Annu. Rev. Psychol. 2003. 54:461–90
doi: 10.1146/annurev.psych.54.101601.145221

First published online as a Review in Advance on October 28, 2002

CULTURAL PATHWAYS THROUGH UNIVERSAL DEVELOPMENT

Patricia M. Greenfield[1], Heidi Keller[2], Andrew Fuligni[3], and Ashley Maynard[4]

[1]*Department of Psychology, University of California, Los Angeles, Los Angeles, California 90095; e-mail: greenfield@psych.ucla.edu*

[2]*Department of Human Sciences, University of Osnabrueck. Osnabrueck, Germany 49069 and Department of Psychology, University of California, Los Angeles, Los Angeles, California 90095; e-mail: hkeller@uos.de*

[3]*Departments of Psychiatry and Psychology, University of California, Los Angeles, Los Angeles, California 90095; e-mail: afuligni@ucla.edu*

[4]*Department of Psychology, University of Hawaii, Honolulu, Hawaii 96822; e-mail: amaynard@hawaii.edu*

Key Words culture, development, individualism, collectivism, independence, interdependence, socialization

■ **Abstract** We focus our review on three universal tasks of human development: relationship formation, knowledge acquisition, and the balance between autonomy and relatedness at adolescence. We present evidence that each task can be addressed through two deeply different cultural pathways through development: the pathways of independence and interdependence. Whereas core theories in developmental psychology are universalistic in their intentions, they in fact presuppose the independent pathway of development. Because the independent pathway is therefore well-known in psychology, we focus a large part of our review on empirically documenting the alternative, interdependent pathway for each developmental task. We also present three theoretical approaches to culture and development: the ecocultural, the sociohistorical, and the cultural values approach. We argue that an understanding of cultural pathways through human development requires all three approaches. We review evidence linking values (cultural values approach), ecological conditions (ecocultural approach), and socialization practices (sociohistorical approach) to cultural pathways through universal developmental tasks.

CONTENTS

INTRODUCTION AND OVERVIEW

An important question is how cultural differentiation and universal phenomena interact in human development. In contrast to earlier *Annual Review* articles focused on cross-cultural issues (Bond & Smith 1996, Cooper & Denner 1998, Kagitçibasi & Berry 1989, Shweder & Sullivan 1993, Triandis & Suh 2002), our review is organized around universal developmental tasks. Each task begins at a particular part of the life cycle; each is a universal component of human ontogeny. However, how these universal developmental tasks are addressed can vary from group to group; they have alternative cultural resolutions. We review evidence showing that the resolutions fit into two contrasting cultural pathways organized around the preferred developmental goals of independence or interdependence. In an important sense, the endpoints of our developmental pathways are the individualistic and collectivistic personality types described by Triandis & Suh (2002) in their *Annual Review of Psychology* article.

The three universal tasks that we discuss are relationship formation, knowledge acquisition, and autonomy/relatedness. Each of these tasks first becomes important (or takes on its greatest importance) at a different period of development: relationship formation at birth, knowledge acquisition in early childhood, and autonomy/relatedness at adolescence. Each of these tasks is conceptualized in core theories within developmental psychology; we will identify these core theoretical approaches and critique them from a cultural perspective.

What is Culture? Its Relationship to Development, History, and Evolution

We view culture as a socially interactive process of construction comprising two main components: shared activity (cultural practices) and shared meaning (cultural interpretation). Both components of cultural processes are cumulative in nature since they occur between, as well as within, generations. Meanings and activities not only accumulate but also transform over both developmental time—across a single life cycle, and historical time—between generations. Cultural processes are based in the biological nature of humans, defining enabling as well as constraining conditions. Contrary to many earlier accounts, however, culture and biology are not opposites, but intrinsically interrelated and complementary (Greenfield 2002, Keller 2002, Fiske 2000).

Cultural processes are founded on an ontogenetic program of development with sensitive periods for different developmental tasks and modes of cultural learning (Greenfield 2000a). These developmental tasks and the modes of cultural learning have evolved in response to selection pressures from the environment. They have evolved both phylogenetically, over evolutionary time, and culturally, over historical time (Cole 1996). Therefore, cultural learning, both process and content, is stimulated by and adapted to a particular ecocultural niche. Cultural learning implies cultural teaching, which itself develops over the life span (Maynard 2002), over historical time (Greenfield 2000a), and over evolutionary time (Greenfield et al. 2000a).

Cultural Pathways Toward Independence and Interdependence: Integrating Three Approaches to Culture and Development

In the past 15 years, a body of evidence has cohered around two developmental trajectories that tie together differences in cultural learning throughout development. Whereas these differences have sometimes been reported as separate, unrelated facts, our model of two cultural pathways places them within a unified developmental theory. This is a model of two idealized developmental pathways, one emphasizing individuation and independence, the other emphasizing group membership and interdependence. Each ideal is part of a larger sociocultural system, the first termed individualistic, the latter, collectivistic or sociocentric. Our conceptualization links to earlier discussions of the "cultural syndromes" of individualism and collectivism (Hofstede 1991, Triandis 1988, 1990; for a critical review see Kagitçibasi 1994, Oyserman et al. 2002, Fiske 2002), as well as to the cultural construction of self as independent and/or interdependent (cf. Kagitçibasi 1990, 1996; Markus & Kitayama 1991). According to this model, adult conceptions of the ideal and actual self also serve as developmental goals that organize socialization experiences in characteristic ways (Kagitçibasi 1990, 1996). These goals, experiences, and the resultant behaviors define pathways across the life span.

This conception of cultural pathways draws on three major types of theory: the ecocultural, sociohistorical, and values approaches. The ecocultural approach emphasizes the causal influence of material conditions in the environment. The values approach, in contrast, emphasizes the causal influence of ideals or meanings inside the psyche. The sociohistorical approach emphasizes the causal influence of social factors: the interactional processes and symbolic tools used in cultural learning, which develop over historical time. Early on, it was recognized that these influences are not mutually exclusive. Whiting & Whiting (1960), for example, noted the persistence of value systems in the face of maladaptive consequences. They recognized that environmental conditions are not always determinative and that psychological ideals can sometimes be stronger.

The values approach is the most central to our model of cultural pathways through universal development.

THE CULTURAL VALUES APPROACH On the side of social development, the distinction between independent and interdependent pathways of development originates in cross-cultural comparative research identifying altruism and egoism as outcomes of different socialization practices under different environmental conditions (Whiting & Whiting 1973). On the side of cognitive development, the distinction between a more collectivistic and individualistic worldview originates in Greenfield's research in Senegal in which she found greater metacognitive self-awareness—a cognitive separation of self and world—as a result of the Western institution of formal schooling (Greenfield & Bruner 1966). This type of distinction was greatly elaborated by Mundy-Castle (1974) in his contrast between technological intelligence, which is more developed in the independent person characteristic of Europe, and social intelligence, which is more developed in the interdependent person characteristic of Africa. Related explorations of intelligence concepts in different cultures began to appear (Dasen & de Ribeaupierre 1987, Serpell 1994, Sternberg et al. 1981, Wober 1974); all challenged the assumption that technological/scientific intelligence was a universal endpoint of development (Greenfield 1974). They pointed to alternative emphases on social intelligence, a concern with responsible ways of contributing to the social world.

Out of these historical beginnings has grown a conception of alternative pathways of development. In an independent developmental pathway, social obligations are individually negotiated; opportunities to select social relationships (personal choice) and to act freely in those relationships (individual rights) are maximized (Raeff et al. 2000). In an interdependent developmental pathway, in contrast, social obligations and responsibilities are given greater priority, while individual choice is much less important. An independent pathway prioritizes individuation as a developmental goal; an interdependent pathway, by contrast, prioritizes conforming to established social norms as a developmental goal (Nsamenang & Lamb 1994, Weisner 2000, Kitayama 2002).

Culturally relevant developmental goals are represented in the form of implicit ethnotheories of development, i.e., a system of beliefs and ideas concerning the nature of the ideal child and the socialization practices necessary to achieve this ideal (Goodnow 1988, Harkness & Super 1996, McGillicuddy-De Lisi & Sigel 1995). These ethnotheories are shared (and negotiated) among members of cultural communities. These values can be expressed explicitly, as in the study of parental ethnotheories, or implicitly, as in the study of cultural practices, particularly discourse practices (Ochs & Schieffelin 1984, Sigel et al. 1992, Keller et al. 2002b). The growing emphasis on indigenous conceptualizations of parenting goals (Chao 1994, Gutierrez & Sameroff 1990, Yovsi & Keller 2000) has unraveled independence and interdependence as core dimensions, applicable to all developmental domains. Participants from non-Western cultures/immigrants, such as Chinese (Chao 1994), Japanese (Rothbaum et al. 2000), Indians (Saraswathi 1999, Keller et al. 2002b), West Africans [Ogunnnaike & Houser (2002) for Nigeria, Nsamenang (1992) and Yovsi (2001) for Cameroon], and Puerto Ricans (Harwood et al. 1996) subscribe to the cultural ideal of interdependence: their ethnotheories stress

decency (responsibility, honesty) and proper demeanor (politeness, respect for elders, loyalty to family) for social and cognitive developmental domains (Harwood 1992).

Participants from Western industrialized cultural communities, such as Germans (Keller et al. 2002a,b), European Americans (Harwood et al. 1996) and Dutch (Harkness et al. 2000b), subscribe to the cultural ideal of independence: their ethnotheories stress self-maximization and independence (creativity, curiosity, assertiveness, self-esteem). High socioeconomic (SES) status and formal education are associated with a more individualistic orientation (Keller et al. 2002b, Palacios & Moreno 1996, Tapia Uribe et al. 1994). Nonetheless, these cultural orientations persist across various socioeconomic and educational backgrounds (Keller et al. 2002b, Harwood et al. 1996). Socialization practices that function to actualize the ethnotheoretical framework within cultural communities begin at birth or even before.

THE ECOCULTURAL APPROACH The ecocultural approach, also pioneered by anthropologists Beatrice and John Whiting, sees the child's behavioral development and the acquisition of culture as resulting from the interaction between human biological potentialities and environmental conditions (D'Andrade 1994, Whiting & Whiting 1975)[1]. In short, the ecocultural approach emphasizes development as an adaptation to different environmental conditions and constraints (Berry 1976, LeVine 1977, Munroe & Munroe 1994, Super & Harkness 1986, Weisner 1997, Whiting & Whiting 1975, Whiting & Edwards 1988).

For example, Berry (1976) did an extensive cross-cultural study of ecological influences on the socialization and performance of perceptual and cognitive tasks. Berry's definition of ecology includes distal variables of physical environment, economic possibilities, and community size. As another example, Whiting & Edwards (1988) extend their ecological lens to the proximal ecology of maternal behavior; their ecological variables include mothers' workloads, household composition, and support networks. Whiting & Edwards relate maternal behavior, in turn, to children's social development; social behaviors of interest include dependency, obedience, cooperation, and aggression. Of the three approaches, the ecological approach has been the most concerned with stages of development and their ontogenetic links through the life span (Whiting & Edwards 1988, Weisner & Bernheimer 1998).

