulties inherent in capturing and maintaining the children's attention, rather than a desire to dominate the conversation. Indeed, as we discuss later, both the Chinese and the American mothers found it necessary to recruit nonverbal means to get their deaf children's attention.

METHOD

Participants

Sixteen pairs of hearing mothers and their children participated in the study, 8 Chinese dyads from Taipei, Taiwan (4 with hearing children, 4 with deaf children), and 8 American dyads from Philadelphia or the Chicago area (4 with hearing children, 4 with deaf children). The children were all from middle-class homes and, to the extent possible, were balanced across the four groups according to age (ranging from 3 years, 10 months to 4 years, 5 months), sex (2 girls, 2 boys), and family background (see Futorian-Saltzman, 1998, for detailed descriptions of the individual children and families).²

All 8 deaf children were congenitally deaf (with severe to profound hearing losses) and no other known physical or cognitive disabilities. The data on the American deaf children were collected in the 1970s (Goldin-Meadow, 1979; Goldin-Meadow & Mylander, 1984), when oral education (i.e., training the child to attend to sound and to read visual and kinesthetic cues from the lips and throat) was a very common approach to training deaf children. Data on the Chinese deaf children were collected more recently. However, attitudes toward deaf education have changed slowly in Taiwan; thus, at the time of videotaping, oral programs were still prevalent in Taipei. The parental decision to select oral education over training in sign language is, from the start, a conscious attempt to adapt children to parental cultural practices rather than adapting cultural practices to children (cf. Ochs & Schieffelin, 1984).

In general, the average profoundly deaf child in an oral program has a markedly reduced verbal linguistic capacity relative to normally developing children of the same age (Conrad, 1979; Mayberry, 1992). The deaf children in our study were no exception. All were severely limited in their ability to communicate verbally with their parents, occasionally producing single spoken words but never combining two spoken words in the same utterance.

All 8 deaf children were, however, able to communicate with their hearing parents using spontaneous gestures (Goldin-Meadow & Mylander, 1998).³ The children's gesture systems were not modeled after a conventional sign language, as none of the children had, at the

2. The two groups also differed in a number of factors other than the cultures in which they were being raised, for example, race, historical time (1970s vs. 1990s), and language. Efron (1941/1972) considered, and convincingly rejected, the possibility that rate of gesturing has a genetic base in his groundbreaking work published nearly 60 years ago. It is possible that the 20-year difference in when the videotapes were taken could account for the cross-cultural differences we found in gesture rate. However, in a recently conducted study of adult-to-adult talk, Duncan (1996) also found that Chinese speakers gestured a good deal more than American speakers. We consider the role language might play in creating differences in gesture rate in the Discussion.

3. The structural properties of the gestures produced by 3 of the 4 American deaf children and their mothers, and 3 of the 4 Chinese deaf children and their mothers, were described in Goldin-Meadow and Mylander (1998). How often each partner initiated communicative interactions was described for 2 of the deaf children and their mothers in each culture in Wang, Mylander, and Goldin-Meadow (1995). In addition to adding to our sample and our measures of verbal and nonverbal behaviors, this report focuses on whether the behaviors mothers exhibit when interacting with deaf children are within the range of behaviors exhibited with hearing children within each culture; that is, our purpose is to situate the phenomena within the range of cultural variation.

time of videotaping, been exposed to input from American, Chinese, or Taiwanese Sign Language, Signed English, or Signed Mandarin.

Procedure

Each child was videotaped interacting at home for 1 to 2 hr with his or her primary caretaker, the mother in all cases. A standardized set of toys and books familiar to both the American and the Chinese children was brought to the taping session to facilitate interaction (cf. Goldin-Meadow, 1979).

