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Contributions of Societal Modernity to Cognitive Development: A Comparison of Four Cultures

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This study examined how societal changes associated with modernization are related to cognitive development. Data were from 4 cultural communities that represented a broad range of traditional and modern elements: the Garifuna (Belize), Logoli (Kenya), Newars (Nepal), and Samoans (American Samoa). Naturalistic observations and the performances of 3-, 5-, 7-, and 9-year-old children (N = 192) on 7 cognitive measures were examined. Results replicated age-related improvement on all measures. Contributions of modernity were evident in children's play behaviors and cognitive performances, especially in skills related to schooling. Modernization and schooling independently predicted differences on most of the measures. Results are discussed in relation to the Flynn effect, the worldwide increase in cognitive scores across generations, and the ways in which societal modernization may contribute to cognitive development.

Cultural contributions to cognitive development have been the focus of research in psychology and anthropology for over a century (Cole, 1996). This research has advanced understanding of how socially organized and ecological experiences affect what children think about, the mental abilities and skills that children develop, and the pace of intellectual growth. Cultural factors that are important in this process include social practices (Goodnow, Miller, & Kessel, 1995), schooling (Greenfield & Bruner, 1966; Rogoff, 1981), and pressures associated with the physical ecology and subsistence patterns (Berry, 1976). Contributions can also stem from other societal changes such as those that align the activities of a more traditional culture with the activities, institutions, and tools of industrialized nations—a process referred to as modernization (Inkeles & Smith, 1974; Super & Harkness, 1997). Modernization typically includes shifts in the production and distribution of resources, increased engagement in commerce, and the availability of various forms of technology that affect how people satisfy basic needs, regulate health and well-being, and communicate with and learn about the world outside the community.

In recent years, the contributions of modernization to cognitive development have come to the fore in relation to the Flynn effect (Flynn, 1987, 1999, 2007), with its demonstration of worldwide secular IQ gains. Flynn suggests that resources associated with modernization, including exposure to certain forms of information stimuli (such as mass media like television), may be implicated in these gains. Although Flynn (1999) thought IQ to be related only weakly to intelligence, the rise in scores begs explanation, and we believe that Schooler (1998), in identifying environmental complexity as the source of the Flynn effect, was referring to the type of societal changes that many investigators have included under the heading of modernization.

Efforts both to preserve and reorganize a culture undergoing modernization are manifested at the individual level and occur in the home, workplace, and other settings (Inkeles & Smith, 1974; LeVine, LeVine, & Schnell, 2001). These changes affect, on a daily basis, the work people do, the way children are cared for and educated, and the nature and strength of the links between the community and the world beyond the community. Thus, both

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inside and outside the home children are exposed to changing modes of acting and interacting, and as a result, modernization has direct relevance to processes of human development, including cognitive growth.

The psychological causes and consequences of cultural changes associated with modernization have not been without controversy (Kagitçibasi, 1998; McClelland, 1961). The association of modernization, Westernization, and individualism has been challenged in research in collectivist cultures such as China (Yu & Yang, 1994). There is active and contentious debate regarding the implicit assumption that modernization is progressive, a view that underlay much of the research conducted in the mid-20th century and very likely reflected a Western bias of that era (Kagitçibasi, 1998). Although some changes associated with modernization may be beneficial or progressive, for example, improved health care, others may be regressive or destabilizing, for example, increased trade that exposes the population to economic disparity or new diseases. In short, there are many unresolved questions about the relation of modernization to psychological experience. Because modernization is a continuing societal force that is likely to be related in significant ways to psychological development, research is needed that recognizes the complexity of such change while at the same time avoiding untested assumptions of earlier eras.

Our goal was to examine societal modernization and cognitive development and, in so doing, shed light on societal contributions to the Flynn effect. Our analysis is unique relative to other studies on this topic. Although research has examined the Flynn effect by studying cognitive development in non-Western settings over time, as predicted by Flynn (e.g., Daley, Whaley, Sigman, Espinosa, & Neumann, 2003), we concentrate on cultural variation at the same time period, attending to how differences in experience with modernization were related to children's cognitive performance. It is an open question whether the temporal changes in cognitive performance described by Flynn are evident when measured at the same point in time across communities that vary in ways that could underlie this effect (Neisser, 1998).

It is important to note that numerous environmental conditions stemming from modernization have been studied in relation to cognitive change. Commercialization, industrialization, urbanization, entrepreneurship, wage-labor opportunities, and formal schooling have been linked to cognitive criteria, including absorption of health care knowledge, academic achievement and motivation, and attitudinal openness to new experiences (Greenfield, 1998; Greenfield & Bruner, 1966; Inkeles & Smith, 1974; Kagitçibasi, 1995; LeVine et al., 2001; McClelland, 1961; Sharp, Cole, & Lave, 1979; Stevenson, Parker, Wilkinson, Bonnevaux, & Gonzalez, 1978; Super & Harkness, 1997). Although these studies suggest factors that may contribute to the Flynn effect, examining societal modernization directly may highlight the contributions of this widespread societal change to cognitive development.

To investigate this topic, we compared the cognitive performances of 3-, 5-, 7-, and 9-year-old children from four cultural communities that differed in modernization at the time the data were collected. These childhood ages, which ranged from early to middle childhood, were chosen because research has shown change across these ages in the areas of cognitive development under study.

Data Source

The data were collected by R. H. Munroe and R. L. Munroe in 1978–1979 in communities of Garifuna in Belize, Logoli in western Kenya, Newars in Nepal, and Samoans in American Samoa (Gowdy, Munroe, & Munroe, 1989; R. H. Munroe, Shimmin, & Munroe, 1984). Although historical data are rare in psychological research, some topics, such as large-scale societal change, may only be understood from an historical vantage point (Flynn, 2007). Such analyses can make unique contributions to the developmental literature, as in Elder's (1974/1999) study of psychological adjustment following the Great Depression. Additionally, historical analyses may make researchers aware of critical yet missing pieces of theory or data (Goodnow, 2002) and provide insight into the relation between developmental psychology and social change (Pillemer & White, 2005).

The four cultures in the present study differ geographically and linguistically and, at the time of data collection, they had no contact with each other and represented a broad range in terms of traditional and modern elements. The descriptions below pertain to the communities at the time the data were collected. Estimates of time use, represented as proportions of daylight activities dedicated to subsistence work, were derived from systematic naturalistic observations of the adults in the four sample communities (R. H. Munroe, Munroe, Shwayder, & Arias, 1997; R. L. Munroe & Munroe, 1990a, 1990b, 1991).