From the ecocultural perspective, particular economic and environmental conditions create different social structures that favor different developmental pathways (cf Berry 1994). The pathways therefore arise as adaptations to these physical and economic conditions. Thus, the interdependent pathway appears to be an adaptive response to small face-to-face communities and a subsistence economy; these communities value tradition and therefore change slowly. The independent

[1]The ecocultural was originally termed the psychocultural and this term is sometimes still used.

pathway, in contrast, appears to be an adaptive response to large, anonymous, urban communities and a commercial economy (Greenfield 2000a, Keller 1997, Keller & Greenfield 2000, Keller et al. 2002b); these communities value innovation and therefore change more rapidly. In slow-changing, subsistence-based ecologies, ethnotheories are transmitted vertically from generation to generation, maximizing historical continuity. In complex and fast-changing societies, on the other hand, parental ideas are negotiated horizontally within generations, relying on public discourse (media) and experts (pediatricians); parental ideas substantially differ between generations (Keller et al. 1984, Hewlett & Lamb 2002).

THE SOCIOHISTORICAL APPROACH This approach emphasizes processes of social construction, particularly cultural apprenticeship, cultural activities or practices, the use of cultural artifacts, including tools, and the historical dimension of these processes (Cole 1996; Lave & Wenger 1991; Rogoff 1990; Saxe 1991; Scribner 1985; Scribner & Cole 1973, 1981; Vygotsky 1962; Wertsch 1985; Zukow 1989). Social construction is seen as a set of situation-specific activities.

The primary focus of this approach has been on explaining the child's cognitive development. For example, Mistry & Rogoff (1994) demonstrate that memory is context bound and has to be viewed as an activity rather than as a context-free skill. They report studies demonstrating that memory for familiar cultural tools exceeds memory for culturally neutral items. As another example, Japanese abacus experts can recall series of 15 digits forward or backward, whereas their memory span for the Roman alphabet or fruit names matches the usual 7 +/− 2 units (Hatano 1982).

The sociohistorical perspective is crucial to the model of cultural pathways through universal development. According to this model, each pathway results from a value orientation that generates the construction of socializing practices in particular situations (often called co-construction to reflect the active involvement of the child). These social construction processes include apprenticeship from cultural "experts" in the adult generation, as well as peer interaction (Greenfield & Lave 1982, Maynard 2002). The interactional routines and artifacts that are utilized in cultural learning have a key role in socializing a child to proceed on a particular developmental pathway. (Greenfield 2000a, Rogoff 1990, Mistry & Rogoff 1994, Saxe 1991). Construction processes become particularly salient in bicultural people, where one or the other value system can become prominent in a particular situation (Garcia-Coll et al. 1995).

Criticisms of Independence/Individualism and Interdependence/Collectivism as Basic Cultural Paradigms

One common criticism of these cultural paradigms is that the approach is too simplistic and reductionistic; the dichotomous binary quality of individualism and collectivism is seen as problematical (Killen & Wainryb 2000). This critique refers mainly to cross-cultural questionnaire studies. These studies usually compare

national samples of university students to infer cultural differences. Conflicting results (Chan 1994, Fiske 2002, Oyserman et al. 2002, Singelis et al. 1995) are mainly a result of a lack of external validity of the questionnaires, of cultural insensitivity in the assessment, of the failure to consider SES and education as cultural factors, and of an overuse of national labels as a proxy for internal culture. In contrast, we take variables such as education and SES very seriously in this review. Even more important, the developmental research we review relies heavily on the naturalistic observation, ethnography, and culturally adapted techniques that are the heart of cultural psychology and psychological anthropology (Greenfield 1997); it relies not at all on standardized questionnaires administered to various national groups.

Another criticism of the framework involves the notion that independent and interdependent concerns coexist in the same culture (Killen & Wainryb 2000). In response, we note that individual enterprise (independence) and social relationships (interdependence) each have distinctive modes of expression in the two cultural frameworks. For example, freely chosen relationships are valued in the independent framework, while implicit social obligations are a more valued relationship premise in the interdependent framework.

As a closely related response to this criticism, a given behavior may be valued in both types of culture, but its relative priority may be different. For example, sharing with siblings is valued by parents in mainstream U.S. culture, but sharing is considered a matter of personal choice. Among Mexican immigrants to Los Angeles, by contrast, sharing has a much higher priority; it is simply expected (Raeff et al. 2000). Prioritizing one value over another may involve setting boundary conditions for the exercise of the preferred value (Wainryb 1995).

Boundary conditions may also reflect intergroup contact and cultural change processes. For example, the collectivistic Druze community studied by Wainryb (1995) is surrounded by the greater individualism of mainstream Israeli culture. Under these circumstances, the development in Druze children of boundaries on the rightful exercise of authority and the obligation to obey may, among other things, reflect contact with the surrounding national culture. Indeed, the existence of two different systems in bicultural individuals is not evidence against the systems. That they exist as parallel systems, not a random mix of individual traits or proclivities, is demonstrated by the fact that each system can be independently elicited by a culturally relevant prime (Hong et al. 2000; cf. also Kühnen & Oyserman 2002, Kühnen et al. 2001).

The existence of individual differences in the same culture is also seen as a criticism of the independence-interdependence framework. For example, Wainryb and Turiel (1994) found more orientation toward autonomy among males than females in collectivistic Druze culture. However, this criticism treats cultural characteristics as independent (sic!) traits and fails to take into account the systemic nature of cultures. In response to their example, we would see female respect for male authority, a relational feature of collectivistic cultures, as the root of such differential autonomy. Sometimes the between-culture variability among collectivistic

cultures or among individualistic cultures is taken as a criticism of the paradigm (Harkness et al. 2000). Qualitative and quantitative variability has been found in both systems (Harkness et al. 2000, Hofstede 1991). The two value systems are merely ideal paradigms that get instantiated in a multiplicity of concrete and historically differentiated cultural contexts.

CULTURAL PATHWAYS THROUGH UNIVERSAL DEVELOPMENTAL TASKS

The conception of developmental pathways implies a coherent and meaningful organization of the developmental tasks over the life span. In principle, the solutions of earlier tasks along the pathway form foundations for later steps along the same pathway. Individual and cross-cultural differences exist in the way each major type of pathway is negotiated. (Note, however, the greater emphasis on individual differences and individuation in the individualistic pathway.) We see each pathway as a kind of developmental canalization of deep cultural meaning. Specific cultural practices then become instantiations of this meaning. Different cultural practices can be used to instantiate the same cultural pathway both across and within cultures (Greenfield 2000b).

We present each developmental issue—relationship formation, knowledge acquisition, and autonomy/relatedness—in the order in which the underlying capacity first matures and becomes a major developmental task. We illustrate cultural continuity across the life span, showing how the results of the earlier tasks prepare, in theory, the way in which later tasks are approached and eventually resolved (Keller 1997). Our plan is to show that each universal developmental issue is subject to a parallel and linked process of cultural differentiation.

Developmental psychology has traditionally assumed the individualistic pathway; recent theory and research in cultural, cross-cultural, and indigenous psychology identifies a set of alternative assumptions (Nsamenang 1999, Nsamenang & Lamb 1994, Saraswathi & Ganapathy 2002). A recent study by D'Andrade indicates that cross-cultural value differences do indeed organize themselves statistically around the single factor of individualism and collectivism (D'Andrade 2002). However, a simple underlying concept does not equate to reductionism, as the discussion of the role of social construction above indicates.

In the remainder of our review, we organize the existing body of knowledge for each of the three developmental domains—relationship formation, knowledge acquisition, and autonomy/relatedness—around these two pathways. For each developmental topic, we try to link variability in environmental conditions over space and time (ecocultural approach), developmental goals (values approach), and socialization practices or interactions (sociohistorical approach), to variability in human development. In the current world of social change and cross-cultural contact, there is often the meeting and even collision of individualistic and collectivistic ideals, as well as endogenous change in response to changing environments. Therefore, examples of colliding and changing pathways also figure into our review.

Close Social Relations from Infancy Through Adulthood

There is agreement across different theoretical approaches that the formation of relationships is the first integrative developmental task that infants and their caregivers have to master (Keller 2002). Because of infants' extreme helplessness (altriciality), they rely on a caregiving environment. In addition to food, shelter, and hygiene, social experiences are crucial for development. In this way, early relationships not only secure survival; they also initiate the infant into the cultural surround and have consequences for mastering the developmental tasks to come.

The core theoretical approach to relationship formation is attachment theory (Bowlby 1969, Ainsworth et al. 1978). Attachment theory stresses the evolutionary basis of attachment relationships as a phylogenetically evolved adaptive system with a core of standard assumptions that are supposed to constitute universals of ontogenetic development. Basically, it assumes that maternal sensitivity, defined as the prompt, adequate and consistent reaction towards infants' cues, is causally linked to attachment security and that this constitutes the normative and healthy developmental pattern across cultures (Grossmann et al. 2002). It further assumes that attachment security is linked to later developmental outcomes in the sense that securely attached children demonstrate more favorable outcomes in a life span perspective than insecurely attached infants (Sroufe et al. 1999). The third core assumption stresses the interrelatedness of the attachment system with the equally evolved exploration system, in that the mother serves as a secure base for infant exploration (Waters et al. 1995).

A closer inspection of these core assumptions, however, indicates that they all assume an independent cultural orientation (Rothbaum et al. 2000). For example, attachment security, as assessed in the strange situation procedure (Ainsworth et al. 1978), evaluates the infant's behavior after separations from the mother in a laboratory environment. Attachment is measured by how well the baby adjusts to separation—his or her ability to enthusiastically reconnect with the mother after she has temporarily abandoned her child to a strange room and/or to an unfamiliar person, as well as the quick return to exploratory play.

However, mothers in different cultures do not treat the baby's desire for proximity in the same way, nor do they take separations as routine (Harwood et al. 1996). Moreover, "strangers" in the United States are less strange and more familiar to babies than they would be in Highland Guatemala, Japan, or other parts of the world (Morelli et al. 1992; Takahashi 1990). Thus, the protocol of the strange situation cannot adequately measure the attachment bond in cultures where the attachment motive is fulfilled by ongoing closeness with no tolerance for separation (Takahashi 1990)[2].

[2]Ironically, the "strange situation" was originally developed to measure the culture-specific forms of attachment Ainsworth noticed in the United States, following her 1967 study in Uganda; since, however, it has been carried around the world (LeVine & Miller 1990).

