Human Development 2002;45:211–225

Human
Development

Investigating the Coordinated Functioning of Multifaceted Cultural Practices in Human Development

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Key Words

Age segregation · Cultural communities · Cultural processes · Historical processes · Middle-class culture · Schooling

Abstract

We argue for the importance of keeping a focus on the dynamically coordinated functioning of multifaceted cultural practices for investigating cultural aspects of human development. Although some research projects benefit from focusing on specific aspects of cultural functioning, it should be with the recognition that segmentation into 'variables' is for the sake of analysis rather than assumed necessarily to reflect the reality of the phenomena that we study. The portfolio of research on cultural aspects of human development needs to include analyses that focus more broadly on the historically changing constellation of cultural practices in which individuals participate, even as other studies examine specific aspects as if they were freestanding variables. We illustrate this argument with research suggesting that middle-class European American adults' ways of interacting with children can be illuminated by seeing their practices as an aspect of a somewhat coordinated historical, cultural system. Cultural analyses that focus on coordinated, multifaceted practices can help us understand

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0018–716X/02/0454–0211$18.50/0

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human development in the context of people's participation in pervasive cultural institutions such as schooling and societal changes such as industrialization. For the research portfolio to develop a comprehensive approach to investigating coordinated patterns in cultural aspects of human development, we need a more open-minded respect for a variety of approaches to cultural research than is sometimes found within disciplines.

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Investigating the Coordinated Functioning of Multifaceted Cultural Practices in Human Development

There is a pressing need to advance understanding of cultural aspects of human development, especially as the limitations of research to date – based largely on European American middle-class participants – have become clear. In recognition of the need for more inclusive research, the US National Institutes of Health have recently required investigators to include research on 'Women and Minorities' (or justify why their samples exclude some portion of the population). This policy has sparked healthy discussion in grant review panels of the need to get beyond the prevalent generalizations based largely on European American populations.

However, the need to include research on 'minorities' is often assimilated to prevailing research designs, as simply an added population. This approach treats culture (sometimes equated with ethnicity) as an independent 'factor' or 'variable', consistent with the dominant research paradigms of the fields often represented on grant review panels.

In this article, we make the argument that the portfolio of investigations of cultural aspects of human development *needs to include integrated approaches to coordinated, multifaceted patterns* of dynamic cultural practices. This requires moving beyond an often-used assumption that research *must always 'control' for differences* between populations, varying only a few 'variables' at a time. It is important for our fields and research institutions to broaden their research approaches beyond the customs of particular disciplines, so we can address the pressing questions of how individuals develop as participants in cultural communities.

After considering the question of how researchers think of 'variables' and issues involved in treating culture as fixed categorical properties of individuals, we discuss culture as integrated constellations of community practices. We illustrate our argument by describing a multifaceted, dynamic cultural pattern that we think is important for understanding cultural variation in adult-child communication – a pattern that suggests roles for generational increases in participation in Western schooling, large-scale economic transformations in the structure of communities, and shifts in the access of children to mature activities of their community. We consider the use of variables as a way of focusing analysis on aspects of multifaceted, dynamic cultural phenomena, and then elaborate the idea of culture as dynamic practices of communities. We conclude with a call for efforts to understand regularities in processes of human development through people's involvement in their community's multifaceted and dynamic cultural practices.

How Do Researchers Think about 'Variables'? Analytic Tools and Assumption Systems

Our argument is based on the idea that analytic tools should serve research questions and efforts to understand phenomena. They should not be elevated to positions in which the tools determine the questions that can be asked, and they should not be assumed to reflect the structure of the phenomena themselves. In particular, how researchers think about *variables* makes a difference in how we conceptualize and investigate cultural processes. Our aim is to reflect on this issue in order to avoid having techniques narrow understanding.

We are concerned that it may be easy to think of reality as consisting of a collection of freestanding variables that operate in isolation or in simple interactions, due in part to the pervasiveness of some statistical tools (such as analysis of variance or multiple regression) in certain fields. Segmentation of data using such analytic tools is an aid to researchers in making complex phenomena tractable for the purposes of analysis – we ourselves rely heavily on such tools, among others. However, the assumptions associated with the tools may be taken for granted as the ways the world works, transforming research methods from tools for analysis to constraints on questions and interpretations. As Shep White [1983] has pointed out, researchers frequently think that the way that they parse a phenomenon is not simply a representation of their thinking about it; they may assume that their parsing directly describes the phenomenon itself.