Garifuna in Belize. The Arawak-speaking Garifuna lived in a town in southern Belize. The community members, who are also referred to as the Black Carib, are descendants of African slaves who settled in Central America in the 1800s following a period in the islands of the Caribbean. When the data were collected, the Garifuna sample had almost completely given up subsistence farming and fishing, food was bought in local stores, half the men (50%) had taken up wage-labor employment in the town, and only 6% of the adults' daily activities was devoted to subsistence work. In 1979, the per capita income of Belize was $1,001 per year.

Logoli in western Kenya. In the late 1970s, the Logoli, who are members of an equatorial, Bantu-speaking group near Lake Victoria, lived on dispersed patrilocal, patrilineally organized homesteads, farmed subsistence products such as maize and beans, and kept cattle. At the time when the data were collected, few Logoli men (3%) were employed in wage-labor in the village, and 19% of the adults' daily activities was devoted to subsistence work. The per capita income of Kenya at the time was $380 per year.

Newars in Nepal. The Newars, Tibeto-Burman-speaking members of a farming caste in the Kathmandu Valley, lived in a compact village surrounded by terraced rice fields. All the households possessed and cultivated patrimonial land. At the time of data collection, few Newar men (15%) participated in wage labor in the village and 26% of the adults' daily activities were devoted to subsistence work. At that time, the per capita income in Nepal was $130 per year.

Samoans in America Samoa. The sample of American Samoans consisted of village-dwelling members of a Polynesian island culture. Although the community continued traditional growing of taro and raising of domesticated pigs, at the time of data collection it had become increasingly involved in U.S. development and employment programs, most men (87%) participated in wage labor in the village, and 13% of the adults' daily activities was devoted to subsistence work. The per capita income in American Samoa at the time was $5,210 per year.

Modernization elements across the four communities. A degree of monetization had occurred in all four communities, and this process was facilitated by the presence of local wage earners, commuters, and remittees partially dependent on community members temporarily working in urban areas or even foreign countries. (Significant numbers of Garifuna and Samoans lived then, and live now, in the United States.) Despite this homogenizing commercial activity, the Samoans and Garifuna were experiencing in 1978–1979 a level of modernizing influences beyond those of the Logoli and Newars. The villages of both the Samoans and Garifuna had airfields with regularly scheduled flights, postal stations, medical facilities with a resident physician, large religious structures, multiple shops, and commercial accommodations for visitors. None of these amenities was available among the Logoli or the Newars.

The availability of schooling also differed across the communities. In the American Samoa and Garifuna sites, both primary and secondary schools were available. The presence of high schools meant not only that the children were expected to pursue education through secondary school but also that their parents in many cases had undergone such a process. In addition, schools in both communities were marked by the influence of American educational practices. In American Samoa, the system was supported by U.S. funding and included the presence of some American teachers. At the Garifuna site, the main school was run by the Roman Catholic Church (there was also a small, American-run Protestant school), with an American clerical hierarchy and some American teachers.

In contrast, only primary school was present in the Logoli and Newar sites and aside from rare cases, neither the children in the study sample nor their parents had secondary-level schooling. The Logoli primary school was run by Kenyan administrators and taught by Kenyans, though the school still reflected its curricular origins in British colonial education. An examination at the end of primary school was structured so that just a small minority was allowed to pursue secondary education. The educational system of the Newars was indigenous, and a local villager was the instructor in the government-supported primary school. Although recent governmental policy had instituted free primary education, only two thirds of the older sample children (7- and 9-year-olds) attended the school.

To summarize, the aim of this study was to examine how cultural changes associated with modernization were related to cognitive development. By including several cultures, children of different ages, and multiple methods (cognitive assessments, interviews, and naturalistic observation), we hoped to gain insight into features of environmental change that contribute to the Flynn effect. As Bornstein (2002) has pointed out, ''The larger the number of methods, ages, or cultures studied, the more

compelling is the conclusion that observed findings can be validly attributed to the theoretical dimension of interest'' (p. 262). We expected to replicate age-related improvement on all the cognitive measures (Bjorklund, 2005). We also expected that modernization would relate to areas of mental functioning that are important to the activities and institutions introduced by modernization, such as schooling. Such experience-dependent skills include certain types of memory performance and pattern recognition. We expected to see weaker relations between modernization and cognitive skills that are largely influenced by maturational processes, for example, motor coordination; that are experience expectant (Greenough, Black, & Wallace, 1987) and, therefore, common across cultures, for example, certain types of concept development such as gender constancy; or that reflect culturally specific practices of childhood, such as children's participation in forms of work and play (Nerlove, Roberts, Klein, Yarbrough, & Habicht, 1974).

Method

Participants

Within each of the four communities, 6 boys and 6 girls from four age groups, 3-, 5-, 7-, and 9-year-olds, were selected for testing and for naturalistic observations. After an initial village census, sample members were chosen primarily on the basis of age; parents of boys and girls in the four age categories whose birth dates most nearly matched each other within the communities were invited to participate. Almost all parents volunteered to participate (one Garifuna family declined). Although all 192 children were included in the observational portion of the research, 4 children did not participate in the testing: one 3-year-old boy in Kenya, and one 3-year-old boy and two 5-year-olds in Nepal, one boy and one girl. One 3-year-old boy in Belize did not do the motor coordination task but took the other tests.

Schooling varied by community. The Samoans followed an age-graded system, with all the 7-year-olds being second graders and all 9-year-olds being fourth graders. Additional school-related skills were imparted during summer sessions as the village pastor gave lessons in arithmetic and in reading (through use of the Samoan alphabet). Children began attending the so-named ''Samoan school'' as early as the age of 3. Garifuna children typically began school at age 5 but immediately began spreading over several grade levels, both early and late relative to the usual age-graded system. Logoli children had the largest spread in grade levels, and a majority were below expected level for age. Newar children began schooling at relatively late ages and the modal grade level for all those in attendance was first grade.

Measure of Modernity

Modernity was measured by tallying, within each participating home in the sample communities, the possession of communicative and literacy-based appurtenances and other economically advantageous resources that are typically considered indices of societal modernization. These items included writing tablets and books, the availability of electricity, a home-based water supply, radio and television sets, and ownership of a motor vehicle. Two measures of modernity were derived from this information. One measure included the average score per household in each sample community. In addition, we used these household scores to establish a rank ordering of the four sample cultures. These two measures allowed us to compare the contributions made by modernization to children's performance at the community level and in relation to modernization elements in the child's immediate home environment.