Videotape Coding

A 30-min sample of the play session was coded for each mother-child dyad, beginning when the pair established joint attention. In order to assess the mother's attempt to control the interaction, we measured how often the mother (as opposed to the child) initiated an event. An event was defined as the period of time when the dyad maintained joint attention around a specific toy or object. We also determined how many turns the mother and child took in a communicative event. A turn was defined as the period when the individual had the "floor," established by either verbal or nonverbal behaviors. Finally, to assess whether the mother's goal in the interaction was to teach her child, we counted the number of verbal utterances with an instructional intent that she produced (e.g., "It's a bird; birds fly in the sky").

To assess the form of the mothers' communications, we coded the verbal and nonverbal behaviors that mothers directed toward their children. We counted the total number of verbal utterances produced by each mother (an utterance was defined as a verbalization followed by a pause), and the number of propositions contained within each

utterance (defined by the number of true verbs in the utterance). We also counted the total number of attention-getting behaviors (e.g., tapping the child's arm, waving at the child, physically manipulating the child's face or arms) and the number of gestures (points, iconics, nods, hand flips, etc.; cf. Goldin-Meadow & Mylander, 1984) that each mother produced.

The original transcription and coding was done by a native speaker in English or Mandarin. Overall, 6,873 behaviors were transcribed, 5,041 verbal utterances and 1,832 nonverbal behaviors. A second individual independently coded a subset of the tapes across 12 mother-child dyads to establish reliability. Agreement between coders was 88% ($N = 120$) for initiations, 90% ($N = 60$) for turns, 84% ($N = 240$) for instructions, 90% ($N = 360$) for verbal utterances, 88% ($N = 360$) for propositions per utterance, 95% ($N = 360$) for attention-getters, and 85% ($N = 60$) for gestures. For each analysis, data were entered into an analysis of variance with culture (American vs. Chinese) and hearing status (hearing vs. deaf) as between-subjects factors. Proportional data were subjected to an arcsine transformation before analysis.

RESULTS

Maternal Initiations

Figure 1 (left panel) presents the mean proportion of communicative events that mothers initiated when interacting with hearing or deaf children in the two cultures. Chinese mothers were significantly more likely to initiate events than American mothers, $F(1, 12) = 48.38, p < .0001$. Seven of the 8 Chinese mothers initiated more than 70% of events with their children, and the 8th initiated more than 60%. In contrast, none of the American mothers initiated more events