We argue that researchers need to consider cultural processes as dynamically integrated constellations of cultural practice[3] – even (or especially) when analyses may be served by identifying some aspects as 'variables'. Researchers can use analytic tools such as statistics that apply analysts' distinctions to phenomena (creating separate variables for the analyses) without assuming that phenomena are actually mechanically produced by deterministic freestanding factors that can be toggled on or off, or turned to higher or lower levels. If dominant methods of analysis are assumed to reflect 'reality' or to be the only appropriate way to investigate cultural phenomena, this would unduly limit understanding of cultural processes. The portfolio of research needs to include work that focuses directly on investigating configurations of cultural processes.

We have encountered efforts to restrict research to approaches that try to control (experimentally or statistically) for all but a few variables on grant review panels and in reviews in leading journals of research on human development. Reviewers sometimes assume that acceptable research must 'control' for variables, to identify one or several variables that mechanistically produce the phenomenon of interest. For example, a reviewer might regard a study as 'confounded' if a comparison involves two cultural communities that differ in many respects at once – such as nationality, means of economic subsistence, prevalence of schooling, use of daycare, and family structure. Assumptions that research must control variables can be seen in the following quotes from reviews, despite the fact that the submitted manuscripts did not claim to isolate variables responsible for the adult-child interactions that were observed in the studies, but rather examined cultural patterns as configurations of related cultural practices.

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[3] The idea that social science should focus on units of analysis that examine phenomena holistically as integrated, functioning ensembles has a long and respected history [e.g., Vygotsky's, 1987, and Leont'ev's, 1981, focus on activities; Dewey and Bentley's, 1949, focus on events; the Laboratory of Comparative Human Cognition's, 1983, focus on cultural practices].

> One reviewer (1999) criticized a study on this basis: 'If one group is characterized as being American middle class of European origin, then cultural beliefs, life style, family structure, mode of production, and wealth are all confounded. ... If class is really the issue, then the study should be done with a single culture varying class. If location of work is the issue, then they should compare families within the same culture and class, but who differ in accessibility of household production ... If schooling is the issue, then they should compare two samples comparable on other factors but who differ on access to schooling.'
>
> An associate editor (1998) wrote, regarding a different study: 'I believe that the issue of sensitivity to cultural differences that you attempt to study is, in some sense, a sticky point with regard to your control sample. Two of the external reviewers raise the issue that the comparison sample of families in Salt Lake City may not be the most appropriate group for your analyses. Your families differ not only in their cultural backgrounds but also in significant ways that affect their attitudes about childcare. All the San Pedro mothers are homemakers and their extended families live close by, whereas half of the toddlers in [the] Salt Lake City sample attended day care and extended families were rare... All this is to say that the reviewers believe (and I agree) that you need to be more balanced in your treatment of these confounding effects'.
>
> A reviewer (1998) recruited by this editor said, 'The two samples differed on characteristics unrelated to culture, such as level of schooling... Use of a working class sample from Salt Lake City would have been a better solution. The failure to control for relative SES was an important confound as were family size and number of people in the home at the time of assessment. Contrary to the authors' assertion, these factors are not necessarily part of cultural differences, and their potential effect on the findings should be addressed.'
>
> Another reviewer (1998) commented, 'The Salt Lake City sample just doesn't strike me as easily comparable with the San Pedro sample, especially given the difference in out of home child care and parent careers evident across the two samples. I guess what bothers me here is it would have been quite possible, I think, to find a sample in the US that well matched the San Pedro sample on these variables and yet was culturally distinct from the San Pedro families'.

If the manuscripts had made claims about isolating particular variables responsible for the differences between communities, such questions would make sense. However, these manuscripts focused on examining patterns of cultural practices as coherent configurations – an aim that would be stymied by removing all but a few 'factors'. Nonetheless, the reviewers seem to assume that research must isolate and control for all but a few variables[4]. Although examining specific aspects of community life is fruitful in some research, if the research portfolio were limited to studies that control for all but a few variables, we would have arbitrarily reduced our opportunities to understand cultural processes as integrated configurations of practices, interrelated and changing over history.

