

The Cultural Mosaic: A Metatheory for Understanding the Complexity of Culture

Georgia T. Chao
Michigan State University

Henry Moon
Emory University

Workforce population trends have increased the numbers and kinds of culturally diverse people who work together. Researchers in organizational behavior have often examined culture through values; however, cultural values can be based on collections of people other than traditional nation states. A cultural mosaic is presented as a framework to identify demographic, geographic, and associative features underlying culture. An individual's unique collage of multiple cultural identities yields a complex picture of the cultural influences on that person. Developments in chaos and complexity theories are proposed as a theoretical base for study on the complexity of culture at the individual level. Additional developments in network theory serve as a theoretical base for cultural research at the group level. The cultural mosaic is described as a complex system with localized structures, linking cultural tiles in ordered and chaotic ways. Research propositions examining multiple cultural identities at individual and group levels are discussed.

Keywords: chaos, cultural mosaic, culture, complexity, organizational behavior

The globalization of business is a reality that is redefining how people work together. Over 63,000 multinational corporations and 821,000 foreign subsidiaries directly employ 90 million people around the world (Gabel & Brunner, 2003). These global organizations include gigantic firms with corporate revenues larger than the gross domestic product of most nation-states, and they include small service companies located in many developing countries. In addition to the challenges many companies face with globalization, world population shifts have increased the diversity of their domestic workforces. The United Nations (2002) estimates 175 million people live outside the country of their birth. In developed regions, migrants make up about 10% of the population and account for two thirds of population growth. Both the growth in multinational corporations and increases in migrant populations are unprecedented. Additional changes to the workforce include more women entering employment, an aging population in developed countries, and changing demographics within the domestic population. All of these changes pose challenges to organizations as they manage employees who are increasingly diverse along a number of dimensions. Researchers are also challenged to develop theory that can clearly define and clarify the emerging multicultural face of organizations.

We introduce a multidimensional conceptualization of culture and propose new research directions that embrace the complexity

and dynamics of culture in organizational behavior. We conceptualize culture as a pattern of cultural identities within individuals that has implications for the conceptualization and assessment of culture at multiple levels of analysis. We break from past research in that we take a bottom-up orientation of culture rather than the traditional focus that begins at higher levels of analysis such as country or nationality. We introduce the term *cultural mosaic* as a metaphoric conceptualization of multiple indicators of cultures used to describe an individual. A taxonomy is presented that redefines the usual ethnic interpretation of culture to include associative, demographic, and geographic factors. Drawing from chaos, complexity, and network theories, we propose a new scientific approach as the most appropriate venue through which the complexities of culture can be observed in modern organizations. Cultural behaviors may appear to be chaotic or unpredictable, yet underlying structures within the cultural mosaic can help researchers identify and predict patterns of behavior. The application of chaos, complexity, and network theories to a cultural mosaic builds a metatheory that charts a new course of research for understanding multicultural organizational behavior.

The cultural mosaic can contribute to the organizational behavior literature in a number of ways by providing an integrative conceptualization to the field's understanding of cultural influences on behavior. Examples include expansion of the context of intercultural training of managers (Earley, 1987), the definition of foreignness (Zaheer, 1995), and the antecedents to values such as individualism and collectivism (Earley, 1993). In addition, we believe that a cultural mosaic paradigm provides the structure by which we can bridge literature that has explored the outcomes of both perceived similarities and differences among individuals and between individuals and organizations.

Turning first to similarities, we predict that a mosaic perspective of culture will allow researchers to gain a better understanding of how individuals might fit with their organizations (Kristof, 1996).

Georgia T. Chao, The Eli Broad Graduate School of Management, Michigan State University; Henry Moon, Goizueta Business School, Emory University.

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Correspondence concerning this article should be addressed to Georgia T. Chao, The Eli Broad Graduate School of Management, Michigan State University, East Lansing, MI 48824-1122. E-mail: chaog@bus.msu.edu

Perceptions of fit between an individual and organization have been deemed important to both the interviewee (Judge & Cable, 1997) and interviewer (Chatman, 1989). Indeed, a parallel theory has revealed how through an attraction–selection–attrition process (Schneider, 1987) organizations tend to become similar over time. That is, Schneider (1987) posited that similarity between individuals and organizations leads to individual attraction toward those organizations, organizations selecting those individuals, and individual attrition when incongruence occurs. In a dynamic context, attraction–selection–attrition would predict that organizations become increasingly homogeneous.

Turning next to differences, we find that the demographic aspect of our mosaic has most often been researched with the hopes of understanding the influence of perceived differences. Pfeffer (1983) ushered in a vigorous line of inquiry over the past couple of decades regarding the influence of demographic variance (often measured by variance in organizational tenure) on subsequent outcomes of interest. Carroll and Harrison (1998) offered that historic unevenness in the results obtained by previous studies related to heterogeneity and organizational criteria of interest was a product of imprecise modeling in regard to computation. We assert that an alternative reason for the unevenness in previous studies is a product of imprecise modeling in regards to number of independent variables. We feel that reliance on any single measure as a proxy for level of heterogeneity will provide unstable results.

Culture

Culture is one of the most complicated words in the English language (Kroeber & Kluckhohn, 1952). Artists refine it, biologists grow it, and countries are described by it. Lonner (1984) noted, “the culture concept has been examined, poked at, pushed, rolled over, killed, revived, and reified ad infinitum” (p. 108). Chao (2000) asserted that although the historic conceptualization of culture has often been at higher levels of analysis (most frequently at the nation level), psychological understanding of culture is advanced when it is also conceptualized at lower levels of analysis (i.e., groups and individuals).

