

# 2008 Wallace Foundation Distinguished Lecture



## The Centrality of Culture to the Scientific Study of Learning and Development: How an Ecological Framework in Education Research Facilitates Civic Responsibility

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This article was presented as the 2008 Wallace Foundation Distinguished Lecture at the annual meeting of the American Educational Research Association in New York City. It argues that, to generate robust and generative theories of human learning and development, researchers must address the range of diversity within human cultural communities. The argument is warranted on implications from brain science regarding human adaptability and on core findings with regard to relations between cognition, perceptions, and emotions, all influenced by broad ecological contexts that influence human functioning. Implications for education are discussed, with examples of research that address fundamental questions of learning through examinations of practices within communities of color.

**Keywords:** cognition and emotion; culture and cognition; diversity in education

The topic of this article is one with which I have been wrestling for many years. The genesis of my attention to the role of culture in learning dates back to the late 1960s and early 1970s at the beginning of the Black Power and Black Arts Movements (Hughes, 1926; Karenga, 1993; Madhubuti, 1991, 1996; Neal, 1989). This was a period when many people of African descent in the United States actively aligned with their African heritage not only as a source of group pride but, equally important, as a catalyst for political organizing and institution building. Across the country young people like me engaged in bold acts of institution building. In Chicago, we developed Third World Press, which is today more than 40 years old and the oldest continuous Black publishing company in the United States; New Concept School, an independent African-centered school

that is now nearly 40 years old and has expanded into three African-centered charter schools that we have developed in Chicago over the last decade; and the Institute of Positive Education, an organization that focuses on community-based issues (Lee, 1992). Much to my mother's dismay, in 1974 I quit my job at Kennedy-King College in Chicago to work with the emerging Third World Press, which then shared a storefront with the New Concept School, the forerunner of the Betty Shabazz International Charter Schools. It was during that period that I met the man who would become my husband, writer and publisher Haki R. Madhubuti. My mother said she knew this man had put the hoodoo on me, and she asked her minister to help her find a psychiatrist to help me. After directing and teaching in the New Concept School for 15 years, I decided to enter a doctoral program at the University of Chicago. That transition shifted my focus from a practice-oriented examination of the cultural basis of learning to theorizing the relationship between culture and learning in terms of the underlying mechanisms that help to explain how culture operates both to facilitate and to constrain learning.

As I entered graduate school and eventually the professoriate with this long-standing interest in the role of culture, it became abundantly clear that the academy operated in a kind of intellectual apartheid. From the 1960s forward, there was a growing shift from seeing cultural differences as deficits to a more liberal, multicultural view of such differences, often as distinct phenomena that could serve as positive resources for learning (Ginsburg, 1972). There was also during this period an emerging attention to cross-cultural learning and development in psychology. Now-classic studies by Michael Cole (Cole, Gay, Glick, & Sharp, 1971), Sylvia Scribner (1984; Scribner & Cole, 1981), Jean Lave (1977), Barbara Rogoff (Rogoff & Gauvain, 1984), Patricia Greenfield (Greenfield & Childs, 1977), Geoffrey Saxe (1981), and others moved past deficit theories to document the complexity of reasoning embedded in everyday practices. These

studies took place outside Europe and middle-class America—in Liberia, Mexico, Brazil, and Guatemala, as well as in blue-collar workplaces in the United States. This is also the period in which Western scholars, particularly in the United States, discovered the writings of Russian psychologist and socialist Lev Vygotsky (1978, 1981, 1987), who made a compelling case about the role of social interactions and culturally organized activity as the cauldron of individual development.

The field of Black psychology was also emerging in the United States. Black psychologists countered the prevailing deficit-oriented psychological theories about Black development (Boykin, 1979; Jones, 1972). The field of Black psychology offered at least two important contributions to our evolving understanding of human learning and development. These contributions can be seen in research conducted by scholars such as Asa Hilliard (1998), A. Wade Boykin (1979), Wade Nobles (1974), Diana Slaughter-Defoe (Slaughter-Defoe, Nakagawa, Takanishi, & Johnson, 1990), and Harriet and John McAdoo (McAdoo & McAdoo, 1985), among others.

The first contribution was a move away from individualistic, purely person-oriented conceptions of identity and motivation to an ecological focus (Boykin, 1986; Murray & Mandara, 2003; Nobles, 1976). Seminal works in the field argue for the need to understand the macrolevel variables that structure roles and opportunities and the broader contexts for which socialization in families and schools must prepare youth; this approach is applicable to all youth and in particular ways to youth of color (Gurin & Epps, 1974; Hilliard, 2001; Spencer, Fegley, & Harpalani, 2003; Spencer, Swanson, & Cunningham, 1991). The macrolevel variables include societal discrimination and stereotypes. As I will illustrate in this article, the research of Claude Steele (1998, 2004) on stereotype threat began in an effort to understand some underlying mechanisms that account for differences in achievement outcomes; and I emphasize here *some*, certainly not all. But this initial attention to African Americans from an asset-based and ecological orientation has also yielded fundamental propositions about the ways in which macrolevel negative perceptions can negatively influence displays of competence, with examples of women in math and science and White students perceiving themselves as being in competition with Asian students in math and science.

A second contribution from seminal works in the field of Black psychology has been an understanding of how cultural, racial, or ethnic socialization can serve as a protective factor to influence positive development among youth of color (Caughy, O'Campo, Randolph, & Nickerson, 2002; Crocker & Major, 1989; Mandara, 2006; Marshall, 1995). I argue here that this empirical work also demonstrates how historical variables—in this case, intergenerational beliefs and practices that together constitute a group identity—operate to influence individual development.