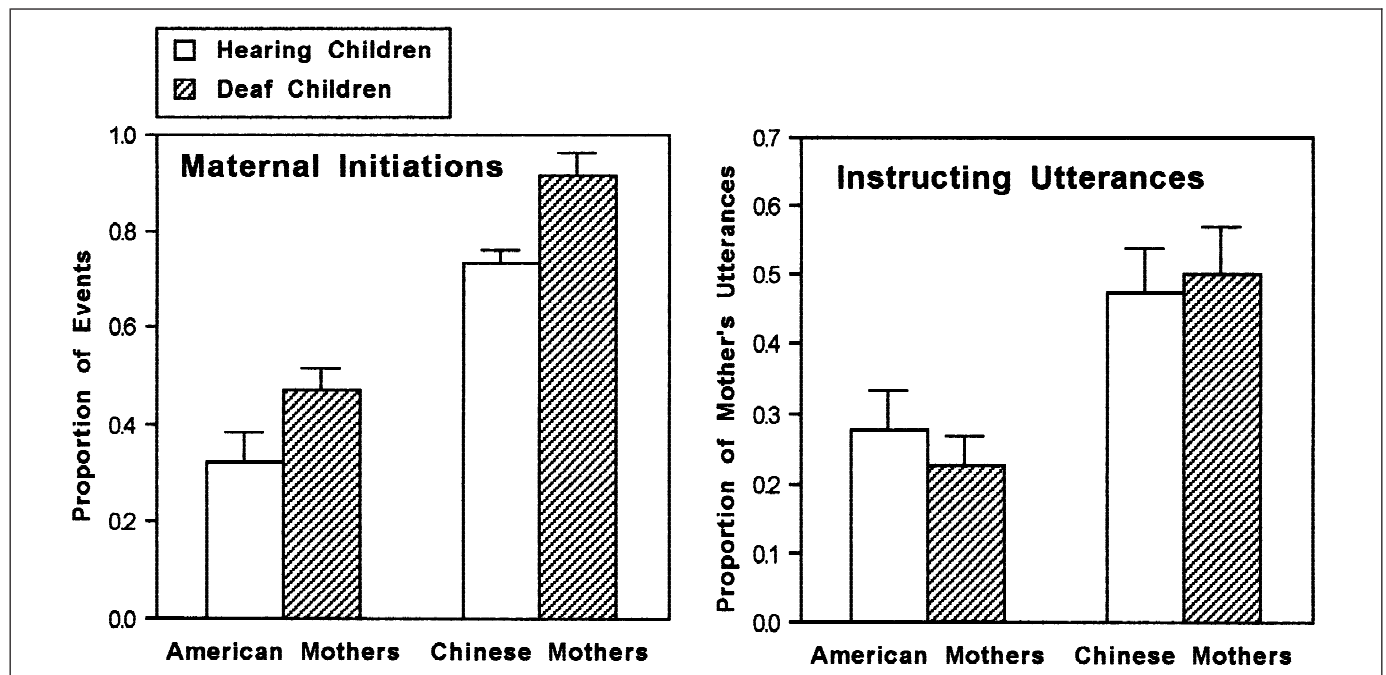


Fig. 1. Proportion of events that American and Chinese mothers initiated (left panel) and proportion of utterances that they used for instruction (right panel) when interacting with a hearing child versus a deaf child. Error bars indicate standard errors.