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[4] There are, of course, far more 'variables' to control for than the reviewers suggested. We would have to control not only for cultural beliefs, lifestyle, family structure, mode of production, wealth, location of work, schooling, attitudes about childcare, proximity to extended family, number of people in the home at the time of assessment, and parent careers, as the reviewers suggested, but also for climate, history of domination by other groups, nutritional status, legal system, language, religion, availability of clean air and of computers, migration history, presence of trucks on city streets, presence of streets, and on and on.

The reviews also seem to treat 'culture' as a categorical characteristic of individuals or groups – a social address such as ethnicity. The common practice of dividing phenomena into variables contributes to treating culture as a categorical characteristic – yielding what Rogoff [in press] refers to as 'the box problem'.

The 'Box' Problem: Culture as a Fixed Categorical Property of Individuals

People's cultural participation is often discussed in terms of categories of cultural or ethnic 'identity'. Such a categorization approach is based on the idea that cultural aspects of individual lives are fixed in social address taxonomic categories such as race, ethnicity, and socioeconomic class. Although social addresses are important for issues of individual identity and self (especially for understanding the process of categorizing others or oneself, or being categorized[5]), they limit other research on cultural processes.

The taxonomies involve categories ('boxes') that are assumed to be mutually exclusive and rather homogeneous (or varying in a 'normal' fashion around an average). Individuals who 'fit' more than one box challenge the system, as do striking variations within the boxes. To address such issues, researchers often assume that more boxes are needed in order to examine the independent and interacting effects of categories such as national origins, religious convictions, generations since immigration, regional differences, and so on. However, the boxes and sub-boxes would eventually be so tiny that the whole endeavor would weigh itself down in uninterpretable multiway interactions.

Reliance on taxonomies of categorical variables, even made very complex with higher order interactions, do not capture the dynamic nature of the cultural transactions of human life. In the end, clarity and understanding are not served by adding separate variables (or subdividing them) to get very complex interactions that often do not illuminate general patterns but simply add complex isolated bits of information.

In addition, the categories of the taxonomies are hardly independent of each other or constant across circumstances. Each is a cultural construction nestled in the historical circumstances and values of particular communities. (This is not to say that they are unimportant or imaginary; on the contrary, social categories are important and real in their effects.) Consider the differing meaning of social class in disparate settings, such as a city in the US, a Guatemalan Mayan subsistence farming community with little involvement in schooling, or a foraging community without schools in the Ituri Forest of Africa. The relative meaning of different occupations, extent of schooling, and income – aspects used to create scales to reflect hierarchies of social class – differ enough that it seems inappropriate to treat social class as if it had the same meaning in different settings, independent of other community characteristics or of historical cultural processes.

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[5] As Maricela Correa-Chávez has pointed out [personal communication, November 2000], boxing disparate traditions together under a common label (e.g., Latino, African American, Asian), in public policy and everyday life, *creates* a reality based on these identity categories. For example, people classed in the same 'boxes' by law or custom come to share a common treatment and history, even if the classification system clusters people with widely disparate backgrounds.

If social science were to *equate* culture with a social address category, or the intersection of such categories, we would lose the opportunity to understand cultural processes as the interrelated aspects of people's overlapping and historical participation in changing and conflicting cultural communities. (An individual is likely to participate both in broad and inclusive communities, like nations, as well as specialized communities, like generational cohorts, occupational guilds such as academia, and ethnic and religious groups).

In this formulation, culture is not equivalent to ethnicity (or the interaction of ethnicity and other 'factors'). Instead, research can examine cultural processes in terms of people's participation in practices of their cultural communities – practices that include religious traditions, participation in schooling, languages used for varying purposes, and so on. Such practices, from a participation perspective, are not separate factors treated as attributes of individuals or groups but rather are related aspects of heterogeneous community functioning in which people engage.