I point to this intellectual history because these are the bodies of research that have most influenced me and also because the history illustrates the intellectual apartheid to which I have referred. The cognitively oriented studies of how people learn are not in dialogue with those that focus on culture and cognition (Bransford, Brown, & Cocking, 1999); the multiculturalists

are not in dialogue with the culture and cognition researchers (Banks & Banks, 1995); cognitively oriented research and the world of human development have little to do with each other.<sup>1</sup> I define *dialogue* as joint studies and referencing across disciplines and points of view in published research, especially handbooks and research syntheses. In volumes from the National Research Council or the National Academy of Education, it is rare to find any serious attempts to synthesize across these paradigms and empirical research bases to examine how culture shapes learning and development (Cole, 1998).

Although there clearly are differences among these paradigms, they share a number of fundamental propositions:

- Context matters: Contexts help to shape people, and people shape contexts.
- Routine practices count.
- The cognitive, social, physical, and biological dimensions of both individuals and contexts interact in important ways.

Yet, despite these broad points of convergence, as Michael Cole (1996) explains, we are not yet in a position to articulate a unified theory of culture and human development. Human development here includes not only the development of cognitive abilities but, equally, the ways in which emotional and social development and cognition jointly shape goals, attention, persistence, and resilience (Dai & Sternberg, 2004; Zajonc & Marcus, 1984). We have abundant evidence, including our own tacit self-reflections, that learning is influenced by intersections among thinking; perceptions of self, others, and tasks; emotional attributions; and self-regulation. We have abundant evidence that what some call this dynamic and complex self-system is influenced by the contexts, the routine activities in which we participate (Bronfenbrenner, 1979; Fischer & Bidell, 1998; Rogoff, 2003). And yet we are still not able to use these fundamental propositions to understand the range of human adaptations in terms of (a) what such adaptations reveal about mechanisms that are local and situated and (b) what such adaptations reveal about broader mechanisms that are universal in scope and essential to the species.

I want to argue here for two underlying causes for the limited state of our knowledge of such complex, dynamic ecological systems (paraphrased from Cole, 2007):

1. The insistence, in practice, on isolating studies of cultural variation in patterns of learning and development from what is presumed to be the “scientific” study of learning and development (Helms, Jernigan, & Mascher, 2005; Lee, Spencer, & Harpalani, 2003), a legacy of the persistent normative assumptions of White supremacy and class-based hegemony that today are largely tacit rather than explicitly public.
2. The intellectual isolation of core disciplines and of paradigms within those disciplines (i.e., the isolation of cognitive psychology from cultural psychology; and the isolation of cognitive psychology from relevant fields of human development—including the study of identity, personality, emotional development, motivation, attribution theory, social psychology, and social cognition—and from the

field of neuroscience, as neuroscientists are now examining the physiology of the brain to understand how people learn; Cole, 2007).

In this article I want to explore what disciplinary collaborations and active interrogation of tacit assumptions about normative development may have to offer for the field of education. That is, I want to explore how attention to the centrality of culture may lead to a more robust understanding of human learning and development.

Let me return to a personal story that sheds light on this intellectual journey of mine. About 4 years ago, I discovered that I had developed a macular hole in my left eye. Prior to that I had never heard of macular degeneration. I had been traveling in London and found that I could not read the fine print of the train schedules without a magnifying glass. In keeping with my usual unfortunate habit of attending to my own health after the fact, I finally went to an ophthalmologist. After the initial exam, where my eyes were dilated, I bravely tried to drive myself home and, yielding to my Type A personality proclivities, I stopped at a grocery store. I found that, of course, I could not read signs. But I noticed that I was consciously using cues from the environment and my prior knowledge to piece together inferences about what I was seeing. Several years ago, at a meeting at the National Science Foundation, a scholar from a research center at the University of Wisconsin, Madison, discussed a device under development that would help blind people to “see” by means of electrode stimulation to their tongues (Bach-y-Rita, Kaczmarek, Tyler, & Garcia-Lara, 1998).

As I reflected later, this project and my experience with macular degeneration reinforced an essential proposition about the human species—indeed, about all living organisms that survive evolutionary time. The ability to adapt is the key to survival. The tongue-stimulating system demonstrates human adaptability in the fact that our brains do not depend on any single pathway for navigating in the world. Here, adaptability means that the optic nerve from our eyes is not the only pathway through which to stimulate the parts of the brain that interpret visual stimuli. We understand this kind of redundancy in the physiological system of human beings from everyday experience as well, including my experience at the grocery store with eyes dilated. We know that blind people develop heightened sensations of sound and touch and that people with hearing impairments develop heightened attention to visual cues. Given such built-in redundancy at the physiological level, there is every reason to believe that redundancy at the psychological level supports human adaptation in the social and cognitive domains. Here I define *redundancy* in terms of the potential functionality of multiple pathways for helping human beings to pursue cognitive and social goals and accomplish things in the world, including academic goals in the context of schooling. Yet our prototypical response to the challenges of academic achievement is to articulate singular and normative pathways through which youth are expected to navigate the waters of the academic disciplines—and, by extension, singular and normative pathways through which teachers as adults may learn the complex and situated demands of teaching.

In this article, I plan to offer the following:

1. Warrants for why attention to diversity can contribute to the scientific study of human learning and development.
2. Conceptual implications of a cultural lens on learning and development.
3. Examples of research that document multiple pathways for learning and development, along with new general propositions that we can glean from what have traditionally been viewed as localized studies of “the other.”
4. Implications for policy and practice.