These differences in treatment are far from random. Instead, different practices are based on different developmental goals and different priorities for the development of their children (Greenfield & Suzuki 1998). In cultural communities that value interdependence, the early relational matrix is founded in the ethnotheory of a continuously close mother-child relationship entailing close body contact during day (carrying) and night. One Cameroonian Nso mother said in an ethnographic interview that a baby needs to be bonded to the mother's body (Keller et al. 2002a). Infants in large parts of Africa, Asia, and South America sleep with their mothers, because separation of the infant from the mother is beyond imagination (Morelli et al. 1992, Shweder et al. 1998, Yovsi 2001). Close body contact conveys interactional warmth; such warmth is considered a psychological precursor of interrelatedness and acceptance of norms and values of the parent generation (MacDonald 1992, Radke-Yarrow et al. 1983). An immediate or even anticipatory reaction to infants' distress signals minimizes the self-other distinction, e.g., in Japan (Rothbaum et al. 2000), Cameroon (Yovsi & Keller 2000), India (Saraswathi & Pai 1997), and Mexico (Brazelton et al. 1969).

In cultural communities that value independence, the early relational matrix is founded on an ethnotheory of infants' early independent functioning. The ability of infants to sleep through the night, in a different place or even a different room from the parents, is held in high regard in Germany (Keller et al. 2002a) and the United States (Morelli et al. 1992). An early orientation to the nonsocial world of things and objects further stresses independence from social relationships, e.g., in Germany (Keller et al. 2002b) and in France (Rabain-Jamain & Sabeau-Jouannet 1997). Others' contingent responses to babies' autonomous signals support the development of their independent agency (Keller 2002).

What are the implications of such differences for the development of attachment and what are the developmental consequences for life span development? Differences in socialization styles and practices between Japan and the United States yield one pathway (United States) toward intergenerational tension with emphasis on child and adolescent autonomy (see section on Autonomy and Relatedness, below). Intergenerational tension is resolved by privileging romantic or marital bonds at the expense of intergenerational filial ones (Lebra 1994).

The other pathway (Japan) moves toward close intergenerational harmony across the life span (Lebra 1994, Rothbaum et al. 2000). This pattern is found in other cultural communities, such as Puerto Rico and Mexico. These communities value interdependence more than independence (Harwood et al. 1996, Greenfield & Suzuki 1998, Keller & Greenfield 2000), obedience more than personal choice (Saraswathi 1999), and harmony more than exploration (Rothbaum et al. 2000). The adult cultural ideal of assertiveness and autonomy, highly esteemed in the United States, would be evaluated as immaturity and lack of cultivation in East Asia (Fiske et al. 1998). [We must note, however, that Japan and many other countries have undergone and are undergoing economic development that moves child rearing in an individualistic direction. The results of this change in child rearing can be seen in the babies of working Japanese mothers, whose behaviors are similar to those of the United States (Greenfield & Suzuki 1998).]

In the interdependent model, the child's dependence on the parents comes to be reversed at adulthood when parents become dependent on adult children. That this reversal occurs has been established through the cross-cultural Value of Children Study in countries such as Indonesia, Philippines, Thailand, Taiwan, and Turkey (Kagitçibasi 1996). In individualistic countries such as Germany and the United States, this pattern did not hold. For example, in the United States, some European American parents retain a strong desire to remain independent as they get older; they want their children to spend time with them by choice, not obligation (Suzuki 2000).

Each model is a whole of interrelated parts. A change in one part alone can be dysfunctional. For example, cosleeping is associated with more sleeping problems in the United States, but not in Japan, where it is normative and part of the interdependence cultural complex (Latz et al. 1999). Given the correlational nature of the Latz et al. study, however, the relationship is most likely bidirectional. That is, in some cases in the United States, cosleeping may be a reaction to sleep problems, rather than a cause of them. In any case, sleep problems are less often reported as clinical concerns in Japan than in the United States (Nugent 1994).

CROSS-CULTURAL CONTACT AND CONFLICT An understanding of the two models of development is particularly important because an independence orientation and an interdependence orientation are on a collision course in multicultural societies. Many immigrants come to individualistic societies from societies that prioritize interdependence over independence (Greenfield & Cocking 1994). This situation can lead to professional recommendations for care, e.g., separate sleeping arrangements, that assume an independence orientation, but conflict with the interdependent orientation of immigrant parents. Observations reveal the same underlying conflict between independence-oriented institutional arrangements and intergenerational interdependence at other parts of the life cycle. For example, some Asian-American adults feel that they ought to take care of their elderly parents, but fear that their parents will end up in a nursing home, an institutional manifestation of independence between the generations.

SUMMARY In order to better understand the cultural pathways of development, one must study broader cultural values and their instantiation in ethnotheories of development shared by members of different cultural communities. These ethnotheories in turn frame the parenting behaviors that modulate behavioral and ideational development toward the demands of the ecocultural context. We next sample research that indicates how the same cultural pathways apply to the development of knowledge.

Intelligence, Knowledge, and Apprenticeship

THEORIES AND ETHNOTHEORIES OF INTELLIGENCE AND KNOWLEDGE Clearly, human intelligence and the brain structure that supports it are keys to our adaptation as a species. In developmental psychology, the classical theory of intelligence is

that of Piaget. Understanding the basis for Western scientific thought was Piaget's most fundamental theoretical concern (Piaget 1963/1977). Under Inhelder's leadership, Piaget investigated the development of scientific thought (chemistry and physics) in a set of experimental studies (Inhelder & Piaget 1958). This body of theory and research implies the importance of scientific intelligence as a developmental goal. This goal predominates in the same countries that favor the more independent mode of social relations. Conceptually, the goal of scientific intelligence belongs to the individualistic pathway because it emphasizes the person in relation to the world of objects. This goal for the development of intelligence can be seen as compatible with infant caregiving practices that emphasize leaving the infant alone to manipulate technologically appealing toys.

In sharp contrast, social intelligence has been found to be the predominant ideal in Africa and Asia (e.g., Wober 1974, Super 1983, Dasen 1984, Gill & Keats 1980, Serpell 1993, Nsamenang & Lamb 1994, Grigorenko et al. 2001). For example, in Ivory Coast the central feature of the Baoulé concept of intelligence is willingness to help others (Dasen 1984). Competing theories of intelligence may be operative at home and at school, the latter being of European origin (Dasen 1984). Whereas the most comprehensive theory of development in Europe is Piaget's theory of cognitive development, the most comprehensive theory of development in Africa is that of Nsamenang, who outlines stages of development in terms of social roles (Nsamenang 1992). In general, African cultures not only emphasize social intelligence, but also see the role of technical skills as a means to social ends (Dasen 1984). Such conceptions can be seen as collectivistic conceptions of intelligence (Segall et al. 1999). They are, moreover, compatible with infant caregiving practices that emphasize close bodily contact between infant and caregiver, rather than separation and independent manipulation of toys.

Closely related to the individualistic and collectivistic conceptions of intelligence are two different conceptions of knowledge. In a Mayan community in Chiapas, Mexico, the Tzotzil word *na*, meaning "to know," has a more person-centered meaning, compared with the English word *know* (Zambrano 1999). Whereas "to know" in English always involves the mind, *na* often involves the heart and soul. [According to Li (2002), a similar concept of "heart and mind for wanting to learn" is found in China.] Whereas *knowing* connotes factual knowledge, theoretical understanding, or know-how, *na* also connotes knowledge of practice that is habitual and characteristic of a given person; it is very much akin to character (Zambrano 1999). The former type of knowledge is more important in a culture valuing the individual's possession of technical expertise. The latter is more important in a culture placing a greater value on social character.

A similar contrast has been found between Native American and European American conceptions of giftedness (Romero 1994). This research shows that, whereas the dominant U.S. society focuses on identifying and meeting the needs of the "cream of the crop," an individualistic valuing of children who stand out from the group, Keres-speaking Pueblo Indians focus on community and inclusion. In this conception, the special qualities of a "gifted" child are supposed to contribute to the well-being and cohesiveness of the community.

MODES OF APPRENTICESHIP These two ethnotheories of giftedness are supported by two different sets of apprenticeship practices. By apprenticeship, we simply mean informal teaching and learning, a type of knowledge transmission that has evolved from primitive roots in nonhuman primates (Greenfield et al. 2000a, Boesch 1991, Whiten 1999).

Corresponding to their concept of giftedness, apprenticeship processes that are valued by the Keres include cooperation, mentorship, and intergenerational modeling. "Keen observation, attentiveness, and focused listening are important methods of learning" (Romero 1994, p. 53), while methods valued in the individualistic framework—questioning, skepticism, and curiosity—are not promoted.

Empirical studies of apprenticeship also document two basic models of apprenticeship, one more independent and one more interdependent. The interdependent model is found in traditional weaving apprenticeship in one Mayan community and in modes of guiding children in an experimental puzzle task in another Mayan community (Greenfield 2000a, Chavajay & Rogoff 2002). These modes seem adapted to subsistence economies in which learning takes place in family settings. Indeed, both studies find changes in the model with changes in the ecocultural environment.

Weaving apprenticeship moves toward a more independent mode of learning as subsistence is replaced by commerce (Greenfield 2000a). With formal education, the way in which mothers guide puzzle construction moves from shared multiparty engagement (the whole group focusing on a single aspect of the puzzle) toward division of labor where individuals or dyads work separately on different task components (Chavajay & Rogoff 2002). Both commerce and formal schooling are associated with a more individualistic mode of apprenticeship (Greenfield 2000a, Tapia Uribe et al. 1994).

CROSS-CULTURAL CONTACT AND CONFLICT AT SCHOOL As in close social relations, research shows the two types of knowledge and intelligence to be on a collision course in a multicultural society. In U.S. schools, teachers focus on independent academic achievement, whereas Latino parents, for example, are often more concerned about social behavior (Greenfield et al. 2000b, Okagaki & Sternberg 1993). These goals are crystallized in a different concept of education, *educación* (Reese et al. 1995). This Spanish word is not an accurate translation of the English word education. Unlike "education," *educación* refers to the inculcation of proper and respectful social behavior; like the Tzotzil *na*, *educación* refers to character. The connotation is that academic learning does not suffice to make a person educated. Similar conflicts occur for families immigrating to the United States from Cambodia, Phillipines, and Vietnam (Okagaki & Sternberg 1993). As another example, two Native American concepts—that one learns by observing rather than by participating and that one learns for the benefit of the group rather than for the self (as discussed above) also lead to mismatches between Native American children and the schools (Suina & Smolkin 1994).

THE DEVELOPMENT OF PERSON KNOWLEDGE: INTENTION, ACTION, AND SOCIAL EFFECT An understanding of self and others is part of our universal evolutionary heritage (Tomasello 1999, Whiten 2002). The mirror neuron system of the cerebral cortex reveals a common neuromuscular activation for acting oneself and for understanding the actions of others (Fadiga et al. 1995, Iacoboni et al. 1999). Because monkeys have a very similar neural system (di Pellegrino et al. 1992, Rizzolatti et al. 1996), this system for identifying self with others (Favareau 2001) is likely an ancient component of the human primate heritage.

In ontogeny, the first step in understanding self and others occurs at birth, when infants discriminate people from things (Trevarthen 1980). Comprehension of agency as the production of goal-directed action begins in early infancy (Gelman & Lucariello 2002). An ability to distinguish between self and other as intentional agents develops at eight or nine months of age (Piaget 1952, Tomasello 1999, Trevarthen 1980).