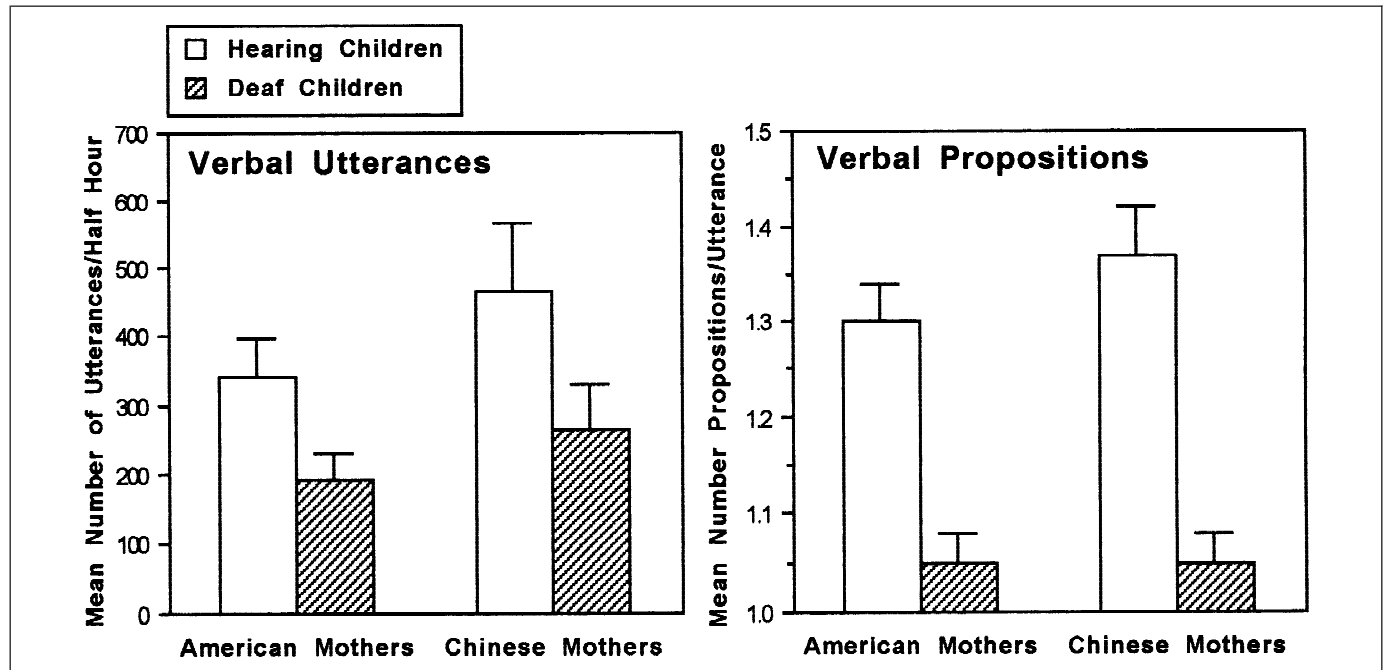


Fig. 2. Mean number of verbal utterances (left panel) and mean number of propositions per utterance (right panel) that American and Chinese mothers produced per half hour of interaction with hearing versus deaf children. Error bars indicate standard errors.

than their children. The child's hearing status also had a significant effect on maternal initiations, $F(1, 12) = 10.17, p < .01$. Mothers in both cultures initiated more interactions with deaf than hearing children.

What might be the motivation for the Chinese mothers' high rate of initiations? Their goal did not appear to be to dominate the interactions. Chinese mothers took 33.6 ($SD = 15.8$) turns per event; their children took 31.0 ($SD = 19.3$).⁴ Chinese mothers were thus no more actively involved in the interactions than their children. Another possibility is that Chinese mothers' initiations stemmed from their desire to create opportunities to teach their children. To explore this hypothesis, we measured the proportion of mothers' utterances devoted to instruction (Fig. 1, right panel). Chinese mothers produced significantly higher proportions of instructing utterances than American mothers, confirming the importance of training in the Chinese family, $F(1, 12) = 14.40, p < .005$ (cf. Chao, 1994). There was no effect of hearing status in either culture: Chinese and American mothers instructed deaf children no more often than hearing children.

Maternal Verbal Communication

All of the mothers in both cultures were committed to teaching their deaf children to speak, and thus talked to their children during all interactions. Nevertheless, the mothers may have altered the amount

4. Comparable rates for American mothers and children were 18.6 ($SD = 8.1$) versus 13.9 ($SD = 7.8$) turns per event. There was a significant difference between number of turns taken by Chinese versus American mothers, $F(1, 12) = 6.59, p = .021$; however, there was no reliable difference between number of turns taken by mothers versus children in the two cultures, $F(1, 12) = 4.28$, and no reliable difference between number of turns taken in deaf versus hearing dyads, $F(1, 12) = 2.72$.

or complexity of their talk, particularly because none of the deaf children in our sample used speech at an age-appropriate level. To explore this hypothesis, we examined the talk the mothers addressed to their children.

Figure 2 presents the mean number of verbal utterances mothers in each group produced per half hour (left panel) and the mean number of propositions they conveyed within each utterance (right panel). The mothers produced significantly fewer ($F[1, 12] = 6.48, p < .05$) and less complex ($F[1, 12] = 58.77, p < .001$) utterances to deaf children than to hearing children. There was no effect of culture: Chinese and American mothers produced the same levels of talk with hearing children, and made precisely the same adjustments in that talk when addressing a deaf child.

Maternal Nonverbal Communication

One might expect that to compensate for decreasing their amount of talk to a deaf child, mothers would increase their nonverbal communicative behaviors. To test this hypothesis, we examined two distinct types of nonverbal behaviors—actions that mothers use to capture children's attention (tapping, touching, waving, motoring children through an activity) and gestures that mothers use symbolically to convey information to, or make requests of, children (pointing or iconic gestures). Figure 3 presents the mean number of attention-getting behaviors (left panel) and gestures (right panel) that the mothers in each group produced per half hour of interaction. As expected, the mothers produced significantly more attention-getters with deaf than hearing children, $F(1, 12) = 24.76, p < .001$. There was no effect of culture: Chinese mothers were no more likely than American mothers to make nonverbal bids for their children's attention.