### **Warrants From Natural Science and the Field of Human Development**

Here, I want to explore the scientific basis for the view that attention to diversity in the study of human learning and development is a necessary corollary to the articulation of robust and generative theories and, by extension, to the application of such robust and generative theories to problems of practice. I will make this case on the basis of evidence for adaptability over human phylogenetic development and evidence of an integrated and dynamic psychological self in the human species.

#### *Adaptability as a Characteristic of the Human Species*

One basic principle we have learned, from our own evolutionary history as a species and from that of other plants and animals, is that the ability to adapt to changing circumstances is important. If we accept that premise, it follows that understanding the underlying mechanisms that support adaptability should be important. Cultural diversity, I argue, is evidence of the adaptive systems that human beings have developed across societies in order to exist, to replicate ourselves, and to adapt to changing circumstances.

I should first note that I take this argument primarily from a wonderful synthesis of brain science in the book *Liars, Lovers, and Heroes: What the New Brain Science Reveals About How We Become Who We Are*, by Steven Quartz and Terrence Sejnowski (2002). I do not pretend to have any level of expertise in this area, but I find that the evidence from neuroscience and human evolutionary history offers a compelling warrant for the crucial need for attention to diversity in the science of learning. Over human evolutionary history, the physical environment of the earth has undergone significant shifts. As the earth’s ecology shifted through the Ice Age and back, the species capable of adapting remained, and those that could not adapt died out. It seems that, in the course of evolutionary history, the structure of our brains developed built-in or hardwired capacities to read patterns, impose meanings, and revise the meanings of those patterns by learning from the consequences of our actions. To understand this dynamic relationship between our biology and our human culture and what they make possible in tandem is crucial. As Geertz (1973) adeptly pointed out,

Man’s nervous system does not merely enable him to acquire culture, it positively demands that he do so if it is going to function at all. Rather than culture acting only to supplement, develop, and extend organically based capacities logically and genetically prior to it, it would seem to be an ingredient to those capacities themselves. A cultureless human being would probably turn out to be not an

intrinsically talented, though unfulfilled ape, but a wholly mindless and consequently unworkable monstrosity.” (pp. 67–68; cited in Cole, 2007)

As a species we are disposed to pay particular attention to trying to read each other’s internal states and goals (Flavell & Miller, 1998). Quartz and Sejnowski (2002) note that “the human brain’s expansion does not signify the accumulation of more and more instinctual behaviors, but rather a growing mental flexibility that expands our behavioral repertoire, a flexibility that lies at the core of who we are” (p. 80). It is because of our ability to learn from others in socially organized groups that we are able to pass on behaviors across generations. But it is equally important that our biology makes the sense-making process not one of built-in and inflexible behaviors but one of capacity to create meaning and be self-reflective. This process of reflexivity represents “the intertwining of phylogeny and culture in human mental life” (Cole, 2007, p. 237). Language and other symbol systems that we as human beings create become an important medium through which this sense making takes place, a medium that includes routine cultural practices in which the form, significance, and deployment of such symbol- or meaning-making systems occur. Again, to quote from Quartz and Sejnowski,

Your biology has primed you to acquire a culture. It has endowed you with an internal guidance system that propels you from within and bootstraps you into culture by making the social world highly significant and fueling your desire to participate in it. (pp. 85–86)

One important trigger for brain activity is the release of the chemicals serotonin and dopamine (Diamond, 1998; Fuster, 2001). The serotonin system is found in the brain stem, which is among the oldest parts of our brain system. Again, to quote from Quartz and Sejnowski (2002),

One popular way to think of the release of serotonin at nerve terminals is as garden hoses that have small holes punched all along their length. These “hoses” sprinkle your brain with serotonin, which doesn’t so much give cells their marching orders as change what they are already doing. (p. 87)

Serotonin signals emotional reactions, and dopamine influences our experience of pleasure.

I take away several propositions from this brief, albeit simplified, description of brain chemistry and human evolution. The first is that we are hardwired to be adaptive, but it is the experience of human culture—ultimately in all its variation—that shapes both how such adaptiveness develops and to what we as groups and as individuals learn to adapt. This is not a linear process in which the morphology of the brain is like a sponge to be filled by cultural experience. Rather, even the physiological development of the brain—in both evolutionary and ontogenetic or life-course time—is influenced by culture; and at the same time, our capacities as cultural beings are made possible by human physiology (Donald, 2001; Li, 2006; Plotkin, 2001).

The second proposition that I take from Quartz and Sejnowski’s (2002) observations is that emotion and cognition are intimately and dynamically intertwined (Diamond, 1998;

Fuster, 2001). I should note here that abundant laboratory-based studies also document the importance of emotion to cognition and motivation (Dalgleish & Powers, 1999; Nadel, Lane, & Ahern, 2000; Ortony, 1979).

The third proposition is that what counts is our perceptions of other people and activities (Spencer, 2006). These perceptions, which result from our efforts to make sense of other people, serve as the central guideposts for how we as human beings adapt to, or navigate in, the world. I take this proposition as rooted in human evolutionary history and in the findings of neuroscience with regard to how our brains operate.

These three propositions support the idea that culture—the medium through which intergenerational resources are passed on and through which novel constructions occur—is essential to human development. Culture and human biology are intricately intertwined.

I now move to discuss another warrant for this set of broad propositions. I seek to integrate studies of human cognition with studies of human developmental processes that I think, when taken together, support the same findings I have noted from the brain science and human evolution perspectives. However, the integration of these two bodies of research introduces another important dimension that the first argument does not account for: that is, how power relations within and across cultural communities must also be taken into account if we are to articulate an integrated, robust, and generative theory of human learning and development. In this argument, I am most deeply indebted to Margaret Beale Spencer of the University of Pennsylvania, whose work I will describe, and more recently to a younger scholar, Nailah Nasir of Stanford University.