Culture as Integrated Constellations of Community Practices

We regard culture as a patterned configuration of routine, value-laden ways of doing things that make some sense as they occur together in the somewhat ordered flux of a community's ways of living. Cultural processes do not function in isolation or in mechanical interaction among independently definable entities. Research efforts that try to control for all but a few aspects of community functioning – to be able to separately examine the effects of stand-alone variables – overlook the meaning that is given to each aspect by their integration. Indeed, if all factors but one or a few were controlled or covaried 'out', without recognition of their role in the integrated functional relations among aspects of community functioning, it would be impossible to study cultural processes.

The contrast between examining variables in interaction and examining configurations of cultural features can be seen in the reaction of colleagues to the design of several of our ongoing studies (with Mejía Arauz, Paradise, Correa-Chávez, and Najafi) that examine cultural aspects of children's learning by observation and engagement in small groups. The literature suggests important differences between middle-class European American and Mexican and Guatemalan indigenous-heritage communities, in the organization of learning. It also suggests that extensive experience in school – a European-American institution gaining prominence in many other communities – may play an important role in middle-class family interactions as well as in cultural change in other communities [Rogoff, in press]. In order to examine these patterns, we are studying observation and collaboration of US children from three cultural backgrounds: European American middle-class families (where mothers have extensive schooling experience), Mexican-heritage families in which mothers have little schooling experience, and Mexican-heritage families in which mothers have extensive schooling.

Some colleagues claim that a fourth group needs to be included – European American families in which mothers have only a few years of schooling. Their claim seems to stem from the customary symmetry of a 2 × 2 table, crossing the variables of ethnicity and schooling. However, there is no reason to assume that the fourth 'cell' is needed or would even be interpretable as an interaction of ethnicity and schooling. A sample of European American families with little schooling experience would not add comparability to the other three communities. Their differences with the other three groups would not inform our questions or the literature suggesting that traditional indigenous-heritage communities differ from highly school-based communities in their organization of children's learning opportunities. Our aim is not to see how schooling affects 'generic' folks (or how ethnicity does, or the interaction of schooling and ethnicity) – as implied in the 2 × 2 independent variables design imagined by these colleagues. Rather, we are interested in the integrated configuration of historical cultural practices entailed in the background of the three groups of children, as they relate to the organization of children's learning opportunities.

Our focus on the interrelated 'whole' picture involved in cultural processes does not imply that the 'whole' is internally consistent, homogeneous, or bounded from other entities – it is a whole patterned *process* rather than a whole *entity*. Our focus on holistic analysis of patterned processes contrasts with the idea that culture is an entity or characteristic independent of others such as economic status, religion, occupation, mode of subsistence, extent of schooling, migration patterns, literacy, family structure, and so on. These aspects of people's participation in cultural communities are inherently mutually defined, forming an indivisible and dynamic coordinated configuration not composed of separately functioning variables. Researchers' reference to separate variables, from this perspective, is a convenient temporary fiction for the sake of analyses, not a description of the phenomena themselves.

We are not arguing against using statistical comparisons or against identifying variables for analysis – we do both in our research. (Our argument also does not pit qualitative against quantitative approaches, or single-community against comparative approaches. Research progress needs all these approaches.) Rather, we argue that methodological choices should be recognized as a convenience for analysis, not a reflection of the organization of the world or the only appropriate way to focus research on complex processes. It is valuable to attempt to narrow hypotheses regarding which aspects of cultural variation may contribute to a pattern – but this is not the same as assuming that in 'reality', culture is a variable or factor independent of others.

An example of research that focuses on one feature that contributes to a cultural pattern is a study examining the role of experience in Western schooling in forms of collaboration used by Guatemalan Mayan family groups [Chavajay and Rogoff, 2002]. Mayan mothers with little experience in school seemed to use a more traditional indigenous organization, engaging in fluid multiparty collaboration with 3 children. In contrast, Mayan mothers with extensive schooling more often subdivided the task and directed the children in a hierarchical fashion. This suggests that experience in school may play a role in shifting traditional forms of collaboration toward a Western, school-like pattern. However, the historical shift in extent of involvement in school is part of a larger many-faceted transition within this Mayan town (and internationally). It includes a shift away from traditional weaving and farming occupations to a more cash-based economy with merchant and professional occupations, decreases in infant mortality and birth rate, increases in contact with other communities (through travel, tourism, and television), and many other associated local and international changes. In interpreting the findings, Chavajay and Rogoff [2002] focused on the role of schooling, suggesting that this experience is a key part of the multifaceted historical change in childrearing practices in the Mayan community – but they did not treat it as an isolated variable that produces an effect independent of the other aspects of the changing town and its changing relations with other communities.