At the one-word stage of language development (between one and two years of age) infants code the intentional action not just of self but of others (Greenfield & Smith 1976, Greenfield 1980), and this encoding seems to have ancient phylogenetic roots (Greenfield & Savage-Rumbaugh 1990). The linguistic encoding of intentional action becomes more complex with age and the acquisition of language (Bloom et al. 1975). At the same time, there is very early understanding of the effects of action on other people. Script knowledge, which begins in the second year of life, involves the understanding of both intentions and effects of human action (Gelman & Lucariello 2002). It also requires an understanding of the coordination of action by more than one person.

These two universal capacities—the capacity to encode the intentions of self and others and the capacity to encode the social effects of one's own and others' action—provide the groundwork for two distinct cultural emphases in the development of person knowledge. Some cultures emphasize the individual psyche, individual traits, and the individual intentions behind action (Vinden & Astington 2000); other cultures emphasize the social effects and social context of a person's action (Duranti 1988, 1993; Shweder & Bourne 1984; Fiske et al. 1998). The latter also see mind and heart as integrated rather than separate (Lillard 1998, Zambrano 1999). We see the former as the individualistic emphasis, the latter as the collectivistic or sociocentric emphasis.

Most literature on theory of mind—the ability to think about other people's mental states—assumed an emphasis on individual minds (Flavell 1999). We, however, see theory of mind as a special culturally canalized case of person knowledge (cf. Hobson 1993). We now review the literature indicating the existence of these two different cultural emphases—individual psyche versus social effects or context—in the development of social understanding or person knowledge. Ideally, cross-cultural comparison would involve a developmental analysis of tasks tapping into both of these cultural emphases within the context of universal developments. A study of social explanation in India and the United States (Miller 1984) did exactly that: **C**hildren in both the United States and India got better at social explanation with age (the universal development). At the same time, children in the

United States increasingly formulated their social explanations of events in terms of an individual's stable traits (emphasis on the individual psyche). Indian children, in contrast, increasingly formulated their social explanations in terms of contextual factors, particularly factors in the social surround (emphasis on social context).

Although it claims universality, we utilize the classical literature on theory of mind to complete the picture of the individualistic pathway to person knowledge. Early steps along this pathway have to do with the acquisition of mentalistic terms; children as young as 22 months first produce mentalistic terms such as know and pretend (Wellman 1990). Later, the child is able to imagine a mental state of affairs in another person different from the information available to oneself (e.g., Perner 1991). Similar trends occur in literate, developed countries, both Western and non-Western (Wellman et al. 2001). The differentiation and individuation of people according to their states of mind is basic to this developmental pathway to social understanding.

However, in the other pathway, mentalistic terms are lacking in the lexicon, are not understood in the same way as the English equivalents, and are not applied to oneself. This phenomenon has been found in a number of subsistence ecologies (Greenfield & Bruner 1966; Vinden 1996, 1999). However, both schooling, with its demand for justifications, and literacy, with its separation of thought (on paper) from thinker, leads to an understanding of the mentalistic term *think* (Greenfield & Bruner 1966). [See Lillard (1998) for a cross-cultural review of the theory-of mind-literature.]

In a nonliterate subsistence ecology in Africa, children between two and four were given a theory-of-mind task that was embedded into a context of social action. In addition, the task utilized the term *heart* rather than *thought* (Avis & Harris 1991). Under these circumstances, Baka children in southeast Cameroon showed the development of social understanding that had been found in the United States and Europe. The results contrasted strongly with another study that (*a*) decontextualized the task, presenting it as a task involving only one actual person, the subject; (*b*) asked about the deceived's thought rather than action in reference to a hidden object; and (*c*) asked about mind rather than heart. Under these conditions, Quechua children between about four and eight performed at chance levels (Vinden 1996). Somewhat more contextualized tasks led to somewhat improved performance in subsistence groups in Cameroon, West Africa (the Mofu), and Papua New Guinea (the Tainae and Tolai) (Vinden 1999). Meta-analysis indicates that, around the world, children from subsistence cultures solve theory-of mind-tasks better when these are presented in context (Wellman et al. 2001). However, Vinden (1999) found a lag in age in all groups relative to children of European-derived cultures; false belief (the understanding that another person has been misled into believing that something is true that is in fact false), assessed using the word "think," was at chance levels at all ages in the two groups most isolated from the outside world of European culture.

Here we interpret a lag as indicating that the skill in question is not valued in a particular culture (LeVine 1997). "With a collectivist or group orientation, personal, mental, and emotional states are relatively unimportant" (Vinden &

Astington 2000, p. 512). In line with the notion that school ecology favors the development of attention to the individual psyche, schooled children performed better on several of the tasks relating to predicting an individual's behavior or emotion in a nonsocial situation (Vinden 1999).

On the other hand, in a culturally important social situation, young children from small, face-to-face societies with subsistence traditions show advanced understanding of the knowledge state and feelings of another person, whose knowledge differs from one's own. In a successful apprenticeship situation, the expert must be aware of how much less the novice knows, in comparison with self. The expert must also be aware of the novice's need for materials and what the novice's motivations are. In a video study of naturalistic interactions, Zinacantec Mayan children ages 3 to 11 taught their 2-year-old siblings everyday tasks in the course of their caregiving interactions (Maynard 2002). Children as young as 4 years old were able to get the necessary materials for tasks and model the tasks for their younger siblings. They were also able to provide useful verbal guidance in teaching, such as narrating a task they were demonstrating and giving commands to the younger child. By the age of 8, children were very adept at simplifying the task for the younger children by giving them parts of tasks, one at a time, and at scaffolding the task by providing complex verbal information. These advanced skills showed an understanding of the knowledge state, material needs, and motivation of the younger children. The social context of sibling caregiving may have played a role in the young children's desire and skill in teaching their younger siblings.

Similar sibling teaching practices were found in another sibling-caregiving culture: the Wolof of Senegal (Rabain-Jamin et al.). Wolof sibling caregivers engage younger siblings in play by guiding them in tasks and by encouraging and reinforcing verbal assertions. Future research is needed to explore the relationship between being a sibling caregiver and the cognitive operations of person knowledge, as assessed in experimental tasks.

In summary, cross-cultural differences in performance on theory-of-mind tasks have been found. The notion of a more contextualized sociocentric pathway, in contrast with a more decontextualized egocentric pathway, each one adapted to different ecological conditions, provides a good fit to the data. In conditions of rapid social change toward Western schooling and commerce, as in Korea and Japan, a more individual-centered person conception seems to develop (Wellman et al. 2001), despite the more sociocentric models of early development described earlier. However, contradiction in Korea and Japan between sociocentric models of early development and socialization (Kim & Choi 1994, Rothbaum et al. 2000) and the development of an individuated notion of false belief (the topic of the Wellman et al. 2001 meta-analysis) could also be considered a challenge to the definition of two coherent pathways of development. Future research in Korea and Japan comparing the development of false belief in rural and urban ecologies and among populations with varying amounts of formal schooling could help address this issue. If the conception of coherent developmental pathways adapted to

ecological niches is correct, rural and less-schooled populations should lag in the more individual-centered notions of person such as those that come into play on false belief tasks.

Indeed, it may be culturally significant that person knowledge has been measured so frequently by false belief, the dominant theory-of-mind task. In a false-belief task, the participant must understand that another person has a different perspective (the false belief) from his or her own. It is a task that requires individuation of one's perspective from that of another. Individuation is an important component of the development of the independent self (see section on Autonomy and Relatedness, below). It may be that socialization in interdependent cultures emphasizes *shared* perspectives more than *different* perspectives. Only future research can tell us whether this may be another reason for relatively poor performance on false belief tasks in collectivistic, subsistence cultures.

KNOWLEDGE OF THE PHYSICAL WORLD: THE REPRESENTATION OF SPACE Lack of space precludes detailed treatment of this domain. We include it in brief in order to show that the concept of two canalized pathways through universal development applies not just to knowledge of the social world, but also to knowledge of the physical world. It is clear that spatial representation develops in participation in cultural activities (Gauvain 1992) and that language-specific patterns of spatial representation affect the ways that children learn to express motion events (Choi & Bowerman 1991).

A universal of spatial representation is that two major kinds of reference systems develop across societies. The egocentric (viewer-centered) system features relative terms such as left and right; the geocentric system features so-called absolute terms such as north and south. From the two-pathways perspective, the interesting point is that geocentric systems utilize reference points shared by the group. In a face-to-face group, north, for example, is in the same direction for everyone. It turns out that more individualistic cultures of European derivation feature egocentric spatial systems, whereas more collectivistic cultures, such as the Maya discussed earlier, feature absolute systems (Levinson 1998, Haviland 1998). In Bali, where geocentric terminology is more important than egocentric terminology for describing space, children as young as 4 or 5 utilize geocentric terminology (Wassman & Dasen 1998). A similar pattern of results was found in rural Polynesia (Troadac & Martinot ND) and in rural India and Nepal (Dasen et al. 2000). In rural Nepal and India, as well as in urban India and Tahiti, the frequency of geocentric encoding increased with age, in line with socialization into the indigenous geocentric system of reference.

Finally, in urban ecologies, the rural traditions of collectivism meet the individualistic ways of the city. Thus, in urban Tahiti and in urban India, both egocentric and geocentric or absolute systems were used by children to solve spatial problems (Dasen et al. 2000, Troadac & Martinot ND). However, in Bali, France, Tahiti, Nepal, and India, it was also clear that the less dominant system could be called into play when task conditions favored it.

SUMMARY Both the development of person knowledge and the development of spatial knowledge seem to be guided by the same canalized pathways that guide the development of social relations. Within the individualistic pathway, cultures emphasize understanding the individual intentions and traits behind action and the individual psyche more generally (Vinden & Astington 2000). Within the interdependent pathway, cultures give stronger emphasis to the social effects and social context of a person's action (Duranti 1988, 1993; Shweder & Bourne 1984; Fiske et al. 1998). A parallel differentiation takes place within the arena of space. Geocentric spatial systems utilize reference points shared by a face-to-face group (for example, north and south), and these are acquired early by children in collectivistic cultures. In contrast, egocentric (viewer-centered) spatial systems feature relative reference points (left and right) that can vary from person to person (for example, when two people are facing each other), and these spatial systems are acquired early by children in more individualistic urban environments.

Autonomy and Relatedness

Cognitive, physical, and social changes take place as children around the world enter adolescence. These changes create a member of society who is no longer wholly dependent upon other family members for care and survival, and who is becoming able to take on adult-like roles and contribute to the well-being and survival of others. Most families, therefore, inevitably face the question of how to accommodate their increasingly competent and mature children during the years of adolescence. For much of the twentieth century, the position of mainstream psychology in North America and Europe was that adolescence was a period at which children must begin the process of separation from parents. Views of family relationships and autonomy during adolescence were dominated by the psychoanalytic emphasis upon a necessary estrangement between children and parents to avoid the inappropriate application of children's reawakened genital urges to their parents: ". . . nothing helps here except a complete discarding of the love objects of the child, that is, the parents" (Freud 1969).