### *Warrants From the Field of Human Development*

Broadly speaking, we can define cognition as thinking and problem solving. In terms of the work of schools, we typically think of cognition as the knowledge required to solve problems in the academic disciplines. Although, clearly, we as human beings solve problems in virtually every aspect of our daily lives, I want to focus here primarily on learning in the academic domains. People are already fairly good at everyday problem solving, but we in the field of education research have a long way to go in understanding academic learning in the disciplines, especially for youth from racial and ethnic minority communities, youth from low-economic-resource communities, youth whose first language is other than English, and youth with disabilities. Even for learning in schools, cognition includes not only knowledge of tasks—in this case academic tasks—but also knowledge of self, settings, and others.

Knowledge of self involves one’s identity—or we might say one’s identities—as a member of a family, of peer social networks, and of larger communities, including those defined by ethnicity, race, and nationality (Phinney, 1990; Sellers et al., 1998; Spencer et al., 1991). Knowledge of self also involves one’s identity as a learner of particular subjects and a learner in general (Dweck, 1999; Eccles, Wigfield, & Schiefele, 1998) and as a participant who identifies to a greater or lesser extent with the culture of a classroom and a school (Wigfield, Eccles, & Rodriguez, 1998). One’s construal of the self serves as an important guidepost for a

range of affiliations that one seeks and works to sustain. The self is connected with the ego such that we seek experiences that support ego development, not necessarily in terms of a purely individualistic conception of the self but rather in terms of a psychological state that is affirming and in which basic human needs are met. Maslow (1954) defines a hierarchy of human needs that range from safety through love and belonging, competency, self-esteem, and self-actualization. How these needs are manifested differs across cultural communities. However, I have no doubt that in the broad sense they are basic to human psychological functioning in all communities.

From a human development perspective, the goals we set and our persistence in efforts to accomplish them—especially in the face of challenges—are influenced by our motivation, our attachments to people, our sense of ability as fixed or malleable, our conception of the task (as interesting, as doable, as relevant, and weighed against competing goals), and our perceptions of the people with whom we interact to accomplish the goals (Eccles et al., 1998; Nasir, Rosebery, Warren, & Lee, 2006; Spencer, 2006; Spencer et al., 2003).

From a cognitive perspective, our ability to learn to accomplish the goals we set, especially in terms of academic learning, is influenced by the nature of the supports or scaffolds that are available to us for learning to perform the tasks in question, including the structure of the prior knowledge we bring to the table (Bransford et al., 2006). A related perspective from the fields of human development and social psychology indicates that our willingness to articulate goals and make use of the available supports—such as the supports in a reform curriculum—are influenced by our perceptions of how the task, the people around us engaged in the activity (peer learners and teachers), and the effort required to accomplish the goal address our basic social and emotional needs as defined by Maslow. Do we feel safe in carrying out this work? How does engagement with this task weigh out in terms of competing needs? Do we develop a sense of competence as we move forward? And are the people with whom we are working (as peers or teachers) aiming to help or hurt us? (See Nasir et al., 2006.) Not all of these needs must be met if we are to be successful, but it is clear that some must be met. There must be some forms of support that help us to make sense of those aspects of the activity that do not meet our perceived and basic needs (Lee, 2007; Spencer et al., 2003). For example, students who have clear long-term objectives to enroll in college may persist in classes in which they are bored and do not feel particularly successful because the long-term need for efficacy represented by college enrollment gives them a reason to persist.

It is also crucial to note that the understanding and pursuit of basic needs in acts of learning, particularly academic learning, are developmental in nature. For example, the needs of young children for competence and social connectedness are qualitatively different from those of adolescents (Eccles & Midgley, 1988; Eccles et al., 1993). Thus any integrated theory must have a developmental focus. It is equally crucial to my argument to assert that these developmental needs are also going to differ by cultural communities. For example, on the basis of Markus and Kitayama's (1991) descriptions of individualist and interdependent cultural communities (Greenfield, Keller, Fuligni, &

Maynard, 2003; Markus & Kitayama, 1991), we would expect that adolescents' sense of social relatedness would develop differently in a community where becoming an adult is marked by separation from one's family of origin than in a community where becoming an adult is marked by assumption of greater responsibilities as one further incorporates oneself into one's family of origin. The picture, however, is much more complex than that. I will say more on this subject later.

I have tried so far, in a very condensed way, to capture propositions that are well established in the learning sciences and the fields of human development and social psychology. The problem, however, is that it is rare to find studies, especially studies of any scale, or educational interventions in schools and communities that actually operate theoretically from such an integrated model. Such a model—one that incorporates both a cognitive and a psychosocial perspective—of necessity requires the idea of multiple pathways. This integrated model assumes that neither a purely cognitive approach, focusing on the structure of knowledge to be learned, nor a purely psychosocial approach, focusing on supports for a sense of emotional well-being, is sufficient to develop learning that is robust, especially in the academic context.

### *Summary of Warrants*

I return briefly to my focus on adaptiveness as the key to human survival. I have argued so far that the available resources that enable us to be adaptive are (a) the biology of our brains, (b) the cultural or social communities that we rely on both to develop from childhood into adulthood and to sustain cultures that continually re-create communities across time, and (c) the primacy of our sense-making efforts. And I have argued from the learning sciences and the fields of human development and social psychology that our sense-making efforts entail cognition, emotion, and perceptions, always working in tandem.

I do not think there is much controversy about these claims, even if we do not see them integrated in either the practice of research or the practice of schooling. However, we lack consensus about another important elephant in the room, which serves as the conceptual filter through which we take any of these propositions as a basis for the design of our research or our practice. This elephant in the room has to do with our conceptions of culture and cultural membership—how our understanding of culture and cultural membership informs how we think about cognition, emotion, and perceptions as they are brought to bear in acts of learning, particularly in terms of schooling.