The need for the elaboration of an individual-level cultural construct is a timely one. Technological advances, particularly with information technology, have made it easy, convenient, and irresistible for us to communicate with others around this planet (Bauböck, 1998). Kluckhohn and Murray (1953) observed that individuals are (a) like every other human being, (b) like some other human beings, and (c) like no other human beings. In other words, the term *culture* can be viewed as a construct distinguishing individuals in addition to grouping collectives. Hofstede (1991) described how individuals carry different layers of culture within themselves. Sackmann (1997) used the term *multiculturalism* to describe how an array of differing cultural values influences each individual. Hong, Morris, Chiu, and Benet-Martinez (2000) described how bicultural individuals switch their cultural frames from situation to situation. Hermans and Kempen (1998) have remarked that simple cultural conceptualizations are no longer applicable within our hybridized global landscape. The classic use of the term *culture* as a “grouping” mechanism for nation-states necessitates elaboration or extension to be applicable in a world that is becoming increasingly intertwined. Nevertheless, the perceived importance of culture as an antecedent to behavior is

currently thought to be on an upswing (Erez & Earley, 1993; Sackmann, 1997) and is seen as the missing link (Schein, 1996) to furthering our understanding of the dynamics of organizational behavior.

Chao (2000) has integrated the complexity of culture at various levels of analysis by describing how different levels of culture are embedded in others. Historical relationships between two cultures at the national level can cascade to the individual level, reinforcing cultural stereotypes. Viewed in this manner, culture is a social phenomenon. Although the concept of culture has increased in complexity, most definitions of culture used in the study of organizational behavior embody a value component (cf. Hofstede, 1980; Schwartz, 1999). Consistent with this research, we focus on value systems that differentiate groups of people because there are clear ties between cultural values and behavior (Bardi & Schwartz, 2003). Many values are universal, yet expressed differently among groups. Other values may have unique relevance and expression for particular groups. Both may be critical antecedents of behavior, and special combinations of values may be better predictors than individual values. With this focus, we have developed propositions for interactions among individuals that have direct applications to organizational behavior. In addition, we focus our treatment of culture at the individual level because we examine multiple sources of cultural influence, or values, within the person. We view cultural antecedents as both discrete and interactive forces painting a complex picture of cultural values for the individual; thus, we introduce the term *cultural mosaic* as a metaphor to guide future research.

Cultural Mosaic

A *mosaic* is a composite picture made up of distinct colored tiles or miniature photographs. That is, both the overall picture and the multitude of colored tiles are simultaneously distinguishable. Viewing an individual’s culture as a *cultural mosaic* allows for simultaneous observation of global individual culture and localized cultural influences. Depending on the dictates of a social situation, individuals draw on different aspects of their multicultural heritage, and the different expectations associated with various cultural paradigms affect their subsequent behavior. Rather than choosing a particular “tile” such as ethnicity *or* gender, we posit that individuals draw on combinations or patterns of tiles such as ethnicity *and* gender. However, just as any color picture, at its core, comprises three primary colors, we define an individual’s cultural mosaic as comprising three primary categories: (a) demographic, (b) geographic, and (c) associative features of culture (see Table 1 and the following sections).

Demographic Tiles of the Cultural Mosaic

Demographic variables describe aspects of an individual that are generally physical in nature or inherited from one’s parents and ancestors. Typical variables in this category include age, gender, race, and ethnicity. Some of these variables, such as race and ethnicity, are more traditionally linked with culture than other variables, such as age and gender. However, all have had some empirical research demonstrating value differences (cf. Hofstede, 1991).

Table 1
Taxonomy of a Cultural Mosaic

Primary category	Definition	Sample tiles
Demographic	Physical characteristics and social identities inherited from parents and ancestors	Age Ethnicity Gender Race
Geographic	Natural or man-made physical features of a region that can shape group identities	Climate Temperature Coastal/inland Urban/rural Regional/country
Associative	Formal and informal groups that an individual chooses to associate and identify with	Family Religion Employer Profession Politics Avocations

The literature on aging describes how sociocultural and socio-historical perspectives can shape different values as an individual ages (Elder, 1975). The sociocultural perspective identifies maturational processes related to family stages and personal physical prowess as key antecedents to value changes. Thus, an individual's values are likely to change as he or she matures from an invincible adolescent to young parent to conservative elder. The sociohistorical perspective acknowledges that different socialization experiences and cultural shifts tied to a historical period will shape the values of different birth cohorts. For example, women's values related to work outside the home changed in many countries after World War II forced large numbers of these women into factories. Older people differ from younger people not only in terms of their life stage but also in terms of critical historical experiences that shaped their development. An example of age differences in corporate values is provided by Thumin, Johnson, Kuehl, and Jiang (1995), who found ethical values were rated more important by older professionals than younger ones.

With regard to gender, Maltz and Borker (1982) first proposed the gender-as-culture hypothesis to explain differences in male and female language use. They observed that children learn many complex social and communicative behaviors through interactions with same-sex peer groups. These social contexts not only promote gender-specific language styles and norms, but also reinforce gender-specific cultures. More recently, Mulac, Bradac, and Gibbons (2001) observed that although men and women may speak the same language; they speak it differently, and those differences support the gender-as-culture hypothesis. Na and Duckitt (2003) found significant interactions between age and gender for values tapping openness to change, security with relationships, and self-direction. In addition, Thumin et al. (1995) found gender differences in corporate values.

Demographic variables related to race and ethnicity are most closely tied to general treatments of culture. An example of this research is given by Markus and Kitayama's (1991) review of Asian and Western construal of the self and of others. Asian cultures are closely associated with an interdependent construal of the self in which relationships with others are a critical component to one's identity. In contrast, Western cultures are closely associated with an independent construal of the self in which references

to others' thoughts, feelings, and actions are not necessary and one's unique attributes are highlighted. Recently, Gaines et al. (1997) found that people of color reported higher levels of collectivism and familism values than Anglos.