Testing Procedures and Measures

Seven measures were administered to 5- to 9-year-old children in the child's native language in one session at a central location in each community by either a female or male local experimenter. In all locations, each test or part of the test was assigned to either the female or male experimenter; both experimenters were present throughout the testing session. The 3-year-olds were tested in or near their homes using the same procedure and under conditions that provided as much privacy as possible.

Training and supervision of the local experimenters was conducted by the same researcher (R.H.M.) and it was identical at all four sites. In each location, a male and a female adult, who were fluent both in English and local languages, were chosen for training by one of the researchers (R.H.M.). The experimenters were given repeated instruction in the testing methods, and they then conducted full practice sessions with children who were not included in the sample. Actual testing was not begun until the experimenters were adjudged to be fully competent in

the procedures. Testing procedures were as similar as possible across the four sites. The measures were modeled on a series of standard Western developmental tests; some measures, however, were presented in simplified form, as this technique had proven useful in the researchers' previous experience with non-Western samples (R. L. Munroe & Munroe, 1971, 1975). The cognitive measures that were chosen were as language free as possible and children were given practice items to familiarize them with each task before they began the test phase.

Embedded Figures Test (EFT). Twelve items modeled on the Group EFT (Oltman, Raskin, & Witkin, 1971) were shown to the children. Children were asked to find and trace with their fingers the triangular form hidden in each figure. Two simple practice items were administered before testing began. Scoring was based on the number of figures, of the 12 test items, that the child identified correctly. This task was not administered to 3-year-olds. Split-half reliability, the standard method for assessing reliability for this measure (Karp & Konstadt, 1963), was $r = .85$, $p < .001$.

Memory task: Recall memory of acted sequences. Twelve 1-min sequences of typical activities were portrayed by the male and female experimenter in turn, using real-life objects, for example, loading bamboo on a shoulder carrier. The child was instructed to watch and to try to remember the experimenter's actions. At the conclusion of all 12 sequences, with all objects remaining in sight, the child was asked to recall as many of the activities as possible. This task was based on prior work by Grusec and Brinker (1972), and the design and training procedure followed their work closely. The two experimenters present in each test session shared in the procedure, which resulted in six skits per experimenter. The skits were simple, based on familiar cultural activities, and employed meaningful props, so there were sufficient reminders for the experimenters as to what to do. Also, the familiarity of the activities helped ensure that script knowledge guided the demonstrations. Experimenters were interviewed regularly as to how the process was going and their recording sheets were checked daily to be sure that all skits were included in the assessments. The skits were based on information from standard ethnographies on each culture group plus interviews with key informants at the sites. In each community, the skits were chosen to reflect common activities that children saw adults doing on a daily basis, which helped ensure the level of familiarity across the sites. The scoring criteria involved recording how many of the 12 skits the child reenacted following the demonstrations. Each reenactment received a score of 1, with a total possible score of 12. Because this was an objective measure, that is, the child did or did not enact a specific skit, reliabilities were unnecessary. This task was not administered to the 3-year-olds.

Block building. The child's block-building skills were assessed with a series of items modeled on the block design task in the Wechsler Preschool and Primary Scale of Intelligence (WPPSI; Wechsler, 1963). The task was presented and the child's performance was scored exactly as described in the WPPSI manual. After three practice items, the experimenter presented 10 increasingly complex block patterns (built vertically and in depth), one by one, to the child. For each pattern, the child was asked to ''make one just like this,'' with the experimenter indicating by gesture that the child should copy the experimenter's pattern using blocks laid on a table. Unlimited time was allowed. Testing was discontinued when a child made errors on two consecutive items. Scoring was done on the prescribed scoring sheet, which depicted drawings of each of the block designs that the child was asked to construct. In the scoring, the experimenter compared the block design produced by the child with the model block design and then noted if the child's design was a correct or incorrect reproduction of the model. Scoring was based on the number of patterns constructed correctly and ranged from 0 to 10. As discussed in the WPPSI manual, scoring was objective and reliability estimates were not necessary.

Willingness to explore (exploration). Experimenters performed four short skits involving dolls and a variety of toy objects (e.g., a dog, a car) on a tabletop. The skits, each lasting approximately 30 s, displayed high activity (e.g., animals chasing one another) and were designed to attract the child's interest. After the four skits were completed, the child was told that he or she could play with any or all of the dolls and other objects left on the table. The experimenters then moved away from the table and did not speak further to the child. For a 5-min period, an experimenter recorded the child's activity. The number of seconds (of 300 possible) that a child touched, held, or was involved with any doll or toy was recorded. This measure assessed the child's willingness to explore novel objects and activities.

Motor coordination. Children were asked to move each of 35 marbles, one by one, from a table into egg-carton compartments as quickly as possible. The number of seconds a child required to complete the task successfully was recorded. This was an objective measure, and reliability assessments were therefore not necessary.

Perspective taking. The child's perspective-taking skill was assessed with a task adapted from research by Masangkay et al. (1974) in which the child was asked four questions involving the experimenter, the child, and a doll. Holding the doll so that it was visible to the child but blocked from the view of the experimenter, the experimenter first asked if the child could see it, then if the experimenter could see it. Next, holding the doll so that it was visible to the experimenter but blocked from the view of the child, the experimenter asked if the child could see it, then if the experimenter could see it. Scoring was based on the number of questions answered correctly and scores ranged from 0 to 4. As the measure was objective, reliability assessments were not necessary.

Gender understanding. Gender understanding was assessed by means of a 15-item test modeled on the Slaby and Frey (1975) Gender Constancy Scale. Six of the 15 items used in the present study pertained to gender identity (e.g., Are you a girl or a boy? Is this a girl doll or a boy doll?). Four items concerned gender stability (gender unaffected over time; e.g., When you grow up, will you be a mother or a father?), and five items were gender-consistency items (gender unaffected by situations; e.g., If you wore [opposite sex of child, i.e., boys' or girls'] clothes, would you be a girl or a boy?). Children's responses to each of the questions were scored as correct or incorrect. This measure was objective and reliability assessments were unnecessary.