### **Conceptual Implications of a Cultural Lens: Toward an Integrated Theory of Learning and Development**

The United States is born out of a mixed history. The articulation in the Bill of Rights and the U.S. Constitution of the fundamental rights of human beings—including the exercise of individual freedoms as long as such exercise does not infringe on the fundamental rights of others—continues to serve as an anchor for democratic debate and without question represents one of the finest social experiments in human history. At the same time, we cannot ignore the gross contradictions that were in play during the formation of these foundational documents. An African in the United States was

legally considered to be three fifths of a human being; women could not vote; men who did not own property could not vote; indentured servitude was legal. The issue that we have had the greatest difficulty in handling throughout our history is the fact that this democracy was born on the backs of at least two human holocausts: The African Holocaust of Enslavement and the dismantling of the indigenous nations in the Americas through war, outright murder, broken treaties, and the systematic dismantling of families. Both holocausts were sanctioned by beliefs about White supremacy and longstanding class biases that were the legacy of much of the political and cultural history of Western Europe (Mills, 1997). For the first 400 years of what we might loosely call U.S. history (from the original settling in the 15th century to the historic *Brown vs. Board of Education* Supreme Court decision in 1954 and the Voting Rights Act of 1965), the attribution of Whiteness as normative served to justify all forms of discrimination against those who were classified as non-White (see Ladson-Billings, 2004, for a critical review of educational implications of *Brown* and antiracist legislation). It is interesting to note the changes over the years in the official definitions of racial classifications. Those of African, Hispanic, Asian, and American Indian descent have always been deemed non-White. Whiteness has been the basis for sordid constructions of race (Du Bois, 1940/1992; Gould, 1981; Lee, 2002). The very construct is itself so bizarre that until the late 19th century, Africans in America, for example, were defined on the basis of “blood” percentages, the so-called quadroons and octoroons determined by what percentage of one’s lineage was Black. Stranger still, during periods of high immigration in the early 20th century, the Irish, Italians, and Eastern Europeans were considered non-White (Guglielmo, 2003; Ignatiev, 1996; Roediger, 2006). Particularly for people of African descent, the focus on racial classification has thwarted attention to what it means culturally to live as a person of African descent in the United States—that is, attention to the question of ethnicity (Ladson-Billings, 2004; Ladson-Billings & Tate, 1995).

From a sociological perspective, identity questions with regard to race, ethnicity, and nationality (and, by extension, gender and disability) require careful analysis. Although a similar case can be made for discrimination based on gender or disability, I will focus on race because with ascribed racial classification comes exposure to institutional biases, prevalent cultural stereotypes, and outright persistent, intergenerational discrimination that crosses gender, nationality, and disability. Thus to ignore race is to take our vision away from the ways in which our society institutionalizes challenges to particular groups of people. To focus on nationality alone shifts our attention away from the multiethnic nature of U.S. society and increasingly more nation-states around the world. And it should be noted that the United States has always been a multiethnic society. We see the presence of ethnic identification in the wars in Serbia and Kenya, in the plight of the Roma (historically known as gypsies) across Europe, in Somalia, and in the political tensions among the multiple ethnic groups indigenous in China. We see ethnic identification in both the similarities and the differences among Black populations within the United States—Caribbean Africans, immigrants from the continent of Africa, and descendants of the Africans originally enslaved in this country.

Focusing on ethnicity allows us to consider the impact of how people live, their routine practices, and the consequences of such routine practices for their development. Please note: I do not argue that attention to race and nationality are unimportant. Indeed, I have already argued that attention to race is crucial but that we must understand for what ends; likewise, attention to nationality is important, particularly for international comparisons. But I would argue that if national trends are to be used to account for inevitable variation—for example in educational outcomes—our attention must also include differences in ethnicity and class within nationalities. For purposes of this discussion, I will explore how we can think about ethnicity as a lens for understanding the range of variation in pathways to learning and the attendant psychosocial development.

Research focusing on ethnicity and learning or ethnicity and psychosocial development typically tries to address some set of negative outcomes for marginalized youth: learning outcomes explained by stereotype threat, family practices posited as non-canonical (e.g., practices of parents who do not read books to their young children at home), lack of mastery of academic English as a constraint on learning, and so forth. Two implicit assumptions underlie much of this research. The first is that the normative problems of developing human beings do not apply to ethnic minorities or the poor.<sup>2</sup> You see this in a review of the standard handbooks on learning and on development. At best, there may be a single chapter devoted specifically to the problems of ethnic minority youth; and in the standard chapters on the big ideas in the field, there is virtually no mention of ethnic or class diversity. The implicit assumption regarding systematic studies of core constructs such as conceptual change or attachment theory is that their application and validity with regard to ethnic minorities need not be examined. The second implicit assumption, especially with regard to the learning side of the equation, is that the domains of everyday knowledge and disciplinary knowledge are worlds apart—or that if there are connections (such as in the cognitive research on the role of prior knowledge, naive concepts, and misconceptions), the everyday side of the equation is typically the deficit calculation.

My fundamental premise is that we cannot articulate a generative and robust science of learning and development without explicit attention to the diversity of the human experience. The National Science Foundation and the Institute of Education Sciences, the two largest sources of federal funding for education research, both explicitly call for attention to diversity in their RFPs. However, there are no common criteria, or for that matter even idiosyncratic criteria, for what constitutes rigor with regard to issues of diversity in the conduct of education research. There are no definitive syntheses of the existing research or comprehensive articulations of the many unanswered questions that attention to diversity might raise.<sup>3</sup> Thus the most typical responses to the criteria for diversity in programs of research are either outreach activities aimed at underrepresented minorities but not linked in any way to the fundamental research activity, or attention to helping the colored people and the poor without any expectation that the findings from the research might contribute to the expansion of fundamental knowledge about human learning and development.