In contrast, as the right panel of Figure 3 displays, Chinese moth-

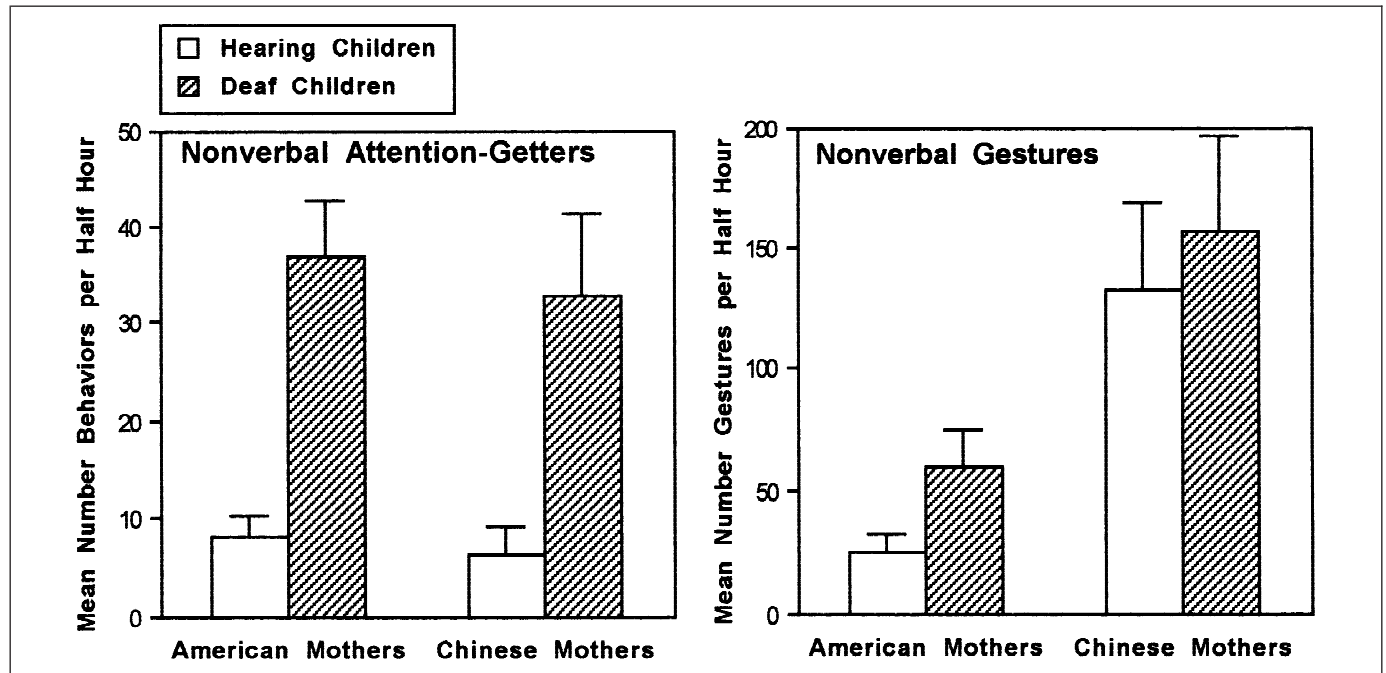


Fig. 3. Mean number of nonverbal attention-getting behaviors (left panel) and gestures (right panel) that American and Chinese mothers produced per half hour of interaction with their hearing versus deaf children. Error bars indicate standard errors.

ers were three times more likely than American mothers to produce gestures when interacting with their children, $F(1, 12) = 12.69, p < .005$. Although mothers in both cultures did produce more gestures with deaf than hearing children, this difference was not statistically significant, $F(1, 12) = 1.10, p < .31$.⁵ Analyzing this phenomenon in another way, we controlled for number of verbal utterances and found that Chinese mothers produced gestures with a three-fold higher proportion of their utterances compared with American mothers (.56 vs. .18), $F(1, 12) = 8.10, p < .01$; again, there was no significant effect of hearing status, $F(1, 12) = 1.06, p < .32$.