Geographic Tiles of the Cultural Mosaic

Geographic tiles of the cultural mosaic refer to physical features of a region, whether they are natural or human-made. Typical variables in this category include climate, temperature, coastal-inland, urban-rural, and regional-country distinctions. Geographic determinists describe how geography, natural resources, and wildlife distribution shaped the emergence and development of civilizations. Diamond (1997) traced the history of humankind over 13,000 years and provided explanations for how plant and animal resources, or lack of natural resources that could be domesticated, affected the potential for a culture to grow and flourish. To illustrate, geographic advantages in Eurasia facilitated east-west travel, interaction among different cultures, and sharing of technologies. In contrast, Africa, Australia, and the Americas posed difficult north-south travel challenges, isolating developing societies and impeding growth from interactions with different cultures. Thus, Diamond concluded that guns, germs, and steel developed in Eurasia gave these cultures a head start in their development and global influence.

Geographic effects on culture have been recognized in models of psycho cultural research (Whiting, 1964) and cross-cultural psychology (Berry, Poortinga, Segall, & Dasen, 2002). At a basic level, there is some empirical evidence to support differing cultural values based on geographical climates. Hofstede (1980) found significant correlations between latitude, a rough measure of climate, and three cultural values. Lower latitudes, or hotter climates, were associated with lower power distance, masculinity, and collectivism, whereas colder climates were associated with higher power distance, femininity, and individualism. Furthermore, Hofstadter's research showed international differences in work-related values. Van De Vliert and Van Yperen (1996) found ambient temperature to predict role overload, even when power distance was controlled.

Geographic and natural resources help shape the development and form of civilizations. Agricultural societies, versus hunter-gatherer societies, freed many people from food production responsibilities, allowing them to develop nonagricultural technologies, art, exploration, and high population urban cultures. Huntington (1996) argued the geographic conditions that have allowed large-scale agriculture have encouraged the cultural development of a small class of wealthy landowners and a larger class of peasants or slaves to work the plantations. The density and structure of civilizations also affect cultural values. Berry (1967) argued that agricultural societies have fostered high degrees of conformity and hunter-gatherer societies have promoted values that are more independent. Erez and Earley (1987) found different cultural values between urban and rural areas. Their research on Israeli students found urban students were less collectivistic than their rural counterparts in kibbutzim. Finally, Bauböck (1998) found that three basic types of human societies—hunter-gatherer, agrarian, and industrial—were related to different forms of political organization and cultural values. Although much of the research pertaining to geographic cultural influences are embedded

at higher levels of analysis, the degree to which we are moving toward a boundaryless world in terms of both physical location and communication allows for a personalization of global geographic value structures.

Associative Tiles of the Cultural Mosaic

The associative tiles of the cultural mosaic represent all groups with whom an individual chooses to identify. Although one can debate the extent to which an individual may exercise free will in his or her affiliation with certain groups, the associative variables often include formal and informal groups related to one's family, religion, profession, employer, politics, and avocations. Baumeister and Leary (1995) described the need to belong as a fundamental human motivation. People need to form and maintain interpersonal relationships that are frequent, pleasant, stable, and characterized by affective concern for each other's welfare. At the group level, social identity theory (Tajfel, 1981, 1982) and social classification theory (Turner, Oakes, Haslam, & McGarty, 1994) are often used to explain how and why individuals define themselves through their group affiliations.

Group identification is achieved through cognitive and evaluative processes whereby an individual is aware of his or her membership with a group and has a value connotation with emotional attachments to the group (Tajfel, 1982). *Social identity* is defined as "that part of an individual's self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership" (Tajfel, 1981, p. 255). We classify people into specific groups to help us define who we are and who we are not. We identify with our groups in order to reduce uncertainty in our self-concept and to bolster our self-enhancement. We compare our relative standings with other groups in order to assess how well we are doing and to reconfirm our own group memberships.

Culture and social identity constructs share a common foundation, although the two are not the same. Both are based on identities that can describe a group of people. However, social identity theory is often based on a minimal group paradigm that is not value-focused, thus distinguishing it from cultural identity. Researchers in social identity theory have found that social identities can spontaneously emerge from nominal groups. Early studies consistently demonstrated that subjects randomly assigned to a group would discriminate against anonymous out-group members in favor of anonymous in-group members, even when subjects did not personally benefit from this favoritism (Turner, 1982). Interpersonal similarity was not an essential condition for intergroup discrimination. In contrast, cultures are value-based, derived from interpersonal similarities. Cultures do not spontaneously generate from nominal groups with minimal interaction among group members. Thus, cultural identity is a specific form of social identity involving deep tacit knowledge that links those with like values.

The family group often provides a strong sense of identity for individuals, and the field of developmental psychology has made significant contributions to our understanding of culture (Lonner & Adamopoulos, 1997). Perhaps the family's cultural influence is best observed in family businesses. Chen (2001) describes Chinese family structure, values, and role relationships as critical forces to guide the family business, even for non-blood-related employees. The Chinese family business often establishes an extended familial

network to ensure business stability across generations. Filial piety of younger family members instills an obligation to perform well in order to sustain a successful business that supports the family. An individual's performance reflects on the entire family.

Organizations also provide cultural frameworks for individuals. Ashforth and Mael (1989) applied social identity theory to describe how and why people identify with their organizations. More recently, van Knippenberg and van Schie (2000) extended this work by examining work groups within an organization as the unit for social identification. Specifically, they found employees reported stronger identification with their work groups than with the organization as a whole. Furthermore, work-group identification was significantly related to job attitudes and motivation.