These tensions between what has been termed an *etic* as opposed to an *emic* perspective have a long history in anthropology and cross-cultural psychology. With greater attention to cultural diversity in research in psychology, human development, and education, this tension is reflected in the following questions to ask when we study culturally distinct communities of practice:

1. What can we understand that is unique to each community and that reflects the inside perspective of its members?
2. What can we understand that can be extrapolated across cultural communities?

I think both questions are crucial, and we cannot address the second without addressing the first. That is, attention to the meaning of cultural practices within particular communities is crucial so that we are not imposing normative assumptions that have no meaning for the people we are studying. We have a very long history of making this mistake. At the same time, we need some ways of synthesizing across studies of culturally distinct communities to build generative theories about how we as human beings learn and develop over time.

So to move forward, here are some core propositions that I think we must address:

1. Cultural membership is based on shared routine practices and beliefs that are transmitted through generations, across time and space (Gutiérrez & Rogoff, 2003; Rogoff, 2003; Rogoff, Paradise, Mejía-Arauz, Correa-Chávez, & Angelillo, 2003). This is why we see the maintenance of practices and beliefs even when people immigrate to new nations and live in their adopted nations across several generations.
2. People can and do live in multiple cultural communities of practice, but the meanings and functions of these different cultural communities differ. Often (although not always), the sense of identity associated with ethnicity as it is embodied in the practices of the family in which one grows up will serve as an important psychological anchor for the developing person (Cross, 1991; Lee, 2002; Sellers et al., 1998).
3. Cultural communities are communities precisely because of what they share, but at the same time there is always significant variation within communities. Thus we need what my friend Kris Gutiérrez (2004) at the University of California, Los Angeles, calls a binocular vision, with one lens focused on what makes communities culturally distinct and a second lens focused on the variations within communities. Understanding variation is very important and, I would argue, fundamental to the question I raised at the beginning of this article about the role of adaptation in human survival. I would argue that understanding human adaptation to our social, political, economic, and biological ecologies is central to the scientific study of human learning and development, and thus that diversity among human groups as captured within and across cultural communities—as well as individual variation within such communities—is the science we want and need to understand.

4. The processes through which human beings learn in and from their environments and adapt to them always entail risks. Here, I draw explicitly from Margaret Beale Spencer's research and her Phenomenological Variant of Ecological Systems Theory (PVEST) model (Spencer, 2006). Spencer argues that to be human is to be placed at risk. On the surface this may seem obvious, but if one examines the research literature in education, human development, and the learning sciences, one leaves with the impression that it is the youth of color and the poor youth who have the problems, that middle-class and upper-class White youth are somehow immune from risk. For example, our term *at-risk youth* is intended as a synonym for youth of color and youth from economically poor communities.<sup>4</sup> Thus understanding the nature of risks faced by individuals and communities, how people actually experience those risks, and the nature of the supports that are or are not available to them, as Spencer argues, is necessary for understanding the range of variation in developmental pathways.

Spencer asserts that the nature of the challenges and needed supports changes with age (Spencer et al., 1991). So, for example, the needs of a young child for a sense of competence and attachment are qualitatively different from those of an adolescent. Spencer's final and perhaps most compelling point is that youth who face persistent challenges based on race, ethnicity, poverty, immigrant status, and so forth, must learn to cope with both the normative challenges of growing up and the specialized challenges of stigmatization (Boykin, 1986; Spencer, 1987, 1999, 2000). Learning to cope productively with these dual challenges can provide sources of resilience. This means that ethnic and racial socialization, for example, can serve as important and necessary supports for wholistic development (Caughy et al., 2002; Mandara, 2006).

Let me be very clear. I am not arguing that these propositions should inform research on "culturally diverse populations" (which, by the way, has become our synonym for "non-White groups"). Rather, I am arguing that researchers who seek to examine or generate fundamental theories about how and what human beings learn and the psychosocial processes entailed in such learning need to consider these propositions from the very beginning, when deciding how to formulate their research questions, how to sample, what kinds of data to collect, the validity of instruments, the assumptions underlying the variables articulated, and the potential limitations of their findings (Lee et al., 2003).

### **Research Examples of Theory Derived From Examinations of Practice in Communities of Color**

To reiterate, I argue that to generate robust and generative theories about how and what people learn, we must attend to issues of diversity based on conceptually complex frameworks that position diversity as essential or fundamental to the human experience and not as some wayward pathology. In illustration, I will describe in this final section several programs of research that have focused on populations of color and have articulated insights about human learning and development that are generative—that have application and meaning across cultural communities,

without being normative. Although there are many fine, long-term research programs that I could use, I will limit myself to three: Nailah Nasir's work on nonschool settings, the work of Douglas Medin and Megan Bang among the Menominee, and my own work in Cultural Modeling.

### *Learning in Everyday Settings in the Research of Nailah Nasir*

Nailah Nasir situates her research within the African American community and seeks to examine a set of fundamental propositions about what makes a learning community robust. It is precisely because she examines settings and populations where the dual challenges of normative development and racial, ethnic, and class identities are clearly at work that she has been able to contribute to our understanding both of conditions under which transfer may be maximized and of the fundamental features of robust learning communities.