Stages of gender understanding were determined by the same method as that developed by Slaby and Frey (1975) in the Gender Constancy Scale. A child who answered no questions correctly was identified as Stage 1; a child who answered the identity questions correctly but no other questions correctly was identified as Stage 2; a child who answered the identity and stability questions correctly, but not the consistency items was identified as Stage 3; and a child who answered all questions correctly was identified as Stage 4. All other combinations of responses were classified as nonstage patterns. Sample children attained varying levels of gender understanding, with 90% of all tested children achieving stage-type responses.

Naturalistic Observations

A total of 30 spot observations (R. H. Munroe & Munroe, 1971) was gathered for each sample child. Spot observation is a time-sampling method in which the observer, using a predetermined observation schedule, scans the activity setting and at each sampling interval records the target child's location, activity, and coparticipants. These observations, performed by trained local personnel in each community, were designed to obtain information on children's activities. The observations yielded two scores used in the present analyses: complex self-managed sequences involving play and child work. For play, reliability coding by two independent coders was conducted on approximately 10% of the observations and yielded 94% agreement as to the presence or absence of complex self-managed sequences. For child work, reliability coding by two independent coders was conducted on approximately 15% of the observations and yielded 93% agreement as to the presence or absence of work by the child.

Self-managed sequences involving play (SMS-Play). In approximately 80% of the more than 5,000 observational protocols, children were engaged in free-play behavior, that is, they were not engaged in supervised or directed work or in other directed activities. From this subset, protocols were analyzed to extract scores, which measured complex SMS-Play, defined here as an activity entailing the autonomous following of an exacting series of behavioral sequences—that is, independent, complex action sequences (Gowdy et al., 1989). Using criteria adapted from Nerlove et al. (1974), these activities were defined as involving mastery of a sequence of behaviors or rules of behavior requiring cognitive strategies, role taking, or imaginative skills. Children were assigned scores based on the proportion of all observational protocols during which they were engaged in SMS-Play. The types of play included were formal games (e.g., card games), informal games (e.g., dancing), role playing (e.g., playing store with real materials), imaginary play (e.g., making a mud motor car), and play with toys, either homemade or manufactured.

Child work. Work was defined as any activity contributing to subsistence such as food-related tasks (e.g., planting and weeding, cooking, washing dishes), household chores (e.g., housecleaning, errands), and infant care. The proportion of time that a child was engaged in work-related activities was calculated to yield a child work score.

Results

Plan of Analysis

Preliminary analyses examined the interrelations of the measures and whether child age and gender were related to these measures. Modernity scores were established for the four community samples, and these scores were used to derive modernity rankings of the communities. Multivariate analysis of covariance (MANCOVA) was used to investigate the contribution of societal modernity to children's performance on the dependent measures, controlling for child age.

To recapitulate, measures predicted to be important to the activities and institutions introduced by modernization were the EFT, the memory task for recall of acted sequences, block building, and willingness to explore novel objects. Relations of lower magnitude were expected between modernization and behaviors largely influenced by maturational processes (motor coordination), cognitive skills based on experience-expectant processes (perspective taking and gender understanding), or culturally specific practices of childhood (SMS-Play and child work). Multiple regression analysis was used to examine the unique contributions of modernity and schooling to performance on the cognitive measures.

Preliminary Analyses

Child age and gender. Analysis of variance was used to examine age effects on the dependent measures. Mean values by child age are in Table 1. Older children performed better on all the measures except for the variable willingness to explore, $F(3, 185) = 0.69$, *ns*. For the remaining variables, F values ranged from 3.39 to 81.17, $p < .05$, η^2 ranged from .05 to .57. Post hoc comparisons of means using Tukey's honestly significant difference (HSD) statistic were used to test specific age comparisons for each of these variables. For four of the variables, EFT, recall memory, block building, and motor coordination, all but one of the age comparisons was significantly different (significant t values ranged from 1.63 to 74.33, $p < .05$); only the 7- and 9-year-olds did not differ (t values were 0.42, 0.78, 1.04, and 14.19, respectively). For two variables, gender understanding and perspective taking, all comparisons that included the 3-year-olds differed (significant t values ranged from 1.10 to 2.83, $p < .001$); the remaining age group comparisons did not differ (t values ranged from 0.02 to 1.00). For SMS-Play, 3-year-old children played less than 7-year-old children, $t = 5.91$, $p < .01$. For child work, 3- and 5-year-old children and 7- and 9-year-old children did not differ from each other (t values were 0.07 and 0.02, respectively); all the remaining age contrasts differed (t values ranged from 0.16 to 0.25). None of the other age comparisons differed (t values ranged from 0.92 to 4.32).

By and large, these patterns reflect expected age-related differences on the measures. They indicate that the children in this study, regardless of cultural group, understood the cognitive measures similarly and that the same age-related patterns evident in Western samples appeared in this cross-cultural sample. Because of these age-related results, child age was used as a covariate in subsequent analyses.

Preliminary inspection of the data showed no gender differences for the entire sample in cognitive performance (F values ranged from 0.001 to 1.57, *ns*). There were also no gender differences in years in school, $F(1, 142) = 0.11$, *ns*, or in SMS-Play,

Table 1
Means (and Standard Deviations) for Dependent Measures by Child Age

	Child age (years)			
Measure	3	5	7	9
EFT		8.97 (3.76)	10.60 (2.57)	11.02 (1.71)
Recall memory		7.89 (3.89)	9.79 (2.96)	10.52 (2.54)
Block building	1.70 (1.76)	4.54 (2.61)	6.85 (2.14)	7.89 (1.59)
Exploration (s)	189.72 (117.00)	204.42 (113.57)	191.25 (114.51)	218.25 (93.72)
Motor coordination (s)	136.64 (42.80)	97.33 (25.69)	76.50 (24.68)	62.31 (20.70)
Perspective taking	2.46 (1.05)	3.56 (0.83)	3.87 (0.44)	3.85 (0.55)
Gender understanding	10.61 (2.70)	12.43 (2.12)	12.98 (2.02)	13.43 (1.72)
SMS-Play (%)	9.29 (7.84)	12.69 (8.70)	15.21 (11.52)	13.61 (9.13)
Child work (%)	8.54 (9.03)	15.21 (10.90)	31.25 (18.21)	33.60 (18.52)

Note. EFT = Embedded Figures Test; SMS-Play = self-managed play sequence.