Integrating the Primary Tiles of the Cultural Mosaic

Hermans and Kempen (1998) acknowledged the essence of the cultural mosaic when they wrote the following:

Different and contrasting cultures can be part of a repertoire of collective voices playing their part in a multivoiced self: I can speak differentially as a psychologist, a man, a Catholic, a member of a conservative Dutch family, but I can also speak as an American insofar as I am familiar with North American culture. (p. 1118)

LaFromboise, Coleman, and Gerton (1993) reviewed the literature on the psychological impact of bicultural people. Early research focused on the conflict between two identities and the resulting psychological and social problems. Bicultural people suffered from lack of a unified identity; thus, they were considered marginal people. Later research found psychological advantages for bicultural people and focused on how a second culture is acquired via assimilation, acculturation, alternation, multiculturalism, and fusion models.

Research on multiple group identities is relatively new and generally confined to one tile in the cultural mosaic. Turner et al. (1994) argued that multiple group identities are independent and that the relative accessibility of a particular social category depends on its fit with the specific context. Support for independent identities is illustrated by Hong et al. (2000), who found that bicultural individuals (Chinese Americans) are able to switch cultural frames when primed to a particular cultural identity. In contrast, Deaux (1993) has argued that social and personal identities are interrelated to form a stable, permanent self-concept. In this view, the distinction between personal and social identities is meaningless because personal identity is partly defined by social identities, and social categories hold personal meanings for the individual. More recently, Roccas and Brewer (2002) proposed social identity complexity to represent multiple in-group identities. Although acknowledging that social identities vary along a number of dimensions, they restricted their social identity complexity construct to large, collective in-group identities. Examples of these in-groups include age, gender, race, religion, and socioeconomic status—all tiles in the cultural mosaic. Thus, they do not include all types of social identities in their construct (e.g., small nominal groups are excluded), and their focus on particular social identities with value bases is similar to our focus on cultural identities. Indeed, their example of social identity complexity describes bicultural identities.

Roccas and Brewer (2002) structured these cultural identities in four ways. First, a unified identity can be created from the inter-

section or combination of tiles (e.g., hybrid of two cultures, such as Italian American). Second, a dominant cultural identity focuses on one primary identity to the exclusion of others (e.g., assimilating a host country culture and rejecting one's ethnic cultural identity). Both of these structures are relatively low on complexity. Within the cultural mosaic, they yield blended colors or the dominance of a particular tile color. Third, a merger of cultural identities simultaneously recognizes multiple group identities across situations (e.g., individual always embraces both American and Italian cultural identities). This merger should not be confused as a fusion or hybrid identity that the intersection structure provides. Rather, the merger is like an ideal merger of two organizations in which each organization still retains its own identity. Given the confusion over similar terms like *intersection* and *merger*, we describe the intersection of identities as hybrid identities and of merger identities as merged-independent identities. Fourth, compartmentalization activates different nonconvergent cultural identities based on a specific context or situation (e.g., American at work; Italian at home). Thus, multiple identities can coexist simultaneously and maintain their independence from one another. We contend that compartmentalization better addresses how identities are activated rather than how they are structured, and we hold the activation of identities as a separate function for later discussion.

Drawing on this work, we propose that multiple cultural identities are combined in different ways, focusing on dominant, hybrid, and merged-independent identity patterns. Although Roccas and Brewer (2002) described *social identity* complexity, we contend that *cultural identity* complexity is a more precise term because of its exclusive focus on social identities of large collectives. Furthermore, culture is fundamentally linked to values, and these values provide the bases for the emergence of patterns of cultural identities in the cultural mosaic. Although Roccas and Brewer have argued that social identity complexity varies across individuals (i.e., some people are more complex than others), the cultural mosaic illustrates how all individuals have the capacity to access multiple cultural identities in different patterns. Furthermore, which identities are activated and how they are structured together are proposed to be dynamic on the basis of identity strength, compatibility, and contextual demands.

Our conceptualization provides for a more exact definition of culture in future research. We propose that researchers define the term *culture* in their various studies through our mosaic conceptualization. For example, a study that looks at the influence of nationality on organizational criteria might use the term *geographic culture* to help the reader understand that nationality is but one specific aspect of culture. Similarly, a study that looks at the influence of age and gender-related values on organizational criteria might use the term *demographic culture*. Finally, a study that looks at multiple aspects of culture might use our conceptualization of the cultural mosaic to reveal that they are conceptualizing culture as more complex and holistic.

The Cultural Mosaic: A Research Agenda

The cultural mosaic embraces the complexity of culture. Applying groundwork in chaos, complexity, and network theories, the cultural mosaic will enable the enrichment of theory in a number of domains in applied psychology. These theories take a relatively new approach to studying natural relationships and have been

identified as a "new science" (Gleick, 1987; Wolfram, 2002). Here, *chaos* describes behavior that appears random but actually is produced by deterministic, nonlinear dynamical systems. The term has been confused with generic definitions of *chaos* describing extreme disorder, but this chaos is not entirely unpredictable. Scientists examining these systems learned that simple, deterministic systems could yield complex behavior. Although there is no one unified theory of chaos or complexity, there are at least four distinguishing characteristics of these approaches: (a) systems are composed of parts that are independently and interdependently related, (b) the behavior of these systems are very sensitive to initial conditions, (c) complex behavior can be generated by the system itself and not just by system inputs, and (d) systems are dynamic—they evolve on their own and adapt to changing environments.

Two examples are presented to illustrate how the cultural mosaic can expand our knowledge of interpersonal dynamics in organizations at the individual and group levels. At the individual level, we discuss research within an individual as well as research examining interactions between individuals. At the group level, we discuss research examining individual interactions with a group as well as research between groups.