Nailah Nasir (2000, 2002, 2005; Nasir, Hand, & Taylor, 2008; Nasir et al., 2006; Nasir & Saxe, 2003) has examined two routine practices with cohorts of African American youth: playing dominoes and playing basketball. For each of these domains, Nasir, like Margaret Beale Spencer, has taken an explicitly developmental focus by examining youth at different ages with different levels of expertise. She has documented the computational skills and the development of strategic planning processes in child, adolescent, and adult domino players. She has documented the knowledge of simple statistics among adolescent basketball players, many of whom do not transfer their mathematical competencies from the basketball court to mathematics classes in school. She has also examined the structure of scaffolding in an after-school track team. All of these are out-of-school environments where youth learn complex skills. She contrasts a more expansive view of how people learn in these settings with the more restrictive view of learning in schools.

Among the notable findings of Nasir's research are the following: (a) the importance of making problem-solving strategies explicit and public; (b) the importance of timely feedback on performance; (c) the importance of positioning learners as competent; and (d) the importance of social relationships between teachers and learners and among peers. And how these practices play out is not generic. Rather, they are responsive to the cultural histories of the communities in which youth live. These practices are intended to help youngsters understand the challenges they face and to provide them with repertoires for coping with challenge and for excelling in the face of adversity. The strategies are not generic practices that can be simply imported anywhere. Rather, they require that those who design or teach them understand their students as individuals, as members of families, and as members of historical communities. Like Margaret Beale Spencer's PVEST model, Nasir's research seeks to articulate adaptive principles that are responsive to local conditions and local histories; however, the underlying principles are generative.

### *Studies of Ecological Reasoning in Indigenous Communities: Medin and Bang*

My second illustrative example is the program of research carried out by Douglas Medin of Northwestern University and Megan

Bang of TERC (Atran & Medin, 2008; Bang, Medin, & Atran, 2007; Medin & Atran, 1999; Medin, Unsworth, & Hirschfield, 2007; Ross, Medin, & Cox, 2007). Medin has worked for more than a decade with the Menominee Nation in Wisconsin. Bang is Ojibwe and an outstanding young American Indian scholar. Medin has documented the prevalence of ecological reasoning about the natural environment among the Menominee. The Menominee are known for rich ecological practices with regard to sustainable forestry and maintaining a balance in the wildlife of that area. Medin and Bang argue that the prevalence of ecological reasoning among the Menominee can be traced, in part, to intergenerational practices involving fishing. Although nearby European Americans also routinely fish, the two communities give very different cultural meanings to the practice. And Menominee who live in Chicago, for example, still maintain ecological beliefs about the natural world, largely through social ties and traditional belief systems.

In a recent study, Bang et al. (2007) tested a prevalent theory in cognition that children's conceptions of the natural world are anthropocentric (Carey, 1985), meaning that they project human attributes onto animals rather than vice-versa. Medin and Bang found that "rural children [both Menominee and rural European American] generalized more from wolf to other mammals than from humans to other animals" (Bang et al., 2007, p. 5). This finding suggests that children's reasoning about the natural world is predicated on their experiences with the natural world rather than on a universal pattern. However, the researchers found that Menominee children are much more likely to justify their claims on the basis of ecological relations, for example to "justify generalizing from bees to bears because a bee might sting a bear or a bear might acquire the property of eating the bee's honey" (p. 6). They argue that the genesis of these beliefs may likely be the Menominee creation story, in which human beings evolve from the bear, and the prevalence of an animal-based clan system. This research has implications not only for how to teach ecology in ways that are anchored in the routine practices and belief systems of cultural groups but also—equally important—for how to study the development and genesis of children's knowledge of the biological world.

### *Cultural Modeling*

I need to abbreviate the discussion of the third illustration, my own work in Cultural Modeling (Lee, 1993, 1995, 2000, 2001, 2005a). I have documented the genesis of disciplinary reasoning in the everyday practices of Black and Brown youth. Specifically, I have shown the prevalence of literary reasoning embedded in signifying among speakers of African American English and how the structure of that reasoning is related to the demands of reasoning about literary texts. That work has also led me to reexamine some fundamental assumptions about what novices need to know in order to analyze canonical literary texts (Lee, 2004, 2007). The idea that there are classic types of problems, generative relations among types of problems, strategies, heuristics, and dispositions or habits of mind has been central to mathematics and science education but not to the teaching of literature. I discuss these ideas in detail in my most recent book, *Culture, Literacy and Learning: Taking Bloom in the Midst of the Whirlwind* (Lee, 2007).

A third insight that I glean from my work is that robust learning environments provide what I call multiple culturally rich contextualization cues (Gumperz, 1986) that signal to novices what roles are available and sanctioned for us to play, who can talk about what and how, and what tasks we are expected to engage in and how (Lee, 2005a, 2005b). Again we revisit the idea of redundancies, or multiple pathways.

This means that the role transition for students is made easier, especially for students with long histories of underachievement in school. Often, the longer these students remain in school, the more skeptical of the whole enterprise they become. Culturally rich contextualization cues include the following:

1. Everyday knowledge embedded in routine practices in which the youth engage directly, themselves, is invited as an object of inquiry and a scaffold to related disciplinary knowledge. This is what we have done in the domain of literature. It is also what Bob Moses' Algebra Project has done with the teaching of fundamental algebraic constructs based initially on analogies of traveling along an urban transit system (Moses & Cobb, 2001). It is what the researchers at Chèche Konnen at TERC (with Beth Warren, Ann Rosebery, and Josianne Hudicourt-Barnes) have documented with the use of Haitian Creole argument structure in science classrooms (Rosebery, Warren, & Conant, 1992; Warren, Ballenger, Ogonowski, Rosebery, & Hudicourt-Barnes, 2001). It is what Arnetha Ball has documented with regard to preferences in expository writing among African American adolescent speakers of African American English (Ball, 1992, 1995; Ball & Farr, 2003). I could go on, but the point is made.
2. Ways of speaking in classrooms that privilege language resources that students bring from their everyday linguistic practices and repertoires outside school create opportunities for participation and the assumption of meaningful roles in the problem-solving and inquiry work of classrooms. We have documented this with a fascinating range of rhetorical moves as the vehicles for conveying deep thought among the African American English speakers in our studies (Lee, 1993, 1995, 2000). We have similar findings about bilingual language resources in the work of Marjorie Orellana (Orellana, Reynolds, Dorner, & Meza, 2003), Guadalupe Valdes (1996, 2002), Olga Vásquez (2002), and others.