Empirical research on representative, nonclinical samples of adolescents decisively proved such a belief to be incorrect. Even in independence-oriented societies such as the United States, complete autonomy from parents is antithetical to healthy adolescent development. Rather, a complicated balance between what has been called "autonomy and relatedness" or "individuation and connectedness" appears to be most salutory for adolescent adjustment, in that it provides children the opportunity to develop the ability to think and act independently within the context of supportive relationships with parents (e.g., Grotevant & Cooper 1986). A great deal of research in the past 25 years has been devoted to examining the intricate dance of North American family members as they attempt to develop a healthy sense of independence among adolescents while still retaining supportive relationships with parents.

Yet even though most families in most societies likely undergo a process that includes elements of both autonomy and relatedness, there appear to be variations

in the extent to which each dimension is emphasized, expected, and granted during adolescence across different societies, different ethnic groups with the same society, and different socioeconomic conditions, as well as under conditions of social change. In this section, we review studies that document such variations in autonomy and relatedness during adolescence in terms of two general categories: (*a*) behavioral autonomy and parental control, and (*b*) familial duty and obligation.

BEHAVIORAL AUTONOMY AND PARENTAL CONTROL One frequently studied aspect of autonomy during adolescence has been the ages at which children are allowed to engage in various autonomous behaviors, and research has generally suggested that adolescents from European and Western backgrounds obtain behavioral autonomy at an earlier age than their Asian counterparts. For example, Feldman & Rosenthal (1991) examined ages at which adolescents in Hong Kong, Australia, and the United States expected to be able to go out at night, choose their own clothes, and stay home alone. Overall, the Chinese adolescents had later expectations for autonomy than did their peers in the more Westernized nations. Interestingly, the largest and most consistent differences appeared for behaviors and activities that involved socializing with peers and dating: going to boy-girl parties at night, going out on dates, doing things with friends rather than with family, and going on an overnight trip with friends. There were no differences between youths in Australia and the United States in their autonomy expectations for these activities. Even when they live in a Western society such as the United States, Chinese adolescents still have later expectations for autonomy than do their peers from European backgrounds (Feldman & Quatman 1988, Fuligni 1998).

A great deal of research has examined the extent to which parents from different cultural backgrounds employ control in their parenting during adolescence, although most of the work has been done among various ethnic groups within the United States. Studies have consistently found that European American parents are more likely than other parents to engage in what has been called authoritative parenting, which emphasizes the development of autonomy and self-direction within the context of a warm, supportive relationship (e.g., Steinberg et al. 1991, Dornbusch et al. 1985). Asian American, Latino, and African American parents are more likely than European American parents to employ authoritarian parenting, which focuses on obedience and conformity among children. One reason for the greater emphasis on parental control may be differing cultural values about obedience and the role of parents. For example, Chao (1994) has suggested that the greater frequency of authoritarian parenting among Asian American parents is rooted in a cultural emphasis upon child "training" which focuses on hard work and discipline, rather than intimacy between parents and children.

Greater parental control is also evident among parents with fewer socioeconomic resources, and among families who live in more dangerous and threatening neighborhoods. Steinberg et al. (1991) observed that nonauthoritative parenting was more common among working-class families than among middle-class families, and similar patterns have been noted in other studies (e.g., Dornbusch et al. 1985). One source of the socioeconomic variations may be a greater emphasis

upon obedience and conformity among parents from lower socioeconomic backgrounds. An additional source may be the fact that these families are more likely to reside in dangerous neighborhoods, and the greater emphasis upon control reflects a parental desire to protect their adolescents from threat. To that end, Furstenberg et al. (1999) noted how parents in urban areas with low resources tried to keep their teenagers at home and away from the perceived dangers of the neighborhood. Mason et al. (1996) observed that higher levels of parental control were most beneficial for children whose peers engaged in more problem behavior, testifying to the adaptiveness of parental control of their families' immediate environment.

FAMILIAL DUTY AND OBLIGATION The extent to which families and children emphasize adolescents' responsibility to support, assist, and respect the family has been overlooked in mainstream psychological research. Yet the type of instrumental connection to the family that is implied by family obligation is one that appears to vary across societies, ethnic groups, and even historical periods within the same society. Internationally, the role of children in the maintenance of the household has traditionally been emphasized in Asian, African, and Latin American societies. For example, many Asian cultural traditions, such as Confucianism, have valued family solidarity, respect, and commitment (Ho 1981, Shon & Ja 1982, Uba 1994). Familial loyalty, devotion, and support has also been a socialization goal within many Latin American cultures (Chilman 1993).

Recent studies of immigrant families within the United States have suggested that many Asian and Latin American families continue to emphasize the familial duty and obligation of their adolescents in a new society. Several ethnographies have indicated how such family obligation may even be heightened among immigrants, given parents' limited knowledge of American society and because many adolescents feel indebted to their parents for immigrating to a new society to provide their children with a better life (Gibson & Bhachu 1991, Suárez-Orozco & Suárez-Orozco 1995, Zhou & Bankston 1998).

The emphasis upon familial duty appears to be readily shared by adolescents from Asian and Latin American immigrant families. As one Vietnamese teenager stated to Zhou & Bankston (1998), "To be an American, you may be able to do whatever you want. But to be a Vietnamese, you must think of your family first" (p. 166). Other studies have shown that adolescents from these families emphasize their family obligations more than their peers. For example, Fuligni et al. (1999) found that Asian American and Latino adolescents were more likely than adolescents with European backgrounds to believe that they should help their parents and siblings, both currently and as adults, and were more likely to endorse the importance of making sacrifices for the family. Although immigrants were likely to emphasize some aspects of family obligation more than their peers from American-born families, even adolescents from American-born families with Asian and Latin American roots place more importance upon their family obligation than their European American peers. This pattern suggests that, while some aspects of family obligation may change with time in a new society, Asian American and Latino

families continue to emphasize the importance of this instrumental connection to the family across several generations.

A strong emphasis on familial duty during adolescence has also been observed among European immigrants, such as contemporary immigrants from Armenia and early twentieth century Italian immigrants (Lassonde 1991, Phinney et al. 2000). In addition, the role of adolescents in supporting and assisting the family has been heightened in American society during periods of great economic upheaval, such as during the Great Depression and the farm crisis in the Midwest during the end of the twentieth century (Elder 1974, Elder & Conger 2000). Together these findings highlight that while familial duty and obligation certainly have some important cultural roots, this type of connection to the family also can be heightened under conditions of dramatic social and economic change.

SUMMARY At adolescence, the development of autonomy and relatedness is universal; yet different cultures put differential emphasis on these two components of the human experience. More specifically, behavioral autonomy is highly valued for and by adolescents developing along an independent pathway. In contrast, parental control and familial obligation are relatively more valued for and by adolescents developing along an interdependent pathway. Autonomy and relatedness vary not only across cultures, but across ethnic groups in the same society. Both cultural roots and adaptation to the current ecology play a role in this variability.

CONCLUSIONS AND FUTURE DIRECTIONS

This review has posited the cultural differentiation of two paths of development; one path leads to the independent self, the other to the interdependent self (Markus & Kitayama 1991). Each pathway leads through universal, age-related issues in development: Close relationships, knowledge and intelligence, and autonomy/relatedness were the theoretically central examples that were reviewed. The nature of the issues and their developmental sequencing provide the universals of development.

At the same time, the cultural structuring of each issue leads to contrasting deep-structure outcomes for each domain, one outcome emphasizing independence and individuation, the other outcome emphasizing interdependence and sociocentrism. In this review, we have linked empirical studies on child outcomes to parental values and practices of socialization and apprenticeship. These are the interlinked components of the two cultural pathways through universal development.

This theory of the cultural differentiation of two major developmental paradigms leads, paradoxically, to unifying different developmental domains under one theoretical umbrella. Classical treatments of early relationships, intelligence and knowledge, and autonomy/relatedness are all linked as steps in the developmental path toward independence and individuation. Newer cultural research on these topics is beginning to illuminate parallel steps in the developmental path toward

interdependence. Future research must establish outcomes in these different arenas as connected steps on a given cultural path. This will require longitudinal research, as well as cultural research in different regions of the world. Future research will continue to examine the complex processes of development in situations of multicultural contact and culture change, both of which are the norm in our postmodern world. All of these lines of research will contribute to the further development of a unified theory of cultural pathways through universal tasks of development.

The *Annual Review of Psychology* is online at http://psych.annualreviews.org

LITERATURE CITED

Ainsworth MDS. 1967. *Infancy in Uganda: Infant Care and the Growth of Love.* Baltimore, MD: Johns Hopkins Press

Ainsworth MDS, Blehar MC, Waters E, Wall S. 1978. *Patterns of Attachment: A Psychological Study of the Strange Situation.* Potomac, MD: Erlbaum

Avis J, Harris PL. 1991. Belief-desire reasoning among Baka children: evidence for a universal conception of mind. *Child Dev.* 62:460–67

Berman J, ed. 1990. *Cross-Cultural Perspectives: The Nebraska Symposium on Motivation, 1989.* Lincoln: Univ. of Nebraska Press

Berry JW. 1976. *Human Ecology and Cognitive Style: Comparative Studies in Cultural and Psychological Adaptation.* New York: Sage

Berry JW. 1994. Ecology of individualism and collectivism. See Kim et al. 1994, pp. 77–84

Berry JW, Poortinga YH, Pandey J, eds. 1997. *Handbook of Cross-Cultural Psychology.* Vol. 1: *Theory and Method.* Boston, MA: Allyn & Bacon

Bloom L, Lightbrown P, Hood L. 1975. Structure and variation in child language. *Monogr. Soc. Res. Child Dev.* 40:–97

Boesch C. 1991. Teaching among wild chimpanzees. *Anim. Behav.* 41(3):530–32

Bond MH, Smith PB. 1996. Cross-cultural social and organizational psychology. *Annu. Rev. Psychol.* 47:205–35

Bowlby J. 1969. *Attachment and Loss.* Vol. 1: *Attachment.* New York: Basic Books

Brazelton TB, Robey JS, Collier G. 1969. Infant development in the Zinacanteco Indians of Southern Mexico. *Pediatrics* 44:274–83

Chan DK-S. 1994. COLINDEX: A refinement of three collectivism measures. See Kim et al. 1994, pp. 200–10

Chao RK. 1994. Beyond parental control and authoritarian parenting style: Understanding Chinese parenting through the cultural notion of training. *Child Dev.* 65(4):1111–19

Chavajay P, Rogoff B. 2002. Schooling and traditional collaborative social organization of problem solving by Mayan mothers and children. *Dev. Psychol.* 38(1):55–66

Chilman CS. 1993. Hispanic families in the United States: research perspective. In *Family Ethnicity: Strength in Diversity,* ed. HP McAdoo, pp. 141–63. Newbury Park, CA: Sage

Choi S, Bowerman M. 1991. Learning to express motion events in English and Korean: the influence of language-specific lexicalization patterns. *Cognition* 41:83–121