$F(1, 190) = 1.11$, *ns*. However, there was a gender difference in child work, $F(1, 190) = 9.46$, $p < .002$, $r_{\text{effect size}} = .22$, with means indicating that girls ($M = 0.26$, $SD = 0.21$) were observed working more than boys ($M = 0.18$, $SD = 0.13$). Within-culture analysis indicated that this difference occurred in the Logoli, $t(46) = 2.13$, $p < .04$, $r_{\text{effect size}} = .30$ (girls: $M = 0.34$, $SD = 0.21$; boys: $M = 0.23$, $SD = 0.14$), and the Newars, $t(46) = 2.37$, $p < .02$, $r_{\text{effect size}} = .33$ (girls: $M = 0.16$, $SD = 0.18$; boys: $M = 0.07$, $SD = 0.07$). There was a trend in the same direction for the Samoans, $t(46) = 1.74$, $p < .10$ (girls: $M = 0.28$, $SD = 0.21$; boys: $M = 0.20$, $SD = 0.11$). There was no gender difference in child work among the Garifuna, $t(46) = .50$, *ns* (girls: $M = 0.25$, $SD = 0.22$; boys: $M = 0.23$, $SD = 0.14$).

Interrelations of the dependent measures. Intercorrelations of the dependent measures indicated that for the nine dependent measures (seven cognitive performance variables, two observation variables), 32 (89%) of the 36 intercorrelations were related, with *r*s ranging from .15 to .61 (with *p* values ranging from .03 to .001). This pattern indicates that although the measures were related to one another they were not redundant.

Societal Modernity of the Four Sample Communities

Each participating household in the four communities was identified as to whether it possessed the following resources: books and writing tablets, electricity, a home-based water supply, radio and television sets, and ownership of a motor vehicle. The percentage of households with each of these resources, listed in Table 2, varied sharply by community and was scaled in terms of modernity as follows: American Samoans (82%), Garifuna (51%), Newars (39%), and Logoli (28%). To establish internal consistency of the modernity score, the presence of each of these items was related to the total modernity scores resulting in an average correlation (based on dummy variables, coded as present–absent) of .62 (all significant at the .001 level or better). A rank ordering of the communities based on the number of amenities present was created, with the rank of 1 representing the fewest amenities and the rank of 4 representing the most amenities. Thus, the community samples were ranked from 1 to 4 as follows: the Logoli had the fewest amenities associated with modernization, the Newars had the second fewest, the Garifuna were ranked third, and the Samoans were ranked as fourth or as having the most amenities associated with modernization. This rank ordering was used to examine the contribution, across the four communities, of societal modernity to children's cognitive performance and observed behavior.

Table 2
Percentage of Households in the Four Sample Communities With the Resources Used to Index Societal Modernity

	Cultural community			
Resource	Logoli (%)	Newars (%)	Garifuna (%)	Samoans (%)
Writing tablets	63	69	84	100
Books	66	69	93	100
Electricity	0	100	84	100
Water	15	0	8	89
Radio	51	29	87	87
Television	0	0	0	76
Motor vehicle	0	4	0	23
Mean score	28	39	51	82

Cognitive Performance and Observed Behavior in Relation to Societal Modernity Rankings

Mulitvariate analysis of covariance (MANCOVA), controlling for child age, was used to examine the contribution of societal modernity in relation to the hypotheses. The mean values for the cognitive performance and observed variables for each of the four cultural communities are reported in Table 3. Overall, results indicate that societal modernization was positively related to all the cognitive performance measures and to the behavior observations, Wilks's Lambda $F(27, 359.87) = 12.09$, $p < .001$, $\eta^2 = .47$. Three sets of analyses were conducted to examine the specific hypotheses.

A one-way MANCOVA was used to compare the communities on the four dependent measures predicted to be strongly related to modernization: the EFT, recall memory, block building, and willingness to explore. A significant effect was found, Wilks's Lambda $F(12, 341.60) = 16.70$, $p < .001$, $\eta^2 = .33$. Follow-up univariate ANCOVAs indicated that performance on all four variables differed across the communities, with results as follows: EFT, $F(3, 132) = 19.80$, $p < .001$, $\eta^2 = .31$; recall memory, $F(3, 132) = 10.28$, $p < .001$, $\eta^2 = .19$; block building, $F(3, 132) = 10.41$, $p < .001$, $\eta^2 = .19$; and willingness to explore, $F(3, 132) = 63.23$, $p < .001$, $\eta^2 = .59$. Examination of the means in Table 3 supported our hypothesis of a positive relation between societal modernity and performance on these measures.

A one-way MANCOVA was used to compare the communities on the three dependent measures

Table 3
Means (and Standard Deviations) for Dependent Measures by Cultural Community

	Cognitive measures							Observed behavior (%)	
	EFT	Recall memory	Block building	Exploration (s)	Motor coordination (s)	Perspective taking	Gender understanding	SMS-Play	Work
Logoli	7.75 (4.32)	8.76 (4.52)	4.30 (3.32)	75.00 (68.95)	100.19 (34.15)	3.35 (0.99)	11.58 (2.60)	9.07 (6.50)	28.52 (18.60)
Newars	10.17 (1.80)	7.83 (3.44)	4.38 (3.05)	169.34 (106.30)	92.58 (29.35)	3.26 (1.00)	12.70 (2.36)	6.26 (5.27)	11.73 (14.38)
Garifuna	11.36 (1.49)	9.69 (1.65)	6.19 (2.76)	267.71 (47.04)	104.81 (55.85)	3.49 (0.93)	12.06 (2.15)	16.69 (9.49)	24.21 (18.15)
Samoans	11.58 (0.77)	11.41 (2.00)	6.42 (2.78)	290.85 (27.40)	72.67 (29.18)	3.73 (0.76)	13.57 (1.78)	18.78 (10.11)	24.15 (16.99)

Note. EFT = Embedded Figures Test; SMS-Play = self-managed play sequence.

predicted to be less strongly related to modernization: motor coordination, perspective taking, and gender understanding. A significant effect was found, Wilks's Lambda $F(9, 411.45) = 7.02$, $p < .001$, $\eta^2 = .11$. Follow-up univariate ANCOVA's indicated that performance on all three variables differed across the communities, with results as follows: motor coordination, $F(3, 171) = 13.47$, $p < .001$,$\eta^2 = .19$; perspective taking, $F(3, 171) = 3.44$, $p < .05$, $\eta^2 = .06$; and gender understanding, $F(3, 171) = 8.73$, $p < .001$, $\eta^2 = .13$. Examination of the means in Table 3 indicates a generally positive relation between societal modernity and performance on these measures.