These studies do not represent isolated, self-interested investigations of colored peoples, cute multicultural meanderings from the real questions of learning. Rather, they provide the kinds of rich contextual information about the circumstances under which learning of new concepts and modes of reasoning is maximized; that is, the conditions under which adaptability is maximized.

The underlying assumption behind the anchoring of school-based instruction on what kids already know and value is not an end unto itself. Rather, the goal of teaching students to be adaptive—teaching them what the late Giyoo Hatano (Hatano & Inagaki, 1986) and Rand Spiro (Spiro, Feltovich, Jackson, &

Coulson, 1991) have called “adaptive expertise”—means helping them to build transitions to that which they do not yet know. Learning environments where this can happen will inevitably require what Kris Gutiérrez (Gutiérrez, Baquedano-Lopez, & Tejada, 1999) calls *hybridity*. Such learning environments will involve the intermingling, the interanimation if you will, of multiple languages (e.g., African American English and Academic English, Spanish and the English of mathematics), multiple worldviews (the ecological orientation of the Menominee and the ecological orientation of the sciences), multiple ways of reasoning (reasoning about rap lyrics and reasoning about canonical literary texts), and multiple role playing (students assuming the role of teachers and teachers assuming the roles of learners within their classrooms). Gutiérrez argues that it is specifically this attention to hybridity that is the fulcrum for creativity, the medium that provides opportunities for new constructions that neither teachers nor students could anticipate ahead of time and thus makes for the most exciting and generative kinds of teaching and research. Scott E. Page (2007) makes a similar argument about the generative role that diversity plays with regard to creativity and deep thought.

### Implications for Policy and Practice

We face challenges in the field of education. These challenges are highlighted by the overwhelming evidence of inequity in educational outcomes and opportunity to learn (Moss, Pullin, Gee, Haertel, & Young, 2008; Perle, Moran, Lutkas, & Tirre, 2005). Yet there is an underlying hope that education research can provide our society with the intellectual tools for addressing these pressing problems through the generation of theories that are sufficiently robust to be responsive to the wide variation in the life circumstances of youth and families and in the institutional resources available to them. As education researchers, we cannot be satisfied with overly deterministic pronouncements like the following:

1. If parents don't read books to their children before they come to school, the children are not likely to become competent readers.
2. If parents don't engage in the kind of talk that we imaginatively think goes on in middle-class homes, the children's vocabulary will be so limited that they can never catch up.
3. If children haven't learned the alphabetic principles and how to count to 10 before they reach kindergarten, they will be behind forever.
4. If children don't speak “the King's English,” they cannot be taught.
5. If parents don't come to school, they are not interested in their children's education.

At best, such pronouncements are based on studies of White middle-class samples. At worst, they reflect our stereotypes about poor people and their children. Moreover, these “folk beliefs” presume a monolithic approach to teaching that does not create multiple pathways for reaching common goals.

I ask: What are the foundational principles of learning that can help inform practice anywhere, whether in Wisconsin or the

reservation of the Menominee Nation; in Los Angeles, where children in one classroom may be recent immigrants from seven countries of origin; in the Appalachian Mountains, where many White families have lived for generations in persistent poverty; in New York City, where Black students may be Puerto Rican, Dominican, Brazilian, Senegalese, Eritrean, or descendants of Africans who were enslaved; or, for that matter, in the rich, predominantly White suburb of Skokie, near Northwestern University where I teach, with students whose high state assessment scores mask the reality (shown by NAEP trends in reading and mathematics) that fewer than 10% of 17-year-olds in the United States are able to engage in the most complex problem-solving tasks (Perle et al., 2005)?

I want to see our field generate theories of learning that take into account all this complexity, that help us to understand the cognitive, social, and emotional dimensions of learning; the ways that identity is linked to goal setting and persistence; and the ways that competence is very much context dependent. I want to see education researchers generate theories of learning that help us to understand how the exercise of power and the availability of resources can affect opportunity to learn; how socialization efforts can help youth learn to make sense of and resist those institutional structures and practices that constrain and impede their opportunities to learn. This kind of understanding, I think, is the essence of learning to be adaptive. And learning to be adaptive is indeed the name of the game called Life.

## NOTES

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<sup>1</sup>There is some evolving progress in this area, however. For example, a National Science Foundation-funded center for the science of learning—the LIFE Center at the University of Washington—has an advisory board on diversity in the learning sciences, headed by James Banks.

<sup>2</sup>This criterion does not apply to the research on stereotype threat, which has documented that stereotype threats can impede displays of competence across multiple populations.

<sup>3</sup>The LIFE Center (see note 1) hosted a conference in January 2008 that called for a synthesis document with regard to the role of diversity in a science of learning, including criteria that could be used in the evaluation of proposals.

<sup>4</sup>A. Wade Boykin (2000) addressed the implications of the term *at risk youth* by rephrasing to *youth placed at risk*.

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