This cultural difference in gesture use is illustrated by the following interactions. In response to a picture of a doctor examining a patient, an American mother said to her child, "Look at this picture; look, this one has different people doing different things," and produced no gestures. When looking at the same picture, a Chinese mother said, "Let's visit the doctor and we'll listen with our ears," while producing two iconic gestures—pounding on the child's chest as a doctor might during a physical examination and pantomiming

5. It is possible that American mothers gestured less to their deaf children than did Chinese mothers because they were more committed to a narrow view, put forth by some oral programs, of what counts as acceptable communication with a deaf child—that one should not provide any visual cues, including gesture, when conversing with a deaf child; the rationale behind this recommendation is that such cues make it less likely that the child will fully utilize his or her diminished auditory abilities. However, a bias of this sort would not account for the robust differences we found in the Chinese versus American mothers' use of gesture with their hearing children. Moreover, none of the mothers in either our American or our Chinese sample expressed this attitude toward gesture and other nonverbal behaviors. Indeed, the mothers in both cultures were very comfortable using a large number of nonverbal attention-getting behaviors with their deaf children (Fig. 3, left panel).

using a stethoscope. This example illustrates the Chinese mother's predilection for gesture, as well as her (perhaps not unrelated) tendency to take every opportunity to instruct her child (cf. Fung, 1999).

DISCUSSION

Are there constraints on the communicative accommodations a mother makes in response to the special needs of her deaf child? It seems obvious that the child's condition will have an impact on maternal adjustments. But do the accommodations called for by the child's condition determine maternal behavior? Gallimore et al. (1993) suggested that these potential accommodations must be culturally conditioned, filtered through the unwritten, and often unacknowledged, customs of the community. Ours is the first study to test this hypothesis empirically, examining maternal accommodations to the same child condition (deafness) across two cultures rather than within a single culture. Although our sample is small and thus cannot be considered representative, our findings do confirm previously found cross-cultural patterns in mother-child interaction and tentatively extend those findings to interactions with deaf children. In this section, we first discuss how Chinese and American mothers differed in their communicative interactions with hearing children. We then discuss whether communicative interactions with deaf children stayed within, or extended beyond, the range of these patterns in each culture.

Cross-Cultural Comparisons of Communicative Interactions

As expected, we found differences in how often mothers initiated communicative interactions with children in the two cultures—Chinese mothers initiated interactions more often than American

Cultural Constraints on Maternal Accommodation

mothers. This cross-cultural pattern is, in fact, a general one, appearing also in how often mothers initiate play with their hearing children (much more in Taiwan than in the United States; Haight, Wang, Fung, Williams, & Mintz, 1999). Why did Chinese mothers initiate so many interactions with their hearing children? One possibility, often cited in the literature (e.g., Lin & Fu, 1990), is that Chinese mothers want control over their children; they thus might initiate interactions to establish this control. Our data, however, suggest otherwise. Chinese mothers did not, in fact, dominate interactions with their children: On average, the child took as many turns per interaction as the mother. Even more important is the nature of those turns. Half of the utterances included in the Chinese mothers' turns were instructional, significantly more than for the American mothers. It is possible that the Chinese mothers' high rate of initiations reflects their desire to create opportunities to instruct their children (Chao, 1994; Stevenson & Stigler, 1992). According to Fung (1999; see also Miller, Wiley, Fung, & Liang, 1997), the notion of "opportunity education" involves two linked ideas—that the child's immediate experience provides an opportunity to situate teaching in concrete terms and that parents should take advantage of these opportunities as they arise. The Chinese mothers in our study did just that, frequently initiating interactions with their children and offering instruction within those interactions.