Cole M. 1996. *Cultural Psychology: A Once and Future Discipline.* Cambridge, MA: Harvard Univ. Press

Cooper CR, Denner J. 1998. Theories linking culture and psychology: universal and community-specific processes. *Annu. Rev. Psychol.* 49:559–84

D'Andrade R. 2002. *The Three Lives of Values.* Colloq., Dep. Anthropol., Univ. Calif., Los Angeles

D'Andrade R. 1994. Introduction: John Whiting and anthropology. In *Culture and Human Development: The Selected Papers of*

John Whiting, ed. EH Chasdi, pp. 1–13. Cambridge: Cambridge Univ. Press

Dasen PR. 1984. The cross-cultural study of intelligence: Piaget and the Baoulé. *Int. J. Psychol.* 19:407–34

Dasen PR, de Ribeaupierre A. 1987. Neo-Piagetian theories: cross-cultural and differential perspectives. *Int. J. Psychol.* 22:793–832

Dasen PR, Mishra R, Niraula S. 2000. *Ecology, language, and performance on spatial cognitive tasks.* Presented at Congr. Int. Assoc. Cross-Cult. Psychol., 15th, Pulsk, Poland

di Pellegrino G, Fadiga L, Fogassi L, Gallese V, Rizzolatti G. 1992. Understanding motor events: a neurophysiological study. *Exp. Brain Res.* 91:176–80

Dornbusch S, Ritter P, Leiderman H, Roberts D, Fraleigh M. 1985. The relation of parenting style to adolescent school performance. *Child Dev.* 58 (5):1244–57

Duranti A. 1988. Intentions, language and social action in a Samoan context. *J. Pragmat.* 12:13–33

Duranti A. 1993. Intentions, self, and responsibility: an essay in Samoan ethnopragmatics. In *Responsibility and Evidence in Oral Discourse*, ed. JH Hill, JT Irvine, pp. 24–47. Cambridge: Cambridge Univ. Press

Elder GH. 1974. *Children of the Great Depression: Social Change in Life Experience*. Chicago: Univ. Chicago Press

Elder GH, Conger RD. 2000. *Children of the Land: Adversity and Success in Rural America*. Chicago: Univ. Chicago Press

Fadiga L, Fogassi L, Pavesi G, Rizzolatti G. 1995. Motor facilitation during action observation: a magnetic stimulation study. *J. Neurophysiol.* 73:2608–11

Favareau D. 2001. Beyond self and other: on the neurosemiotic emergence of intersubjectivity. *Sign Syst. Stud.* 30(1):57–100

Feldman SS, Quatman T. 1988. Factors influence age expectations for adolescent autonomy: a study of early adolescents and parents. *J. Early Adolesc.* 8(4):325–43

Feldman SS, Rosenthal DA. 1991. Age expectations of behavioural autonomy in Hong Kong, Australian and American youth: the influence of family variables and adolescents' values. *Int. J. Psychol.* 26(1):1–23

Fiske AP. 2000. Complementarity theory: why human social capacity evolved to require cultural complements. *Personal. Soc. Psychol. Rev.* 4:76–94

Fiske AP. 2002. Using individualism and collectivism to compare cultures: a critique of the validity and measurement of the constructs. *Psychol. Bull.* 128(1):78–88

Fiske AP, Kitayama S, Markus H, Nisbett D. 1998. The cultural matrix of social psychology. In *Handbook of Social Psychology*, ed. D Gilbert, S Fiske, G Lindzey, pp. 915–81. New York: McGraw-Hill. 4th ed.

Flavell J. 1999. Cognitive development: children's knowledge about the mind. *Annu. Rev. Psychol.* 50:21–45

Freud A. 1969. Adolescence as a developmental disturbance. In *Adolescence: Psychosocial Perspectives*, ed. G Caplan, S Ledovici, pp. 5–10. Cambridge, MA: Harvard Univ. Press

Fuligni AJ. 1998. Authority, autonomy, and parent-adolescent conflict and cohesion: a study of adolescents from Mexican, Chinese, Filipino, and European backgrounds. *Dev. Psychol.* 34:782–92

Fuligni AJ, Tseng V, Lam M. 1999. Attitudes toward family obligations among American adolescents with Asian, Latin American, and European backgrounds. *Child Dev.* 70:1030–44

Furstenberg F, Cook T, Eccles J, Elder GH, Sameroff AJ. 1999. *Managing to Make It: Urban Families and Adolescent Success*. Chicago: Univ. Chicago Press

Garcia-Coll CT, Meyer E, Brillon L. 1995. Ethnic and minority parenting. In *Handbook of Parenting.* Vol. 2: *Biology and Ecology of Parenting*, ed. MH Bornstein, pp. 189–209. Hillsdale, NJ: Erlbaum

Gauvain M. 1992. Sociocultural influences on the development of spatial thinking. *Child. Environ.* 9:27–36

Gelman R, Lucariello J. 2002. Role of learning in cognitive development. In *Stevens'*

Handbook of Experimental Psychology, vol. 3, *Learning, Motivation, and Emotion.* Series ed. H Pashler, volume ed. CR Gallistel, pp. 395–443. New York: Wiley. 3rd ed.

Gibson MA, Bhachu PK. 1991. The dynamics of educational decision making: A comparative study of Sikhs in Britain and the United States. In *Minority Status and Schooling: A Comparative Study of Immigrant and Involuntary Minorities*, ed. MA Gibson, JU Ogbu, pp. 63–96. New York: Garland

Gill R, Keats DM. 1980. Elements of intellectual competence: judgments by Australian and Malay university students. *J. Cross-Cult. Psychol.* 11(2):233–43

Goodnow JJ. 1988. Parents' ideas, actions, and feelings: models and methods from developmental and social psychology. *Child Dev.* 59(2):286–320

Greenfield PM. 1974. Cross-cultural research and Piagetian theory: paradox and progress. In *The Developing Individual in a Changing World.* Vol. 1: *Historical and Cultural Issues*, ed. KF Riegel, JA Meacham, pp. 322–33. The Hague: Mouton

Greenfield PM. 1980. Towards an operational and logical analysis of intentionality: the use of discourse in early child language. In *The Social Foundations of Language and Thought: Essays in Honor of J. S. Bruner*, ed. DR Olson, pp. 254–79. New York: Norton

Greenfield PM. 1997. Culture as process: empirical methods for cultural psychology. See Berry et al. 1997, pp. 301–46

Greenfield PM. 2000a. Culture and universals: integrating social and cognitive development. In *Culture, Thought, and Development*, ed. LP Nucci, GB Saxe, E Turiel, pp. 231–77. Mahwah, NJ: Erlbaum

Greenfield PM. 2000b. Three approaches to the psychology of culture: Where do they come from? Where can they go? *Asian J. Soc. Psychol.* 3:223–40

Greenfield PM. 2002. The mutual definition of culture and biology in development. See Keller 2002, pp. 57–76

Greenfield PM, Bruner JS. 1966. Culture and cognitive growth. *Int. J. Psychol.* 1:89–107

Greenfield PM, Cocking RR. 1994. *Cross-Cultural Roots of Minority Child Development.* Hillsdale, NJ: Erlbaum

Greenfield PM, Lave J. 1982. Cognitive aspects of informal education. In *Cultural Perspectives on Child Development*, ed. D Wagner, H Stevenson, pp. 181–207. San Francisco: Freeman

Greenfield PM, Maynard AE, Boehm C, Yut E. 2000a. Cultural apprenticeship and cultural change: tool learning and imitation in chimpanzees and humans. In *Biology, Brains, and Behavior*, ed. ST Parker, J Langer, ML McKinney, pp. 237–77. Santa Fe: SAR Press

Greenfield PM, Quiroz B, Raeff C. 2000b. Cross-cultural harmony and conflict in the social construction of the child. See Harkness et al. 2000, pp. 93–108

Greenfield PM, Savage-Rumbaugh ES. 1990. Grammatical combination in *Pan Paniscus*: processes of learning and invention in the evolution and development of language. In *"Language" and Intelligence in Monkeys and Apes: Comparative Developmental Perspectives*, ed. S Parker, K Gibson, pp. 540–78. Cambridge: Cambridge Univ. Press

Greenfield PM, Smith JH. 1976. *The Structure of Communication in Early Language Development*. New York: Academic

Greenfield PM, Suzuki LK. 1998. Culture and human development: implications for parenting, education, pediatrics, and mental health. In *Handbook of Social Psychology*, Vol. 4, *Child Psychology in Practice*, ed. IE Sigel, KA Renninger, pp. 1059–109. New York: Wiley

Grigorenko EL, Geissler PW, Prince R, Okatcha F, Nokes C, et al. 2001. The organisation of Luo conceptions of intelligence: a study of implicit theories in a Kenyan village. *Int. J. Behav. Dev.* 25(4):367–78

Grossmann KE, Keppler A, Grossmann K. 2002. Universalismus und Kultureller Relativismus. Eine bindungstheoretische Analyse (Universalism and cultural relativism. An attachment theoretical analysis). In *Interkulturelle Psychologie*. (*Intercultural*

Psychology), ed. A Thomas. Goettingen: Hogrefe. In press

Grotevant H, Cooper C. 1986. Individuation in family relationships: a perspective on individual differences in the development of identity and role-taking skill in adolescence. *Hum. Dev.* 29(2): 82–100

Gutierrez J, Sameroff AJ. 1990. Determinants of complexity in Mexican-American and Anglo-American mothers' conceptions of child development. *Child Dev.* 61(2):384–94

Harkness S, Raeff C, Super CM, eds. 2000a. *Variability in the Social Construction of the Child: New Directions in Child and Adolescent Development*, Vol. 87. San Francisco: Jossey-Bass

Harkness S, Super C. 1996. *Parents' Cultural Belief Systems. Their Origins, Expressions and Consequences.* New York: Guilford

Harkness S, Super C, van Tijen N. 2000b. Individualism and the "Western Mind" reconsidered: parents' ethnotheories of the child. See Harkness et al. 2000a, pp. 23–39

Harwood RL. 1992. The influence of culturally derived values on Anglo and Puerto Rican mothers' perceptions of attachment behavior. *Child Dev.* 63(4):822–39

Harwood RL, Schoelmerich A, Ventura-Cook E, Schulze PA, Wilson SP. 1996. Culture and class influences on Anglo and Puerto Rican mothers' beliefs regarding long-term socialization goals and child behavior. *Child Dev.* 67(5):2446–61

Hatano G. 1982. Cognitive consequences of practice in culture specific procedural skills. *Q. Newsl. Lab. Comp. Hum. Cogn.* 4:14–17

Haviland JB. 1998. Guugu Yimithirr cardinal directions**.** *Ethos* 26:25–47

Hewlett BS, Lamb ME. 2002. Integrating evolution, culture and developmental psychology: explaining caregiver infant proximity and responsiveness in Central Africa and the United States of America. In *Between Culture and Biology*, ed. H Keller, YH Poortinga, A Schoelmerich, pp. 241–69. Cambridge, UK: Cambridge Univ. Press