Research at the Individual Level

Every individual has a cultural mosaic. Mosaic tiles representing a Protestant work ethic, feminist equality values, and American individualism can coexist with varying levels of compatibility. Furthermore, the network of cultural identities can be linked in multiple ways, evolving and responding to situational demands. Research at the individual level can expand our understanding of how these cultural identities interact, change, and influence behavior.

An individual-level research agenda. Figure 1 presents a bipartite representation of a cultural mosaic. A bipartite graph depicts a network with two types of nodes. The rectangular nodes at the bottom of the graph represent individuals and the circular nodes represent specific tiles of the cultural mosaic. Links between individuals and mosaic tiles identify a particular person's cultural identities. In the example, Person A can draw from multiple cultural identities associated with being male, American, urban, a manager, and a member of the Generation X age cohort. This example also shows the complexity of levels that define different cultural identities. Unlike traditional organizational research, these levels are not neatly nested in individual, group, organization, and culture levels. Gender and age cut across professions and regional areas. Nationality may be a superordinate level if the organization and its members share the same nationality. However, the level for nationality becomes complex when one considers an expatriate in a third-world country or global teams operating in a virtual context.

The patterns of mosaic tiles that emerge in an individual represent localized patterns or structures within the person. They can merge in harmony (concordance) to strengthen an individual's value set and can influence behavior with strong conviction. Individuals who activate these localized patterns of cultural identities are likely to behave in predictable ways, based on the values espoused by the structure. In contrast, tiles that do not contribute to localized structures maintain their independent influences on the

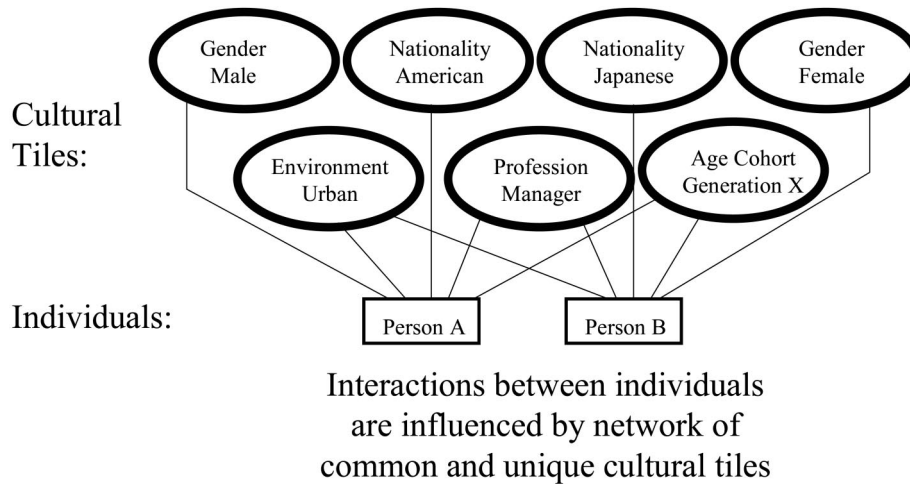


Figure 1. Bipartite representation of a cultural mosaic.

individual. If they are contradictory in logic or conflict in a psychological sense, these discordant identities represent a variety of different values that can influence behavior. Thus, an individual who activates independent parts of a cultural mosaic is likely to behave in unpredictable ways because more options for different courses of action are available.

Proposition 1: Behaviors influenced by concordant cultural identities are likely to be more predictable than behaviors influenced by discordant cultural identities.

Much of the research on role conflict has documented how conflicting values within an individual can be a source of stress and indecision. For example, Tomkiewicz and Hughes (1993) found that women were more likely to espouse social values than men. As managers, these women may experience more conflict in business contexts, with resulting implications for organizational performance.

Activation of a particular cultural identity or a particular pattern of identities is likely to be a discontinuous event based on identity strengths and situational contexts. Strong identity patterns are more likely to be tapped than weak patterns. Brickson (2000) provides a preliminary model of organizational context features that might activate an individual's specific cultural identity. She identifies organizational, task, and reward structures that activate personal, relational, and collective identity orientations. Organizational structures can affect the density and degree to which relationship networks are integrated. Task and reward structures affect the extent to which work and performance rewards are organized around the individual or the group. These structures may facilitate the activation of particular cultural identity patterns relevant to how relationships are networked and rewarded. In addition to these structures, organizational leaders often espouse values and a vision that can activate cultural identities (Gagliardi, 1986). Charismatic leaders often tap values to enlist followers. In response, members can activate identity patterns to support or challenge a leader's vision and values related to that vision.

Proposition 2: Activation of particular patterns of cultural identities is influenced by the strength of the pattern as well

as situational contexts. Situational contexts that can activate cultural identity patterns include organizational, task, and reward structures and leadership.

An individual-level methodological foundation. Developments from chaos and complexity theories have been identified as a new science that focuses on complex behavior (Gleick, 1987; Wolfram, 2002). Chaos theory examines the global nature of systems from dynamic, nonlinear perspectives. Born in the sciences of physics and mathematics, chaos theory identifies patterns from seemingly random, unpredictable phenomenon (Gleick, 1987). A central tenet to chaos theory is the concept of sensitive dependence on initial conditions: the fact that miniscule changes in initial conditions—often ignored as random measurement error in traditional sciences—can result in dramatically different outcomes. The slightest deviation in initial conditions can precipitate a series of changes that result in diverging outcomes. From this perspective, random error variance from traditional linear analyses is neither random nor error.

Complexity theory builds on chaos theory. Instead of traditional notions that simple systems behave in simple ways and complex systems behave in complex ways, complexity theory finds that some simple systems elicit complex behaviors and some complex systems elicit simple behaviors. Instead of a science of reductionism in which scientists isolate parts from the whole to better understand it (i.e., the whole is the sum of the parts), chaos and complexity theorists argue that the complexity of the whole is integral to true understanding—the challenge is to understand the complexity itself. Cilliers (1998) has provided a simple distinction between complicated and complex by noting “that a jumbo jet is complicated but that a mayonnaise is complex” (p. 3). Examples of complex systems range from a single bacterium to giant ecosystems. Self-organizing systems reinforce this approach by showing how systems with random inputs can organize themselves into structures or patterns that arise from within the system itself, and not from external inputs. Scientists who dissect parts of a system for study would be blind to the synergy of which the total system is capable.