In terms of the form of communication, we found no differences in the amount and complexity of speech that Chinese and American mothers addressed to their children, nor in the number of nonverbal bids they made for their children's attention. We did, however, find that Chinese mothers used gesture along with their talk far more than American mothers—a pattern that Duncan (1996) also found in narratives produced by Chinese and American adults in an experimental situation.

Accommodations to Deaf Children

Regarding mothers' accommodations to deaf children, we found that mothers in both cultures initiated more interactions with deaf children than with hearing children (but, interestingly, did not produce more instructional utterances with deaf than hearing children). Note, however, that the mothers' adjustments to deafness remained within cultural bounds. Although American mothers increased their initiations when interacting with their deaf children, their increases did not extend into Chinese norms.

Adjustments mothers made in the form of their communications also remained within cultural bounds. In areas where we found no cross-cultural differences with hearing children—amount and complexity of talk to children, number of nonverbal bids for children's attention—mothers' behaviors with deaf children were identical across the two cultures. Mothers of deaf children in both cultures produced speech at the same relatively low rate, and at the same relatively low complexity, and produced nonverbal attention-getters at the same relatively high rate.

These adjustments seem intuitively reasonable, and accord with previous findings on American mothers' verbal (Cheskin, 1981; Nienhuys, Cross, & Horsborough, 1984) and nonverbal (Henggeler, Watson, & Cooper, 1984; Wedell-Moonig & Lumley, 1980) behaviors with deaf children. Although all of the mothers in our study were committed to teaching their deaf children to talk, they (like mothers of hearing children; Snow, 1972) adjusted the level of their talk to the skills of their child listeners. Because none of the deaf children in our

sample was able to produce and understand speech at age-appropriate levels, it is not surprising that their hearing mothers found it necessary to, in a sense, "talk down" to their children. Conversely, because the deaf children were unable to hear their mothers' verbal calls for attention, it is not surprising that their hearing mothers found it necessary to increase the number of nonverbal bids for attention that they directed to their children.

It is surprising, however, that the mothers were not driven by the same forces in their production of gestures. We might imagine, given the deaf children's extremely limited abilities in understanding talk, that their hearing mothers would have made increased use of the modality that was easily accessible to their children—the manual modality. Indeed, the deaf children themselves used spontaneous gesture as their primary means of conveying information to their hearing parents and siblings (Goldin-Meadow & Mylander, 1984, 1998). Although mothers in both cultures did produce more gestures with deaf children than with hearing children, this difference was dwarfed by the cross-cultural differences in gesture use. There was no overlap in the distributions for the two cultures: Chinese mothers, whether interacting with a deaf or hearing child, produced significantly more gestures than American mothers, even those interacting with a deaf child.

The paucity of gesture in the American mothers' communications with their deaf children is particularly striking given that, in general, American parents try to accommodate to the needs of their children (Ochs & Schieffelin, 1984). Ochs and Schieffelin argued that cultures vary along a continuum from "parents adapting situations to children" to "parents requiring children to adapt to situations," with American middle-class culture falling on the "adapting situations to children" end of the continuum. Americans, for example, childproof their homes, provide toys and child-scaled objects for children, and adapt their speech to the limited language abilities of young children. In fact, children have been found to grasp the message conveyed in speech better when it is accompanied by gesture than when it is not (Goldin-Meadow, Kim, & Singer, 1999). We therefore might have expected that mothers—and particularly American mothers, who generally try to accommodate to their children's needs—would use a great deal of gesture when talking to children. It turned out, however, that the Chinese mothers, not the American mothers, gestured frequently with their children. We suspect that there are different norms for rate of gesturing in Chinese and American cultures (although these differences are not widely known, and certainly not acknowledged). The American cultural bias to accommodate to children must compete with other cultural pressures and may, at times, be overridden.