Ho DYF. 1981. Traditional patterns of socialization in Chinese society. *Acta Psychol. Taiwan* 23:81–95

Hobson RP. 1993. *Autism and the Development of Mind.* Hillsdale, NJ: Erlbaum

Hofstede G. 1991. *Cultures and Organizations: Software of the Mind*. London: McGraw-Hill

Hong Y, Morris MW, Chiu C, Benet-Martinez V. 2000. Multicultural minds: a dynamic constructivist approach to culture and cognition. *Am. Psychol.* 55(7):709–20

Iacoboni M, Woods RP, Brass M, Bekkering H, Mazziotta JC, Rizzolatti G. 1999. Cortical mechanisms of human imitation. *Science* 286:2526–28

Inhelder B, Piaget J. 1958. *The Growth of Logical Thinking from Childhood to Adolescence: An Essay on the Construction of Formal Operational Structures.* New York: Basic Books

Kagitçibasi C. 1990. Family and socialization in cross-cultural perspective: a model of change. See Berman 1990, pp. 135–200

Kagitçibasi C. 1994. A critical appraisal of individualism and collectivism: toward a new formulation. See Kim et al. 1994, pp. 52–65

Kagitçibasi C. 1996. *Family and Human Development Across Cultures: A View from the Other Side.* Hillsdale, NJ: Erlbaum

Kagitçibasi C, Berry JW. 1989. Cross-cultural psychology: current research and trends. *Annu. Rev. Psychol.* 40:493–531

Keller H. 1997. Evolutionary approaches. See Berry et al. 1997, pp. 215–55

Keller H. 2002. The role of development for understanding the biological basis of cultural learning. In *Between Culture and Biology*, ed. H Keller, YH Poortinga, A Schoelmerich, pp. 213–40. Cambridge: Cambridge Univ. Press.

Keller H, Greenfield PM. 2000. The history and future of development in cross-cultural psychology. *J. Cross-Cult. Psychol.* 31(1):52–62 (Special issue)

Keller H, Miranda D, Gauda G. 1984. The naive theory of the infant and some maternal attitudes. A two-country study. *J. Cross-Cult. Psychol.* 15(2):165–79

Keller H, Poortinga YH, Schoelmerich A, eds.

2002. *Between Culture and Biology.* Cambridge: Cambridge Univ. Press

Keller H, Voelker S, Yovsi RD. 2002a. Conceptions of parenting in different cultural communities: the case of West African Nso and Northern German women. Submitted

Keller H, Zach U, Abels M. 2002b. The German family—families in Germany. In *Families Across Cultures*, ed. J Roopnarine, U Gielen. Boston, MA: Ally & Bacon

Killen M, Wainryb C. 2000. Independence and interdependence in diverse cultural contexts. See Harkness et al. 2000, pp. 5–21

Kim U, Choi S-H. 1994. Individualism, collectivism, and child development: a Korean perspective. See Greenfield & Cocking 1994, pp. 227–57

Kim U, Triandis HC, Kagitçibasi C, Choi S-C, Yoon G, eds. 1994. *Individualism and Collectivism: Theory, Method, and Applications.* Thousand Oaks, CA: Sage

Kitayama S. 2002. Culture and basic psychological processes—towards a system view of culture: comment on Oyerman et al. (2002). *Psychol. Bull.* 128(1):73–77

Kühnen U, Hannover B, Schubert B. 2001. Procedural consequences of semantic priming: the role of self knowledge for context-bounded versus context-independent modes of thinking. *J. Personal. Soc. Psychol.* 80: 397–409

Kühnen U, Oyserman D. 2002. Thinking about the self influences thinking in general: cognitive consequences of salient self concept. *J. Exp. Soc. Psychol.* 38(5): 492–99

Lassonde S. 2001. Extended schooling, adolescence, and the renegotiation of responsibility among Italian immigrant families in New Haven, Connecticut, 1910–1940. In *Family Obligation and Assistance During Adolescence: Contextual Variations and Developmental Implications*, ed. AJ Fuligni, pp. 43–60. San Francisco, CA: Jossey-Bass

Latz S, Wolf AW, Lozoff B. 1999. Cosleeping in context: sleep practices and problems in young children in Japan and the United States. *Arch. Pediatr. Adolesc. Med.* 153(4):339–46

Lave J, Wenger E. 1991. *Situated Learning: Legitimate Peripheral Participation*. New York: Cambridge Univ. Press

Lebra TS. 1994. Mother and child in Japanese socialization: a Japan-U.S. comparison. See Greenfield & Cocking 1994, pp. 259–74

LeVine RA. 1977. Child rearing as cultural adaptation. In *Culture and Infancy: Variations in the Human Experience*, ed. PH Leiderman, SR Tulkin, A Rosenfeld, pp. 15–27. New York: Academic

LeVine RA. 1997. Mother-infant interaction in cross-cultural perspective. In *Uniting Psychology and Biology: Integrative Perspectives on Human Development*, ed. NL Segall, GE Weisfeld, CC Weisfeld, pp. 339–54. Washington, DC: Am. Psychol. Assoc.

LeVine RA, Miller PM. 1990. Commentary. *Hum. Dev.* 33(1):73–80

Levinson SC. 1998. Studying spatial conceptualization across cultures: anthropology and cognitive science. *Ethos* 26(1):7–24

Li J. 2002. A cultural model of learning: Chinese "heart and mind for wanting to learn." *J. Cross-Cult. Psychol.* 33(3): 248–69

Lillard A. 1998. Ethnopsychologies: cultural variations in theories of mind. *Psychol. Bull.* 123(1):3–32

MacDonald KB. 1992. Warmth as a developmental construct: an evolutionary analysis. *Child Dev.* 63:753–73

Markus HR, Kitayama S. 1991. Culture and the self: implications for cognition, emotion, and motivation. *Psychol. Rev.* 98(2):224–53

Mason CA, Cauce AM, Gonzales N, Hiraga Y. 1996. Neither too sweet nor too sour: problem peers, maternal control, and problem behavior in African American adolescents. *Child Dev.* 67(5):2115–30

Maynard AE. 2002. Cultural teaching: the development of teaching skills in Zinacantec Maya sibling interactions. *Child Dev.* 73(3):969–82

McGillicuddy-De Lisi AV, Sigel IE. 1995. Parental beliefs. In *Handbook of Parenting.* Vol 3: *Status and Social Conditions of Parenting*, ed. MH Bornstein, pp. 333–58. Hillsdale, NJ: Lawrence Erlbaum

Miller JG. 1984. Culture and the development of everyday social explanation. *J. Personal. Soc. Psychol.* 46(5):961–78

Mistry J, Rogoff B. 1994. Remembering in cultural context. In *Psychology and Culture*, ed. WJ Lonner, RS Malpass, pp. 139–44. Boston, MA: Allyn Bacon

Morelli GA, Rogoff B, Oppenheim D, Goldsmith D. 1992. Cultural variation in infants' sleeping arrangements: questions of independence. *Dev. Psychol.* 28(4):604–13

Mundy-Castle AC. 1974. Social and technological intelligence in Western and non-Western cultures. *Universitas* 4:46–52

Munroe RL, Munroe RH. 1994. *Cross-Cultural Human Development*. Prospect Heights, IL: Waveland Press

Nsamenang AB. 1992. *Human Development in Cultural Context. A Third World Perspective.* Newbury Park, CA: Sage

Nsamenang AB. 1999. Eurocentric image of childhood in the context of the world's cultures. *Hum. Dev.* 42:159–68

Nsamenang AB, Lamb ME. 1994. Socialization of Nso children in the Bamenda grassfields of Northwest Cameroon. See Greenfield & Cocking 1994, pp. 133–46

Nugent JK. 1994. Cross-cultural studies of child development: Implications for clinicians. *Zero to Three* 15(2):1, 3–8

Ochs E, Schieffelin B. 1984. Language acquisition and socialization: three developmental stories. See Shweder & LeVine 1984, pp. 276–320

Ogunnaike OA, Houser RF. 2002. Yoruba toddlers' engagement in errands and cognitive performance on the Yoruba Mental Subscales. *Int. J. Behav. Dev.* 26(2):145–53

Okagaki L, Sternberg RJ. 1993. Parental beliefs and children's school performance. *Child Dev.* 64(1):36–56

Oyserman D, Coon HM, Kemmelmeier M. 2002. Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analyses. *Psychol. Bull.* 128(1):3–72

Palacios J, Moreno MC. 1996. Parents' and adolescents' ideas on children: origins and transmission of intracultural diversity. In *Parents' Cultural Belief Systems. Their Origins, Expressions and Consequences*, ed. S Harkness, CM Super, pp. 215–53

Perner J. 1991. *Understanding the Representational Mind.* Cambridge, MA: MIT Press

Phinney JS, Ong A, Madden T. 2000. Cultural values and intergenerational value discrepancies in immigrant and non-immigrant families. *Child Dev.* 71(2):528–39

Piaget J. 1952. *The Origins of Intelligence in Children.* New York: Basic Books

Piaget J. 1963/1977. Intellectual operations and their development. Reprinted in *The Essential Piaget: An Interpretive Reference and Guide*, ed. HE Gruber, JJ Vonèche, pp. 342–58. New York: Basic Books

Rabain-Jamin J, Maynard AE, Greenfield PM. 2002. Implications of sibling caregiving for sibling relations and teaching interactions in two cultures. *Ethos.* In press

Rabain-Jamin J, Sabeau-Jouannet E. 1997. Maternal speech to 4-month-old infants in two cultures: Wolof and French. *Int. J. Behav. Dev.* 20(3):425–51

Radke-Yarrow M, Zahn-Waxler C, Chapman M. 1983. Children's prosocial disposition and behavior. In *Handbook of Child Psychology.* Vol. 4: *Socialization, Personality, and Social Development*, ed. EM Hetherington, pp. 469–545. New York: Wiley

Raeff C, Greenfield PM, Quiroz B. 2000. Conceptualizing interpersonal relationships in the cultural contexts of individualism and collectivism. See Harkness et al. 2000, pp. 59–74

Reese L, Balzano S, Gallimore R, Goldenberg C. 1995. The concept of *educacion:* Latino family values and American schooling. *Int. J. Educ. Res.* 23:57–81

Rizzolatti G, Fadiga L, Gallese V, Fogassi L. 1996. Premotor cortex and the recognition of motor actions. *Cogn. Brain Res.* 3:131–41

Rogoff B. 1990. *Apprenticeship in Thinking: Cognitive Development in Social Context.* New York: Oxford

Romero ME. 1994. Identifying giftedness

among Keresan Pueblo Indians: the Keres study. *J. Am. Indian Educ.* 34(1): 35–58

Rothbaum F, Weisz J, Pott M, Miyake K, Morelli G. 2000. Attachment and culture: security in the United States and Japan. *Am. Psychol.* 55(10):1093–104

Saraswathi TS. 1999. *Culture, Socialization, and Human Development: Theory, Research, and Applications in the Indian Setting*. Thousand Oaks: Sage

Saraswathi TS, Ganapathy H. 2002. Indian parents' ethnotheories as reflections of the Hindu scheme of child and human development. See Keller et al. 2002, pp. 79–88

Saraswathi TS, Pai S. 1997. Socialization in the Indian context. In *Asian Perspectives on Psychology*, ed. HSR Kao, D Sinha, pp. 74–92. Thousand Oaks, CA: Sage

Saxe GB. 1991. *Culture and Cognitive Development.* Hillsdale, NJ: Erlbaum

Scribner S. 1985. Vygotsky's uses of history. In *Culture, Communication, and Cognition: Vygotskian Perspectives*, ed. J Wertsch, pp. 119–45. New York: Cambridge

Scribner S, Cole M. 1973. Cognitive consequences of formal and informal education. *Science* 182:553–59

Scribner S, Cole M. 1981. *The Psychology of Literacy.* Cambridge, MA: Harvard Univ. Press

Segall MH, Dasen PR, Berry JW, Poortinga YH. 1999. *Human Behavior in Global Perspective: An Introduction to Cross-cultural Psychology.* Boston, MA: Allyn Bacon. 2nd ed.