Research from pure mathematical programs of cellular automata highlights three important findings that have been found to apply to many natural and behavioral systems (Wolfram, 2002). First, very simple programs are capable of generating highly complex behavior that appears to be random or unpredictable. Second, the behavioral complexity of these programs is generated by a particular program itself and is not dependent on complex data inputs. Third, closer examination of these complex behaviors shows some self-organization that is localized and can be transmitted to other parts of the system. Wolfram (2002) argued that most natural complex systems (e.g., weather patterns, biological pigmentation patterns) are described by seemingly random behavior with some predictable, localized structures embedded within the chaos. In a human example, the stock market often behaves in unpredictable and seemingly random ways. Simple buy or sell decisions are made by large numbers of individuals, organizations, and computer programs. Some make decisions in isolation, whereas others network with other decision makers. Links among traders and their decision rules are localized structures in an overall system that appears chaotic. The internal dynamics of the system itself generates complex behavior, requiring safeguards when selling gets out of control. Wolfram argued that any attempt to identify and control every factor that can affect the stock market would be a monumental and futile task. Such an approach assumes that the unpredictable behavior of the stock market comes from environmental forces on the system—that is, input data. However, many buy and sell decisions are often triggered by stock runs and not on rational evaluations of external market forces. Understanding these systems acknowledges that much of the unpredictable behavior of a system is intrinsically generated by the evolution of that system.

Wolfram's (2002) description of systems parallels Roccas and Brewer's (2002) structure for multiple cultural identities: Identities can dominate others, combine into a hybrid, or maintain their merged-independence with other identities. An important difference between the two taxonomies is that Wolfram describes complex systems with localized structures as systems yielding highly complex behavior that is chaotic, yet localized structures within parts of the system can yield predictable behavior. We examine these complex systems on two levels. First, these systems emerge and evolve within an individual's cultural mosaic (Proposition 3). Second, one can examine complex systems from interactions of cultural mosaic tiles across individuals (Proposition 4).

Proposition 3: Within an individual, the cultural mosaic behaves like a complex system with localized structures with (a) some tiles dominating others, (b) some tiles self-organizing into local structures, consolidating into a unifying identity, and (c) other tiles maintaining independent influences, manifesting themselves in unpredictable ways.

Examples of these localized structures can be found in organizational behavior. Dominant tiles are evident when an individual's religious values influence work behaviors. Neck and Milliman (1994) discussed how organizational performance can be improved when employees are empowered to apply their spiritual values on the job. Dominant localized structures have strong influences on behavior, potentially increasing predictability. Unifying tiles are evident when a mentor takes on a protégé. Kram (1985) has described how mentors often merge parenting values

and managerial values in their development of protégés. These protégés are often viewed as adult children who require psychosocial support as well as managerial career development. Finally, independent tiles are likely to manifest themselves in unpredictable ways when individuals experience role conflict. Katz and Kahn (1978) described how person–role conflict can occur when an individual's values conflict with expected work behaviors. The conflict can signify two or more tiles asserting independent influences. Whereas unifying localized structures merge congruent tiles, independent tiles may involve conflicting tiles, thus making the predictability of behavior problematic. For example, a salesperson tasked to sell defective products may experience role conflict. Engaging in such selling behaviors could compromise religious values related to ethical behavior, but not selling could compromise organizational values related to maximizing profits. Predicting behavior in this situation would be more difficult than predicting behavior in situations in which one tile dominates others or in which congruent tiles merge. Role conflict situations may be the most obvious examples of independent tiles, but nonconflicting tiles can also assert independent influences. Values related to race, religion, or profession can exact separate influences on organizational behavior. For example, an Asian American professor of organizational behavior can tap professional and ethnic identities without requiring a fusion of the two. If the multiple identities are discordant or inconsistent with one another, Ashforth and Mael (1989) have suggested this compartmentalization of identities could lead to “double standards, apparent hypocrisy, and selective forgetting” (p. 35). If the multiple identities complement one another without fusing together, a complex pattern emerges.

Application of the new science principles to the cultural mosaic highlights the importance of cultural complexity. Isolating a particular tile in the cultural mosaic for study is unlikely to yield a comprehensive understanding of culture. The whole is more than the sum of its parts. Therefore, a central tenet of a mosaic perspective of culture taken in this article is that the classic tradition of conducting research using the term *culture* synonymously with the term *nationality* is imprecise and incomplete. An analogy of this kind of complexity may be found in Freeman's (2000) research on the physiology of perception. Freeman tried to identify neural representations of odors in rabbits. Measures from a single electrode placed in the olfactory lobe produced unreliable results. However, measures from an array of 60 electrodes showed stable carrier wave structures in olfactory electroencephalograms. Perhaps the most fascinating outcome of Freeman's work is that these structures were not fixed. Unlike fingerprints, the carrier wave structure of a specific odor changed or reorganized when new odors were introduced or when new meanings were attached to a stimulus. Thus, the structure of prior knowledge was reorganized in the context of new knowledge. Examining an array of cultural identities within the individual may allow researchers to identify stable carrier waves of culture. Recognizing that our cultural identities may reorganize themselves when new identities are learned and old identities shed or evolve highlights the need to examine the cultural mosaic as a whole. An individual's cultural mosaic is greater than the sum of its parts.