Although focusing on variables is useful in some cultural research, treating the control of variables as the only or most appropriate way to do research would undermine the opportunity to come to a broader understanding of cultural aspects of human development. Both analyses that focus on a few variables as well as holistic analyses that study patterns among coordinated cultural features offer valuable forms of explanation regarding cultural aspects of human development.

In the next section, we will further illustrate the importance of examining integrated, dynamic configurations of cultural practices with an account of cultural patterns that we believe have great importance for understanding human development [Rogoff, in press]. We focus on consistent patterns of dynamic variation across cultural communities in adult-child communication, which seem to be related to reduction in children's access to observe and participate in adult work, generational increases in participation in Western schooling, and large-scale changes in the economic structure of communities.

An Illustration of Contrasting Multifaceted, Dynamic Cultural Patterns

We and our colleagues have argued that the cultural practices of middle-class European American communities constitute a dynamic, integrated multifaceted pattern in which children are largely segregated from adult activities and instead are involved in specialized child-focused activities such as school and child-focused adult-child play and conversation [Morelli, Rogoff, and Angelillo, submitted; Rogoff, 1990, in press; Rogoff, Mistry, Göncü, and Mosier, 1993; Rogoff, Paradise, Correa-Chávez, and Mejía Arauz, in press]. To explain this pattern requires reference to a number of related aspects of contemporary middle-class European American ways of life, which contrast with the multifaceted, dynamic cultural ways of a number of other contemporary cultural communities as well as with previous arrangements of children's lives in the United States.

We treat 'middle class' as a cultural designation (not as a variable), based on the integrated constellation of related features that characterize this cultural community [see also Latouche, 1996; Willis, 1977]. However, we call attention especially to two aspects of middle-class life: extensive schooling and separation of children from workplaces. We believe that these two features are closely related, and associated in meaningful ways with some key aspects of middle-class childrearing practices.

In addition to middle-class European American children's heavy involvement in schooling, in the pre-school years adults often engage with them in specialized child-focused activities that may help prepare them for schooling. In particular, adult-child play and child-focused conversations often involve lessons and school-like discourse formats [Blount, 1972; Haight, 1991; Harkness, 1977; Heath, 1983; Rogoff et al., 1993; Schieffelin and Ochs, 1986]. This involvement in specialized child-focused activities may relate to limitations in US middle-class children's opportunities to learn through observing and participating in the adult work and social roles of their communities [Rogoff, 1990, in press]. They are prohibited from many forms of work and often from accompanying their parents to the workplace, and in many ways are segregated from other community activities of their elders.

In contrast, young children in other communities who have access to the adult world as *legitimate peripheral participants* [Lave and Wenger, 1991] may experience much less reliance on the sort of adult arrangements for children's learning that are often taken for granted in US developmental psychology. In many nonindustrial communities, young children have opportunities to observe and participate with their elders in work, and begin early to take on responsibility for tending younger children and maintaining the household. Their opportunities to observe and participate in mature activities may make it superfluous for adults to organize special child-focused learning situations (such as instructional talk) or to enter into child play to teach young children the skills and goals of adult work (or of schoolwork, in preparation for 'real' work). Instead, young children may be expected to observe keenly the activities around them in order to learn and to help out [Briggs, 1991; Fortes, 1938/1970; Rogoff, 1981; Rogoff et al., 1993; Scribner and Cole, 1973]. Children play with other children, and adult-child conversation usually occurs for the sake of sharing information in the context of ongoing, valued activities, rather than in lessons separated from the use of the information [Blount, 1972; Heath, 1983; Ochs and Schieffelin, 1984; Ward, 1971].