Finally, a one-way MANCOVA was used to compare the communities on the observational measures, SMS-Play and child work. We did not expect these measures to be related to modernization. However, a significant effect was found, $F(6, 372) = 23.96$, $p < .001$, $\eta^2 = .28$. Follow-up univariate ANCOVA's indicated that both variables differed across the communities, with results as follows: SMS-Play, $F(3, 187) = 27.41$, $p < .001$, $\eta^2 = .30$, and child work, $F(3, 187) = 13.43$, $p < .001$, $\eta^2 = .18$. Examination of the means in Table 3 indicates a positive relation between societal modernity and SMS-Play especially when the two more modern societies, the Garifuna and the Samoans, are contrasted with the other two communities. The results for SMS-Work, which are less clear, are further discussed in the following.

Our hypotheses regarding the relative magnitude of the effect sizes were partially supported (Cohen, 1988). As predicted, the largest effects, which were moderate in magnitude, were obtained for the four measures hypothesized to be linked to institutions associated with modernization, specifically the EFT, recall memory, block building, and willingness to explore. Small effects were found for the three measures predicted to have weaker relations with modernity: motor coordination, perspective taking, and gender understanding. The magnitude of the effect size for SMS-Play was medium and the effect size for child work was small.

To examine the relation of societal modernity to the dependent variables more closely, one-way ANCOVAs, controlling for child age, were conducted. In these analyses, each dependent measure was examined for each of the six pairwise cultural comparisons. On all the measures, Samoan children outperformed Logoli and Newar children (F values ranged from 5.71 to 395.31, all p values $< .05$, η^2 ranged from .06 to .81). Samoan children outperformed Garifuna children on four of the measures (recall memory, exploration, gender understanding, motor coordination; F values ranged from 8.44 to 32.74, all p values $< .01$, η^2 ranged from .08 to .26). The Garifuna performed better than the Newars on five of the measures (EFT, recall memory, block building, exploration, SMS-Play; F values ranged from 9.35 to 45.81, all p values $< .01$, η^2 ranged from .12 to .33) and the Garifuna outperformed the Logoli on four measures (EFT, blocks, exploration, motor coordination, SMS-Play; F values ranged from 21.07 to 258.39, all p values $< .001$, η^2 ranged from .18 to .74). The Garifuna did not differ from the Newars or the Logoli on motor coordination, perspective taking, and gender understanding, the three measures predicted to be less affected by societal modernization. The Logoli outperformed the Newars on SMS-Play, $F(1, 93) = 6.11$, $p < .05$, $\eta^2 = .06$, and the Newars outperformed the Logoli on three measures, the EFT, exploration, and gender understanding (F values ranged from 4.01 to 27.01, all p values $< .05$, η^2 ranged from .05 to .23). By and large, these patterns reflect the societal rankings of modernization, with the Samoans and Garifuna, the more modern communities, performing better than the Newars and the Logoli. Finally, Newars worked less than children in the

other three communities (F values ranged from 20.25 to 36.43, all ps < .001, η^2 ranged from .18 to .28).

Although we examined the contribution of modernization as a societal-level variable, we also investigated the relations between the individual household modernity scores and children's performance on the cognitive and observational measures to determine whether the same patterns appeared. Table 4 shows the correlations between the dependent measures and the societal modernity rankings and the individual household modernity scores. These correlations are commensurate for all the dependent measures, indicating that the relations between the rank orderings of the cultures on the dimension of modernity and the cognitive performance and observation measures were consistent when these relations were examined with household modernity scores. Thus, children who lived in households that had more amenities, regardless of cultural community, performed better on all of the cognitive measures, engaged in more SMS-Play, and were observed doing less work. An exploratory inquiry was conducted to determine whether these patterns held at the intracultural level, that is, within each sample community. Although none of the correlations was significant, which probably reflected lack of statistical power, several trends emerged when we compared these correlations across the communities using one-tailed tests. The correlations for the Samoans between household modernity and the dependent variables recall memory and willingness to explore differed somewhat from these correlations for the Logoli, $z = 1.30$, $p < .10$, and $z = 1.42$, $p < .08$, respectively. A similar pattern appeared when the correlations for the Samoans and Newars were compared, with $z = 1.41$, $p < .08$ for recall memory, $z = 1.42$, $p < .08$ for willingness to explore, and $z = 1.31$, $p < .10$ for SMS-Play. Finally, a like trend appeared when we compared the correlations of the Samoans and the Garifuna for the variable willingness to explore, $z = 1.32$, $p < .10$. Thus, the overall pattern of more household modernity being associated with higher cognitive and behavioral scores holds up across the different societies.

Schooling Experience

Years of schooling for the 5-, 7-, and 9-year-old children differed by cultural community, $F(3, 188) = 9.16$, $p < .001$, $\eta^2 = .13$, with an average of 2.61 years for the Garifuna, 2.00 years for the Samoans, 1.64 years for the Logoli, and 0.64 years for the Newars. Pairwise comparisons indicated that Newar children had significantly fewer years of schooling than children in the other three communities, with t values ($df = 70$) ranging from 4.00 to 7.19, $p < .001$. The Garifuna had more years of schooling than the Logoli, $t(70) = -2.91$, $p < .005$. Samoans did not differ from either the Garifuna, $t(70) = 1.64$, *ns*, or the Logoli, $t(70) = -1.02$, *ns*. There were no gender differences in years in school, $F(1, 190) = 0.08$, *ns*.

Hierarchical multiple regression was used to investigate whether modernity contributed to children's cognitive performance above and beyond experience with school. The bivariate correlations among the variables are presented in Table 5. For each dependent measure, two steps were entered in the regression model (see Table 6). In Step 1, number of years in school was entered to assess the contribution of school to each measure. As the correlations indicate, years of schooling predicted performance on all the cognitive measures. In Step 2, societal modernity was added to the model. Results indicate that, on the whole, modernity predicted a significant amount of variance in the dependent measures above and beyond schooling. However, the amount of variance explained by these two factors differed across the measures.

The contribution of schooling and modernity explained more variation for the measures predicted to be associated with modernization. The final regression model explained 30% of the variance in performance on the EFT, 24% of the variance in

Table 4
Correlations Between Societal-Level Modernity Rankings and Individual Household Modernity Scores and Dependent Measures

	EFT	Recall memory	Block building	Exploration	Motor coordination	Perspective taking	Gender understanding	SMS-Play	Child work
Societal ranking	.49***	.33***	.29***	.76***	−.20***	.17**	.26***	.46***	−.00
Household score	.34***	.34***	.27***	.59***	−.23***	.18**	.17**	.39***	−.16**

Note. EFT = Embedded Figures Test; SMS-Play = self-managed play sequence.
**$p < .01$. ***$p < .001$.