Future research at this level can identify cultural identities and values associated with each. Building from chaos and complexity theories, researchers can identify localized structures of cultural identities within specific contexts. For example, managerial values

might be focused on performance, parental values might be focused on nurturance, and American values might be focused on individualism. The relatedness of pairs of cultural identities can be assessed by ratings to identify localized structures among cultural mosaic tiles. For example, pathfinder networks (Schvaneveldt, 1990) can be constructed from these ratings to examine the degree of identity clustering and the extent to which an overall identity structure is coherent (concordance) or lacking in a consistent structure (discordance). Thus, one individual might pair managerial and parental identities to fuse values related to mentoring and person-oriented leadership, whereas another individual might link managerial and American identities to fuse values related to individual performance. Identity structures that are not strongly related within an individual are not linked together. If distinct cultural tiles guide different behaviors (e.g., parental identity helps young; American identity encourages individual behavior without help), then these identities are discordant. To examine Proposition 1 (“Behaviors influenced by concordant cultural identities are likely to be more predictable than behaviors influenced by discordant cultural identities”), subjects could make decisions within contexts that would invoke a specific identity structure. Compatible and strong value sets would converge, providing a unified value base for more predictable behavior. Discordant value sets are less likely to self-organize together, with different values guiding potentially competing behaviors. Specific hypotheses based on Proposition 1 could be tested by regressing decision-making predictability on cultural identity congruence scores derived from pathfinder analyses of value ratings. More sophisticated hypotheses extending Proposition 1 could compare different cultural identity structures, their strengths, and their relationships to behavioral outcomes. Understanding different structures within an individual’s cultural mosaic and how these structures are tapped to influence specific attitudes and behaviors would be a foundation for researching interactions between two or more people.

Barabási wrote, “complexity theory must inevitably stand on the shoulders of network theory” (2003, p. 238). A new science of networks can be applied to explore how cultural identities are connected in nonlinear, dynamic ways. Networks are composed of nodes with links connecting specific nodes. Networks may be examined in a number of ways, including the number of links connecting one node to other nodes, the strengths of those links, and the direction(s) of influence. Different structures among cultural identities may also emerge between persons. A single cultural identity can dominate all others when, for example, an American imposes ethnocentric values on others. Individuals may also build on shared cultural identities to form groups or facilitate interactions. Finally, multiple independent cultural identities can assert themselves when individuals recognize the complexity of interactions characterized by different cultural mosaics.

Proposition 4: Across individuals, networks of cultural mosaics behave like a complex system with localized structures, with (a) some tiles dominating others in interactions, (b) some tiles self-organizing into local structures, building on shared cultural identities, and (c) other tiles maintaining independent influences, manifesting themselves in unpredictable ways.

Figure 1 illustrates simple cultural mosaics of two individuals. In the example, Person A differs from Person B on nationality and

gender, yet both share urban, professional, and age-related identities. Interactions between these two people can build off localized structures created by common cultural tiles between them. These structures are at the interpersonal level, not the individual level. Within the social network literature, some empirical research has examined homophily as the theoretical explanation for why people favor interactions with others who are similar (birds of a feather flock together). Brass (1995) noted that interpersonal similarity was “thought to ease communication, increase predictability of behavior, and foster trust and reciprocity” (p. 51). McPherson, Smith-Lovin, and Cook (2001) reviewed the literature and concluded that individuals are drawn together based on race–ethnicity, age, religion, education, occupation, and gender—all tiles within the cultural mosaic.

Proposition 5: Interpersonal interactions are facilitated by shared cultural identities. Shared cultural identities are localized structures in an interpersonal network, providing common frames of reference, values and behavioral expectations between people.

Guastello (2002) described how nonlinear dynamics can be used to describe changing levels of involvement in dyadic relationships over time. Proposition 5 examines the changing dynamics of a mentoring relationship with nonlinear dynamical systems (NDS) models. Different phases of the relationship—initiation, cultivation, separation, and redefinition—are likely to be discontinuous and can be captured by saddle points in NDS theory. Saddle points are characterized by attractor and repeller forces. The strength of an attraction between a protégé and mentor can be initially assessed by number and type of overlapping cultural identities. Likewise, repeller forces can be initially assessed by number and type of unique cultural identities that have historic conflicts. Attractor and repeller forces can be used to predict the success of a mentorship. Results from this research could help organizational mentoring programs improve the initiation and cultivation of these relationships. Guastello (2002) has provided many examples of nonlinear dynamical systems theory to applied research issues and repeatedly found NDS explanations to be about twice as accurate as traditional linear analyses.

Research at the Group Level

An aerial view of delegates at an international reception might reveal a confusing picture of people milling about in random ways. Yet, closer inspection would show some localized structures in which subgroups of people aggregate because they share a cultural identity or common interest. Communications can pass from one group to another when individuals link groups through chains of interactions, yet most communications are unlikely to be received by everyone in the room. Simple rules might exist to explain how two people interact based on complementary or conflicting identities (e.g., a man might offer assistance to a woman and her acceptance or rejection of the assistance may be influenced by the complement or conflict of perceived gender identities). Complex rules might exist to explain multiple patterns of interactions, such as delegates from the Security Council who are from Western democracies discussing an upcoming vote.

A *group-level research agenda*. Mehra, Kilduff, and Brass (1998) extended the principle of homophily by using distinctive-

ness theory to explain voluntary segregation of male–female and minority–majority master of business administration students. They concluded that the marginalization of minority group members results from both majority-group exclusion and minority-group individuals' preferences for similar friends. With increasing opportunities and pressures for culturally different people to work together, how would multiple cultural differences help or hinder group relationships? Much of the literature on workforce discrimination illustrates problems when cultures clash (Fernandez, 1993). More recently, Zachary (2003) described how different cultural interactions can create synergy for innovation and creativity. Furthermore, workforce diversity gives an organization an employee base with wider experiences, making it more flexible to adapt to dynamic business environments.