Understanding middle-class European American childrearing practices is aided by a historical view, which reveals a constellation of important changes involving segregation of US children from workplaces and their increasing involvement in schooling. In the early 1800s, most US children shared work life with adults in their farm families [Demos and Demos, 1969; Hernandez, 1994]. As the economic base shifted to industry, opportunities declined for children to learn work skills through involvement in work at home. Schools, instead, began to serve widely as a specialized child-focused setting that provided exercises to *prepare* children for later 'real-world' work, generally without direct involvement in ongoing productive activity [Dewey, 1915; Greenfield and Lave, 1982; Scribner and Cole, 1973]. As industrialization increased, schooling was made compulsory and lengthened, further limiting US children's opportunities to participate in the productive activities of their families and communities [Chudacoff, 1989; Hernandez, 1994]. This course of events over a little more than a century suggests that middle-class European American childrearing practices are not produced by an amalgam of freestanding variables (such as by crossing ethnicity with social class), but rather form a somewhat coherent and dynamic configuration.

We argue for the importance of a pattern involving segregation from the range of adult activities and of the growing prevalence of schooling, for explaining current practices in middle-class European American adult-child relations. In particular, if community arrangements restrict young children from entering their community's productive activities, alternate arrangements may develop in which adults create and enter specialized activities that may 'prepare' children for the adult world from which they are largely excluded. In contrast, in contemporary and historical communities in which children are more extensively integrated in adult life, they may seldom be involved in specialized child-focused situations to teach them about the adult world, as they are already part of it.

A systematic comparison of the daily activities of 3-year-olds in four communities supports this view [Morelli, Rogoff, and Angelillo, submitted]. Three-year-olds from two middle-class European American communities had significantly less access to observe adult work than 3-year-olds in two communities in which older children customarily make notable contributions to family subsistence. (Three-year-olds had access to adult work in less than a third of observations in the two middle-class European American communities, versus more than half of observations in an Efe foraging community in Democratic Republic of Congo and a Mayan town in Guatemala.) Accompanying these differences, in both middle-class communities, 3-year-olds were more often involved in specialized child-focused activities (lessons, play with adults, scholastic play, and freestanding conversations with adults on child-related topics) than in the other two communities, where such activities seldom occurred.

These cultural patterns of adult-child relations are dynamic configurations, not fixed and stable. For example, mothers from nonindustrial communities who have years of experience in Western schooling interact with their children in ways that resemble middle-class, schooled ways. They employ more praise, conversational peer status, language lessons, and assignment of divided tasks than mothers with little or no schooling [Chavajay and Rogoff, 2002; Rabain-Jamin, 1989; Richman, Miller, and LeVine, 1992; Rogoff et al., 1993]. The dynamic, historical process in these multifaceted patterns is ongoing, in middle-class European American communities as well.

Focusing on Aspects of Multifaceted, Dynamic Processes

Although we have pointed here to the importance of participation in the cultural institution of schooling and of children's segregation from the mature activities of the community, these are not *freestanding variables* independent of important associated changes in community structure and family life. Increased involvement in schooling relates to other changes, such as increased reliance on commercial and professional work, and many changes in children's roles in their families and communities. The larger story involves a dynamic multifaceted explanation of a number of related aspects of cultural practice, not an amalgam of variables to be compared singly or in controlled simple combinations. Within a particular study, little would be gained in trying to understand these patterns by trying to control all but a few 'factors' across cultural communities. (For example, imagine trying to learn about such cultural patterns by holding everything else constant and attempting to compare Guatemalan Mayan families with no history of schooling and European American families with no history of schooling.)

Our argument is not a critique of quantitative or comparative research. Indeed, our research employs comparisons across communities, using quantitative as well as qualitative approaches. For example, in the Morelli et al. study [submitted], we compared children's everyday routine activities across the four cultural communities, with a single set of definitions (developed on the basis of ethnographic work), and we employed statistical and graphical as well as qualitative analyses.

We regard both quantitative and qualitative tools to be important to efforts to understand cultural processes. For example, ethnographic observations of particular cases (events, communities) can be brought together in ways that maintain attention to the meaning within the individual cases while also examining patterns of similarities and differences across them. Close analysis of small numbers of cases can be used to develop ways to compare larger numbers of cases while retaining the meaningful relations among interrelated aspects of the functioning of each case or each community studied. (See Rogoff et al. [1993] for a method of integrating qualitative and quantitative methods, in functional pattern analysis. Basically, it moves from the rich data of each case to patterns of similarities and differences across cases and communities, based on successive rounds of abstraction and development of a common language to arrive at general statements grounded in the individual cases; see also Rogoff, Topping, Baker-Sennett, and Lacasa [2002].)