Table 5
Zero-Order Correlations Among Schooling, Societal Modernity Rankings, and Cognitive Measures for 5-, 7-, and 9-Year-Olds

	1	2	3	4	5	6	7	8
1. Schooling								
2. Societal modernity	.23**							
3. EFT	.35**	.49**						
4. Recall memory	.43**	.33**	.48**					
5. Block building	.61**	.34**	.49**	.47**				
6. Exploration	.23**	.74**	.48**	.20*	.32**			
7. Motor coordination	−.55**	−.36**	−.44**	−.46**	−.51**	−.19*		
8. Perspective taking	.34**	.24**	.48**	.51**	.45**	.21*	−.41**	
9. Gender understanding	.25**	.34**	.43**	.40**	.33**	.24**	−.30**	.34**

Note. EFT = Embedded Figures Test.
*$p < .05$. **$p < .01$.

Table 6
Summary of Hierarchical Regression Analyses Predicting Cognitive Performance From Schooling and Societal Modernity

	Step 1			Step 2					
	Schooling			Schooling			Modernity		
Dependent measure	*B*	*SE* (*B*)	β	*B*	*SE* (*B*)	β	*B*	*SE* (*B*)	β
EFT	0.67	0.15	.35***	0.48	0.14	.25***	1.13	0.19	.44***
Recall memory	0.95	0.17	.43***	0.82	0.17	.37***	0.72	0.23	.24**
Block building	1.02	0.11	.61***	0.94	0.11	.56***	0.48	0.15	.21**
Exploration	16.44	5.82	.23**	4.83	4.16	.07	68.99	5.60	.72***
Motor coordination	−10.03	1.29	−.55***	−8.99	1.27	−.49***	−6.15	1.71	−.25***
Perspective taking	0.15	0.03	.34***	0.13	0.03	.30***	9.91	0.05	.17*
Gender understanding	0.14	0.05	.25**	0.10	0.05	.18*	0.23	0.06	.30***

Note. EFT: $R^2 = .12$ for Step 1; $\Delta R^2 = .18$ for Step 2 (ps < .001). Recall memory: $R^2 = .18$ for Step 1; $\Delta R^2 = .06$ for Step 2 (ps < .01). Block building: $R^2 = .37$ for Step 1; $\Delta R^2 = .04$ for Step 2 (ps < .01). Exploration: $R^2 = .05$ for Step 1; $\Delta R^2 = .49$ for Step 2 (ps < .01). Motor coordination: $R^2 = .30$ for Step 1; $\Delta R^2 = .06$ for Step 2 (ps < .01). Perspective taking: $R^2 = .12$ for Step 1; $\Delta R^2 = .03$ for Step 2 (ps < .05). Gender understanding: $R^2 = .06$ for Step 1; $\Delta R^2 = .08$ for Step 2 (ps < .01). EFT = Embedded Figures Test.
*$p < .05$. **$p < .01$. ***$p < .001$.

recall memory, and 41% of the variance in block building. For the two measures associated with experience-expectant processes, that is, those that are common across cultures, the model explained less of the variance, accounting for 15% of the variance in perspective taking and in gender understanding. Unexpectedly, the model accounted for 36% of the variance in motor coordination, which was predicted to be consistent across cultures. An unexpected pattern also occurred for the variable willingness to explore. Schooling significantly predicted performance on this measure; when, however, modernity was entered into the equation, the contribution of schooling was no longer significant. This indicates that modernity is more predictive than schooling for willingness to explore. The model explained 55% of the variance for this variable.

Discussion

This research has replicated typical age-related patterns in children's cognitive performance, and it has done so in all four cultures. Modernization contributed to children's performance on all the cognitive measures and to more structured play in naturalistic settings. Children in the Samoan and Garifuna subsamples, who were the beneficiaries of numerous modern resources, performed better than Newar and Logoli children on most measures. Overall, these results are consistent with the hypothesis that societal modernization contributes to the types of cognitive skills implicated in the Flynn (2007).

Although modernization was a significant factor for all measures, the effect sizes provided

additional information about the magnitude of this contribution to the specific measures. Of the four cognitive performances that we expected to be closely aligned with modernization, two of them, the EFT and willingness to explore novel objects, were strongly related to modernity. The other two measures in this prediction, recall memory and block building, had a medium effect size. Performances that were not expected to have strong relations to modernization, namely, motor coordination, perspective taking, and gender understanding, were medium in magnitude. The fact that these measures had as strong a relation as they did suggest that there was some contribution of modernization, an interpretation borne out in the regression analyses. However, the regression analysis also made clear that one dependent variable, willingness to explore, was largely explained by modernity and not by experience with school. Although we know of no other cross-cultural comparison of this behavior, the result is consistent with prior research that found associations between modernization and attitudinal openness to new experiences among adults (Inkeles & Smith, 1974).

Across the samples, if a home had books, it almost always possessed writing tablets as well, and these two features were more highly intercorrelated than any of the other modernity criteria. The presence of both of these factors (see Table 2), which imply literacy, increased from the Logoli to the Newars to the Garifuna to the Samoans. In the Samoan and Garifuna villages, the presence of higher educational systems, to which adults had been exposed for more than a generation, meant that on a daily basis the children came into contact with parents and others who had been more highly educated than adults in the Newar and Logoli samples. Ceci, Rosenbaum, and Kumpf (1998) point out that since the Stanford-Binet IQ tests were first normed in 1932, the mean educational attainment in the United States has risen more than 4 years, and they conclude, ''As the parents of the 1950s and 1960s became more educated, their children reaped the cognitive benefits'' (p. 300). We know from the literature that, as Greenfield (1998) has phrased it, ''[S]chooled mothers, like teachers, ask their children ['known-answer questions']. . . . Responding to known-answer questions is the most basic convention on an intelligence test'' (p. 90). This advantage of experience with known-answer questions was present in Western Samoa among families with schooled mothers (Duranti & Ochs, 1988), and it may have contributed to the better responses of the Samoan and Garifuna children in our testing.