Serpell R. 1993. *The Significance of Schooling: Life Journeys in an African Society.* Cambridge: Cambridge Univ. Press

Serpell R. 1994. The cultural construction of intelligence. In *Psychology and Culture*, ed. WL Lonner, RS Malpass, pp. 157–63. Boston, MA: Allyn Bacon

Shon SP, Ja DY. 1982. Asian families. In *Ethnicity and Family Therapy*, ed. M McGoldrisk, JK Pearce, J Giordano, pp. 208–28. New York: Guilford

Shweder RA, Bourne EJ. 1984. Does the concept of the person vary cross-culturally? In *Culture Theory: Essays on Mind, Self, and Emotion*, ed. RA Shweder, RA Levine, pp. 158–99. New York: Cambridge

Shweder RA, Goodnow J, Hatano G, LeVine RA, Markus H, Miller P. 1998. The cultural psychology of development: one mind, many mentalities. In *Handbook of Child Psychology.* Vol. 1: *Theoretical Models of Human Development*, ed. RM Lerner, pp. 865–937. New York: Wiley. 5th ed.

Shweder RA, LeVine RA, eds. 1984. *Culture Theory: Essays on Mind, Self, and Emotion.* New York: Cambridge

Shweder RA, Sullivan MA. 1993. Cultural psychology: Who needs it? *Annu. Rev. Psychol.* 44:497–523

Sigel IE, McGillicuddy-DeLisi AV, Goodnow JJ, eds. 1992. *Parental Belief Systems: The Psychological Consequences for Children.* Hillsdale, NJ: Erlbaum. 2nd ed.

Singelis TM, Triandis HC, Bhawuk DPS, Gelfand M. 1995. Horizontal and vertical dimensions of individualism and collectivism: a theoretical and measurement refinement. *Cross-Cult. Res.* 29(3):240–75

Sroufe LA, Carlson EA, Levy AK, Egeland B. 1999. Implications of attachment theory for developmental psychopathology. *Dev. Psychopathol.* 11(1):1–13

Steinberg L, Mounts NS, Lamborn SD, Dornbusch SM. 1991. Authoritative parenting and adolescent adjustment across varied ecological niches. *J. Res. Adolesc.* 1(1):19–36

Sternberg RJ, Conway BE, Ketron JL, Bernstein M. 1981. People's conceptions of intelligence. *J. Personal. Soc. Psychol.* 4(1):37–55

Suárez-Orozco C, Suárez-Orozco M. 1995. *Transformations: Immigration, Family Life, and Achievement Motivation Among Latino Adolescents*. Stanford, CA: Stanford Univ. Press

Suina J, Smolkin LB. 1994. From natal culture to school culture to dominant society culture: supporting transitions for Pueblo Indian students. See Greenfield & Cocking 1994, pp. 115–30

Super C, Harkness S. 1986. The developmental niche: a conceptualization at the interface

of child and culture. *Int. J. Behav. Dev.* 9(4):545–69

Super CM. 1983. Cultural variation in the meaning and uses of children's "intelligence." In *Explorations in Cross-cultural Psychology*, ed. J Deregowski, S Dziurawiec, R Annis, pp. 199–212. Amsterdam: Swets & Zeitlinger

Suzuki LK. 2000. *The development and socialization of filial piety: a comparison of Asian Americans and Euro Americans.* PhD thesis. Univ. Calif., Los Angeles

Takahashi K. 1990. Are the key assumptions of the 'Strange Situation' procedure universal? A view from Japanese research. *Hum. Dev.* 33(1):23–30

Tapia Uribe FM, LeVine RA, LeVine SE. 1994. Maternal behavior in a Mexican community: the changing environments of children. See Greenfield & Cocking 1994, pp. 41–54

Tomasello M. 1999. *The Cultural Origins of Human Cognition.* Cambridge, MA: Harvard Univ. Press

Trevarthen C. 1980. The foundations of intersubjectivity: development of interpersonal and cooperative understanding in infants. In *The Social Foundations of Language and Thought*, ed. D Olson, pp. 316–42. New York: Norton

Triandis HC. 1988. Collectivism and individualism: a conceptualization of a basic concept in cross-cultural social psychology. In *Personality, Cognition, and Values*, ed. C Bagley, GK Verma. London: Macmillan

Triandis HC. 1990. Cross-cultural studies of individualism and collectivism. See Berman 1990, pp. 41–134

Triandis HC, Suh EM. 2002. Cultural influences on personality. *Annu. Rev. Psychol.* 53:133–60

Troadac B, Martinot C. ND. *La representation de l'espace a Tahiti: Variabilite selon les contextes insulaires urbains (Papeete) et ruraux (Moorea).* Work. Pap. Dep. Psych. Dev., Univ. Toulouse-Le Mirail

Uba L. 1994. *Asian Americans: Personality Patterns, Identity, and Mental Health*. New York: Guilford

Vinden P. 1996. Junin Quechua children's understanding of mind. *Child Dev.* 67(4):1701–6

Vinden P. 1999. Children's understanding of mind and emotion: a multi-culture study. *Cogn. Emot.* 13(1):19–48

Vinden P, Astington J. 2000. Culture and understanding other minds. In *Understanding Other Minds: Perspectives from Developmental Cognitive Neuroscience*, ed. S Baron-Cohen, pp. 503–19. Oxford: Oxford Univ. Press

Vygotsky LS. 1962. *Thought and Language.* Cambridge, MA: MIT

Wainryb C. 1995. Reasoning abut social conflicts in different cultures: Druze and Jewish children in Israel. *Child Dev.* 66(2):390–401

Wainryb C, Turiel E. 1994. Dominance, subordination, and concepts of personal entitlements in cultural contexts. *Child Dev.* 65(6):1701–22

Wassman J, Dasen P. 1998. Balinese spatial orientation: some empirical evidence for moderate linguistic relativity. *J. R. Anthropol. Inst., Incorporating Man (N.S.)* 4:689–713

Waters E, Vaughn BE, Posada G, Kondo-Ikemura K. 1995. *Caregiving, Cultural, and Cognitive Perspectives on Secure-base Behavior and Working Models: New Growing Points of Attachment Theory and Research.* Chicago: Monogr. Soc. Res. Child Dev.

Weisner TS. 1997. Support for children and the African family crisis. In *African Families and the Crisis of Social Change*, ed. TS Weisner, C Bradley, PL Kilbride, pp. 20–44. Westport, CT: Greenwood Press/Bergin & Garvey

Weisner TS. 2000. Culture, childhood, and progress in sub-Saharan Africa. In *Culture Matters*, ed. LE Harrison, SP Huntington, pp. 141–57. New York: Basic Books

Weisner TS, Bernheimer LP. 1998. Children of the 1960s at midlife: generational identity and the family adaptive project. In *Welcome to Middle Age! (And Other Cultural Fictions). Studies on Successful Midlife Development*, ed. RA Shweder, pp. 211–57. Chicago: Univ. Chicago Press

Wellman HM. 1990. *The Child's Theory of Mind.* Cambridge, MA: MIT

Wellman HM, Cross D, Watson J. 2001. Meta-analysis of theory-of-mind development: the truth about false belief. *Child Dev.* 72(3): 655–84

Wertsch JV. 1985. *Vygotsky and the Social Formation of Mind.* Cambridge, MA: Harvard Univ. Press

Whiten A. 1999. Parental encouragement in *Gorilla* in comparative perspective: implications for social cognition and the evolution of teaching. In *The Mentalities of Gorillas and Orangutans in Comparative Perspective*, ed. ST Parker, RW Mitchell, HL Miles, pp. 342–66. Cambridge: Cambridge Univ. Press

Whiten A. 2002. Chimpanzee cognition and the question of mental re-representation. In *Metarepresentation*, ed. D Sperber, pp. 139–67. Oxford: Oxford Univ. Press

Whiting BB, Edwards CP. 1988. *Children of Different Worlds: The Formation of Social Behavior.* Cambridge, MA: Harvard Univ. Press

Whiting BB, Whiting JWM. 1975. *Children of Six Cultures: A Psycho-Cultural Analysis.* Cambridge, MA: Harvard Univ. Press

Whiting JWM, Whiting BB. 1960. Contributions of anthropology to the methods of studying child rearing. In *Handbook of Research Methods in Child Development*, ed. P Mussen, pp. 918–44. New York: Wiley

Whiting JWM, Whiting BB. 1973. Altruistic and egoistic behavior in six cultures. In *Cultural Illness and Health: Essays in Human Adaptation*, ed. L Nader, TW Maretzki, pp. 56–66. Washington, DC: Amer. Anthro. Assoc.

Wober JM. 1974. Toward an understanding of the Kiganda concept of intelligence. In *Culture and Cognition*, ed. JW Berry, PR Dasen, pp. 261–80. London: Methuen

Yovsi RD. 2001. *Ethnotheories about breastfeeding and mother-infant interaction. The case of sedentary Nso farmers and nomadic Fulani pastorals with their infants 3–6 months of age in Mbvem subdivision of the Northwest providence of Cameroon, Africa*. PhD thesis. Univ. Osnabrück

Yovsi RD, Keller H. 2000. *Breastfeeding: an adaptive process.* Presented at Conf. Int. Union Anthropol. Ethnolog. Sci. (IUCAES), Agrigento, Italy

Zambrano I. 1999. *From* na' *to know: power, epistemology and the everyday forms of state formation in Mitontik, Chiapas (Mexico).* Doctoral diss., Harvard Univ.

Zhou M, Bankston C. 1998. *Growing up American: how Vietnamese children adapt to life in the United States*. New York: Russell Sage Found.

Zukow PG. 1989. *Sibling Interactions Across Cultures: Theoretical and Methodological Issues.* New York: Springer-Verlag

Annual Review of Psychology
Volume 54, 2003

CONTENTS