Our point is that we should tailor analysis tools to questions rather than allowing customary tools to limit research questions or allowing the assumptions on which they are based to organize our conceptions of how the phenomena themselves function. We argue that holistic examination of cultural configurations is needed, along with other methods of analysis, to reveal regularities that yield candidate explanations of human development (which is all that any approach can aspire to). Limiting the research portfolio to studies that try to hold variation to one or a few variables – and attempt to hold everything else constant – would obscure, rather than reveal, regularities that may have great importance to understanding development as children participate in dynamic cultural communities.

We have argued against allowing mechanistic assumptions, which prioritize control of freestanding variables, to exclude the study of dynamic, multifaceted cultural configurations. But would we want to exclude mechanistic approaches in which freestanding variables and taxonomic categories are assumed to reflect cultural reality, not just serving as analytic tools? With some humility regarding anyone's prescience about what the world needs, we agree with Pepper [1942] that it is valuable to have a diversity of approaches in the portfolio of research – including mechanistic as well as contextual world hypotheses. Pepper [1942] argued that these world hypotheses are each valuable, and not possible to reconcile or combine. However, for understanding cultural processes of human development, we favor the contextual stance that cultural processes are dynamic and multifaceted, ultimately not decomposable into freestanding variables 'in' cultural phenomena.

So in what way does it make sense to use variables for certain analyses, if we regard 'real life' as multifaceted, dynamic configurations of cultural processes? Variables can be regarded as providing a shorthand reference for the sake of temporary focus on a limited set of features of cultural phenomena – not freestanding, but in greater focus than the other aspects of the phenomena. Thus, variables as analytic tools in holistic analyses require interpretation in the light of other aspects of cultural processes. For example, research that employs categories like social class and ethnicity can be helpful in efforts to understand cultural processes – interpreted from the perspective that they are historically and culturally situated concepts that fit a certain time and place, not freestanding 'measures' of the phenomena themselves. Variables are a form of speculation – a sort of lens constructed by researchers – in the service of helping organize our thinking and observations and communication.

To close, we elaborate the idea of culture as dynamic practices of communities, rather than as fixed categorical properties of individuals (or groups). This idea shifts the ways of thinking about generalizing across people and processes, which would resolve some issues that the fields studying culture have faced.

Practices of Dynamically Related Communities

A focus on dynamic configurations of related practices of cultural communities shifts 'culture' to ways of thinking and doing, rather than categorical identities of individuals or groups. The 'box problem' disappears, and we focus on the generative nature of both individual lives and of community traditions and practices.

In the cultural participation view [Rogoff, in press], cultural communities are composed of generations of people in coordination with each other over time, with some common and continuing organization, values, understanding, history, and practices that transcend the particular individuals. At the same time, individuals and their generational cohorts change community traditions, with changing times and conditions.

Descriptions of cultural communities from this participation view may involve a historical narrative rather than a list of separate, freestanding variables crossed with each other. A cultural description can refer to national origins, religious convictions, generations since immigration, regional differences, and so on without treating these cultural features as separate mutually exclusive categorical factors (even if such simplification is handy in some data analyses). Instead of describing a community using the intersection of supposedly independent categories such as ethnicity, social class, and so on, we can give a more fluid description that puts each of these aspects in the historical context of the other aspects, and in the context of the research question asked. For example, we could describe a particular community in the following way, for a study of children's everyday learning opportunities: It is a Mayan Indian community in Guatemala, where for several centuries, most families have depended on subsistence agriculture, but more recently many have added cash crops and merchant and professional occupations, and now most of them routinely send their children to schools derived from European American traditions. In this brief description of a cultural community, aspects such as ethnic heritage, economic form, and schooling are coordinated in a historical mutually defining manner, rather than a list of stand-alone, taxonomic variables.

The issues of variation within a group and of overlapping involvements are not stumbling blocks once we shift to looking at participation in cultural communities rather than thinking of culture as a categorical variable or set of independent factors. People's multiple, overlapping, and conflicting traditions and involvements are part of their participation in dynamic cultural communities.