Perhaps the relation between children's performances on these measures and modernization was indirect and reflected a third factor such as testing effects. That is, children with more experience with schooling and who live in cultures with more amenities associated with modernization may be more familiar or more comfortable with the type of testing used in the study. All of the cognitive measures were administered in a manner resembling school activities (Rogoff, Correa-Chávez, & Cotuc, 2005). Children were tested individually, and the formality of the language and the presentation of the materials relative to children's everyday experiences were school-like. Thus, children with more school experience, who primarily resided in the cultures ranked as more modern, may have done better for these reasons. Yet a concern with testing effects in cross-cultural analysis is what makes the observational variable in this study particularly interesting. Structured play was significantly related to modernization and the effect size was moderate. Structured play was also related to schooling, but the effect size was small. This pattern suggests that even though experiential effects of schooling, such as testing effects, are relevant to children's performance in cultures that vary in terms of modernization, child behavior appears to differ in these societies in ways other than those revealed in cognitive tests. In other words, the contribution of modernization to development does not boil down to schooling or testing effects.

The Flynn effect (Flynn, 1987, 1999, 2007) refers to robust, cumulated evidence of worldwide secular IQ gains. As we have noted, Schooler (1998), in proposing environmental complexity to be the source of the Flynn effect, seemed to be referring to the same class of factors we have discussed under the heading of modernization. Greenfield (1998) identified technology, formal education, and urbanization as factors in the Flynn effect and posited that all of these are components of modernization. Along similar lines, Greenfield (1984, 1996) and Johnson (2005) have made the counterintuitive argument that popular media (including television), and especially electronic games and other interactive forms, have effected similarly improved cognitive outcomes. In certain spheres, improvement over time is obvious. A graduate student in physics, with the aid of new concepts and formulae in the field of physics, can now solve problems that were beyond what Isaac Newton could accomplish (part of that complexity, but only part, was created by Newton himself). Today's chess masters play games at levels beyond those of the grand masters

of the 19th century, and avoid mistakes made by those earlier expert players (Ross, 2006). In sports, we have the example of the erstwhile College All-Star football game, a popular annual event (1930s–1970s) that was eventually terminated when collegiate stars could no longer play competitively against the championship professional teams, which were increasingly better organized and more skilled. Modernity, in short, is part of a world system of change that involves increased understanding and sometimes manipulation of the natural and physical world. We do not claim that modernization implies progress, but technological skills and scientific knowledge, as they develop, surely carry notes of efficiency and advancement over some prior state—reading and writing over only spoken language, mathematical operations over simple number systems (Dehaene, Izard, Spelke, & Pica, 2008), motorization over movement on foot, even explosives over hurled objects.

Yet participation in modernity is seldom total and usually a matter of degree, both for individuals and communities. In today's world, despite formal education, high technology, and other apparent advantages, modern societies do not lift all children (Huston et al., 2003). Moreover, none of this is to deny that specific niches may spur the emergence of specialized cognitive skills (as with spatial ability in apparently adaptive response to a near-featureless environment; Berry, 1966), or that aspects of ethno science in some traditional groups may rival modern societies' canons of logic and experiment, or levels of exact knowledge (Ascher, 1991). Our stance is that although modernization is not wholly systematic in its effects, and can be a source of very undesirable side effects (Bodley, 1982), it brings with it a complexity that tends to enhance cognitive functioning, at least cognitive functioning as conceptualized and assessed in Western science.

In the present study, we focused on a complex, large-scale social process and its relation to cognitive development and child behavior. As such, this research is consistent with Rogoff and Angelillo's (2002) call for cross-cultural research that focuses on patterns and regularities in cultural processes and practices, rather than ''free-standing individual characteristics'' within populations. At another level, however, there remain profound questions that cannot now be answered definitively. Kagitçibasi (1995, 1998) has pointed to some of these issues in relation to her own research in Turkey. She found that middle-class practices and values have many of the same effects in Turkey as they do in the United States; for example, mothers talk more to their children, which, in turn, helps prepare young children for school entry. Nevertheless, these practices also may introduce behaviors that are less welcome, such as youth leaving village communities for long or indefinite periods of time to attend school and to find work in urban areas.

Finally, there were no gender differences on any of the cognitive measures tested or in the observations of SMS-Play. However, there was a gender difference in child work. Although modernization was associated with child work, the effect size was small. This gender difference was evident in three of the four communities and the direction was the same in all cases, with girls working more than boys—a pattern that replicates the consistent cross-cultural finding that girls work more than boys (Whiting & Edwards, 1988). We expected there would be gender differences in schooling; however, we did not find such differences.

Societal modernization appears to contribute to the intellectual changes described by Flynn (1987, 1999, 2007). These changes are not only temporal, that is, measurable over time, they are also evident at the same point in time when cultures are compared on dimensions of modernization. Of course, it is not modernization per se that explains the differences reported here. Rather, adjustments in cognitive activity associated with modernization register in a range of human activities, including the everyday transactions that mature cultural members have with one another and in formal and informal socialization efforts directed toward children. Moreover, the psychological and developmental processes and consequences associated with societal modernization are complex and intertwined with many factors, including factors specific to the time, location, and history of the cultural community undergoing change. In addition, such changes tend to be piecemeal and the pace and pervasiveness of change can vary immensely across cultures.

Because modernization includes communication with the world beyond the community, analysis of this process evokes another pressing issue in relation to psychological development: globalization (Cole, 2006; Greenfield, 1998, 2004; Greenfield, Maynard, & Childs, 2003; Kagitçibasi, 1995; Kaufman & Rizzini, 2002). The ecology of childhood is changing rapidly around the world. Increased urbanization, massive shifts in economic, political, and social conditions, and changes in the communicative environment have significant impact on children's everyday lives (Chawla, 2002; Kaufman & Rizzini, 2002; LeVine, 2002). How child development is shaped and directed by these changes, many of which result

from the process of modernization and the associated forces of globalization, are critical issues for current and future research. As LeVine (2002) has stated, the study of ''children under complex cultural conditions such as immigration, rapid change, and intercultural contact offers not only complications absent from more static comparisons but also new opportunities for assessing rigorously the strength and stability of cultural patterns that had been previously observed but were not fully understood. In embracing historical change as an arena of inquiry, students of child rearing and development face not only a challenge but also the promise of greatly enhanced scientific understanding'' (p. 293). In keeping with LeVine's comments, the present study suggests that a cross-cultural approach and a sociohistorical perspective will both be essential to this effort.

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