Cultural differences in rate of gesturing have been observed and studied for many years. Efron (1941/1972) examined the spontaneous gestures of Jewish and Italian immigrants to the United States and found differences in gesture rate and form. These ethnic characteristics were diminished in the next generation, assumed to be assimilated into American culture. It is not at all clear what lies behind cultural differences in rate of gesturing. One possibility is that they reflect culturally varying attitudes toward body movement in general. Another possibility, particularly relevant to the differences found here between Chinese and American mothers, is that differences in gesture rates may reflect differences in the function of talk. Within American culture, gesture is frequently observed in situations in which speakers are called upon to give explanations (Alibali, Bassok, Solomon, Syc, & Goldin-Meadow, 1999; Goldin-Meadow, Alibali, & Church, 1993)

and to teach (Neill, 1991). Thus, it is possible that the Chinese mothers' relatively frequent use of gesture reflects their heightened interest in instructing their children (although this explanation would not account for differences in rate of gesturing found in adult-to-adult talk; cf. Duncan, 1996). Finally, it is possible that Mandarin (the language our Chinese mothers spoke with their children) lends itself to higher gesture rates than English, a hypothesis consistent with McNeill's (1992) view that gesture and speech form an integrated system in all speakers. Variations in syntactic features of spoken languages have been found to correlate with differences in the spontaneous gestures that accompany those languages (McNeill & Duncan, in press).⁶

Whatever the cause of these cultural differences, it is clear that mothers adhere to them when settling upon a gesture rate for interacting with both deaf and hearing children. American mothers had plenty of "room" to increase gesturing to accommodate their deaf children's difficulties with speech. Indeed, communication might have flowed more easily had the American mothers done so. We suggest that the mothers refrained from increasing their gesture rate, at least in part, because too much gesturing exceeds the cultural schema (D'Andrade, 1992) or model (Holland & Quinn, 1987) American mothers implicitly use to guide their communication with children—it might well have felt, albeit unconsciously, "un-American."

Interestingly, there is at least one group that is comfortable violating what appear to be American norms for gesturing to young children. Deaf mothers who themselves use oral language (rather than sign) produce a very large number of gestures (not signs) when talking to their deaf children—15.6 gestures per minute (DeVilliers, Bibeau, Ramos, & Gatty, 1993), compared with 2.0 per minute for our sample of American hearing mothers of deaf children, and 5.2 for our sample of Chinese hearing mothers of deaf children. These deaf mothers are not likely to produce speech with the same fluency and rhythmicity as hearing mothers; thus, their gestures may have to be integrated with a very different type of spoken system than our hearing mothers' gestures (cf. McNeill, 1992). In addition, and perhaps more important, orally trained deaf adults do not always fit seamlessly into American hearing culture (cf. Padden & Humphries, 1988). As a result, they may not have the same implicit cultural model as hearing mothers, and may not be guided by the same norms of conversation. This group may therefore be the exception that proves the rule.

To summarize, we have shown that the accommodations mothers make to the special needs of their children are constrained—by both the children themselves and the norms that guide how one behaves with children. Mothers' adjustments to their deaf children were calibrated to cultural norms—despite the fact that defying those norms might well have facilitated communication with their deaf children. A priori, we might have expected that children with special needs would be treated in similar ways across different cultures simply because their conditions require the same type and level of caretaking. However, children—even children with disabilities—are being inculcated

into a culture. Our findings provide the first cross-cultural demonstration that, for at least some conditions, children are first inculcated into their cultures and, only within that framework, then treated as special cases.

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6. Note that explaining the cross-cultural differences in rate of gesturing as a function of language need not involve cultural factors per se. It is possible, for example, that if the Chinese mothers were to speak English to their children, they too would gesture less. To test this hypothesis, one would need to separate language from culture, which is difficult, although perhaps not impossible, to do; one could, for example, examine gesture rates in languages that are syntactically similar but used by groups whose cultural practices and beliefs vary widely.

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