Our reference to *participants* in a community, rather than *members* of a community, is deliberate [see Rogoff, in press]. Participants in a community are not necessarily members[6]. The idea is to focus on the involvement of people in community practices rather than their inclusion 'in' (or exclusion 'out') of bounded entities. People are often participants in the practices of more than one community (e.g., participating in national as well as religious, political, ethnic, and economic groups' traditions); the cultural ways of the varying communities in which they participate may or may not conflict with each other. The distinction between participation and membership is intended to get beyond the either/or boundaries of being inside or outside of bounded communities, to allow examination of the forms of people's participation in communities (which may involve being excluded from some activities as well as being ratified participants).

Variations among participants in a community are to be expected, along with commonalities. Participants in a community do not have precisely the same points of view, practices, backgrounds, or goals. Rather, they engage in a somewhat coordinated, dynamic organization. As Rogoff [in press] points out, participants often are in complementary roles – playing parts that fit together rather than being identical – or in contested relationships with each other, disagreeing about features of their own roles or community direction while requiring some common ground even for the disagreement. It is the common 'ways' (and their expected or contested variants) that community participants share that we regard as culture.

Seeking Consistencies across People and Processes

An approach focused on the multifaceted ways of cultural communities addresses generality or consistency across instances differently than in the approach that focuses on separating categorical variables. The categorical variables approach wrestles with the issue of 'representativeness' of the research participants to the wider population of which they are expected to serve as exemplars, because category members are expected to be rather homogeneous (or varying in a 'normal' curve, around an average). Instead, we argue for *empirically* addressing questions of how far observations of particular people generalize, by studying patterns of variation and similarity, rather than assuming generality (or by jumping to the opposite extreme and assuming that cultural communities vary infinitely).

Scholarly work can also shift questions of generality to regularities in cultural *processes* rather than in freestanding individual characteristics within populations. Research provides some idea of areas of universality and a number of examples of specific cultural variations, but social science needs more focus on finding *regularities in patterns of cultural variation and similarity.* A candidate example of regularities in cultural processes is the account that we offered regarding schooling and segregation of children as related to middle-class use of specialized child-focused activities, contrasting with historical and contemporary patterns of children learning by observation and participation in community activities [see also Rogoff, in press; Rogoff et al., in press].

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[6] For example, one of us (Barbara Rogoff) points out that she would not ordinarily be regarded as a *member* of the Mayan community in Guatemala where she has done research for 28 years. However, she *participates* in that community. Her involvement includes continuing mutual support and obligations, a political role although she did not seek it, many complex lifelong relationships, and a view of the world that has been deeply informed by participation in that community. A researcher could not understand Barbara's childrearing practices, for example, without examining her participation in the Mayan community. An account of the functioning of the community would likewise consider her participation over several decades in some of its institutions and with a number of its families.

We argue that research will more clearly and informatively explain regularities in cultural patterns if the social science portfolio includes research on integrated, dynamic constellations of cultural practices than if we limit research exclusively to searching among dense interactions of freestanding variables.

Cultural research offers scholars the opportunity to reconceptualize their understanding of how things work. To make best use of this opportunity requires opening our assumption systems and methods to examination and building across disciplinary traditions. In particular, we need to include research that attempts to build cultural understanding of human development by examining how cultural aspects of individual and community functioning mutually define each other in integrated, multifaceted processes. This calls for an open-minded approach to methods, transcending disciplinary customs, in order to more satisfactorily investigate people's development as they participate in their cultural communities.

Acknowledgments

We appreciate the comments and discussion of Maricela Correa-Chávez, Ruth Paradise, Gilda Morelli, Marty Chemers, Rebeca Mejía Arauz, Margarita Azmitia, Olaf Reis, Araceli Valle, Pablo Chavajay, Dimitris Papadopoulos, Holli Tonyan, Karrie André, Shep White, and Rachel Levin, and the contributors to this special issue, which helped to shape these ideas. We also thank several editors and reviewers of our manuscripts, who prompted us to examine these topics. An earlier version of this paper was presented at the meetings of the Society for Research in Child Development, Minneapolis, Minn., April 2001.

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