From social network research, the principle of homophily predicts that cliques or in-groups will form from shared cultural identities. Distinctiveness theory adds that cultural identities become salient when they are perceived to be distinct within a larger group context. However, these theories imply certain numbers of people with specific cultural identities. Monge and Contractor (2003) reviewed the literature on gender homophily and found that when the proportion of men and women were about equal, both genders were well represented in each other's networks. However, when one group was a distinct minority, the networks were more segregated. Research examining different proportions of group members can identify the critical mass or threshold of group representation that would lead to self-organizing cliques.

Proposition 6: There is a critical threshold within group diversities that guides the emergence of self-organizing cliques.

Critical thresholds represent tipping points—discontinuous changes in which phenomena emerge like an epidemic for a disease, the creation of a fad, or the formation of a clique in a group. Most diseases, new products, and subgroups of individuals do not evolve into epidemics, fads, or cliques because the critical thresholds for these conditions are not met. The cultural mosaic can identify group identities that are approaching critical thresholds for subgroup formation. Recognition of these cliques can help our understanding for resolving problems related to workforce diversity.

Within large groups or organizations, diversity across members lends a particular multicultural identity to the group. Zachary (2003) has argued that this diversity gives the group flexibility and adaptability capabilities over more homogeneous groups. In social network analysis, power and influence are likely benefits to individuals who can bridge two groups by building on unique commonalities with each group. Such individuals span structural holes in networks and serve as key linking pins between previously isolated groups (Burt, 1992).

Proposition 7: Members who share cultural mosaic tiles with members of other groups are more likely to bridge structural holes between these groups.

The heterophily perspective describes how bridges across structural holes give both groups new information and resources to be

innovative or adaptive to challenging situations (Kilduff & Tsai, 2003). Access to a group that was previously isolated from an individual's network is more likely to yield new information and resources than additional ties with familiar groups. Failure to link key groups within an organization could hamper that organization's actions with full capabilities. Structural holes may be bridged by existing tiles in cultural mosaics of group members, or they may be bridged by new cultural identities engineered by an organization. Organizational socialization interventions can help newcomers adopt the values espoused by an organization (Chao, 1997). These interventions may include formal training programs as well as informal learning from supervisors, colleagues, and other organizational members. Thus, an important organizational intervention can be designed to fill in structural holes within a group and between groups.

A group-level methodological foundation. A network's architecture is important because structure affects function (Strogatz, 2001). For example, the term *six degrees of separation* is a common expression of the network of people and the belief that it takes only six links of acquaintances to connect one person to any other person. Milgram (1967) described two experiments designed to empirically measure small worlds. Subjects in Kansas and Nebraska were mailed folders with instructions that the folder was intended for a specific target person in Massachusetts. The folder identified the target person's name and some information about the target (e.g., target was the wife of a divinity school student or target was a stockbroker). The subjects were instructed to mail the folder to the target directly, only if he or she knew the target person by name; otherwise the folder should be passed to an acquaintance who might be a closer link to the target person. Results showed that, on average, only five intermediary acquaintances passed the folder that eventually found the target person. Although there were some methodological problems with Milgram's research (Kleinfield, 2002), his work is hailed as pioneering research in current network theory (Watts, 2003). In a social network of billions of people, there are extremely short paths that can link one individual to another.

Many real networks are linked in ordered and random ways. In an ordered fashion, links with our friends are likely to promote links among themselves. In a random fashion, we can also make new links in chance meetings with strangers. This combination of ordered and random links creates a complex system that self-organizes into a small-world network. Examples of documented small-world networks include Web sites and their links on the World Wide Web (Barabási, 2003), links among motion picture actors with shared film credits (cf. the Kevin Bacon game), and the neuron network of the nervous system of the nematode worm *Caenorhabditis elegans* (Watts & Strogatz, 1998). To date, few examples exist due to the data requirements and computational programs required to identify small-world networks. However, these networks are believed to be common and have been used to explain a variety of natural and technological system behaviors, including how a disease may spread into an epidemic, how power outages can cascade through a power grid system, how fads evolve, and how we perceive and recognize familiar stimuli.

Network theorists have observed that although extremely large networks can be described as small worlds, all behavior within the network is local. A subject in Milgram's small world experiment

is not cognizant of the entire social network but is aware of his or her group of acquaintances only when deciding who gets the folder. There is no central controller who can identify the most efficient chain of acquaintances between the initial subject and the target person. There is no central information bank that identifies hubs in the network or overlapping clusters. Yet, a small chain can evolve on the basis of different decisions used by the different links in that chain. Like the cultural mosaic itself, the social network is also a complex system with localized structures that was described earlier—some of the behavior may appear to be random or chaotic, but localized structures also exist. Within a social network, these localized structures are the groups to which individuals belong.

Research methods to examine multicultural interpersonal relationships can range from simple network graphs to complex nonlinear dynamical network analysis. Brass (1995) described different measures of network ties. For example, relationships can be described by their frequency, stability, strength, direction, and symmetry. These aspects of network ties can be measured within and between groups. Bipartite graphs like Figure 1 can identify an individual's cultural identities, and affiliation networks can illustrate relationships among individuals within a group and between groups. Watts (2004) described "*generalized affiliation networks* in which distance between groups is defined according to some number of social dimensions [cultural identities], and individuals are characterized by the coordinates of the groups to which they belong" (p. 249). Examining these networks across time could shed light on Proposition 6 ("There is a critical threshold within group diversities that guide the emergence of self-organizing cliques"). Group members who share a particular cultural mosaic substructure, or localized structure, are more likely to self-organize into a clique when a critical mass of these members is attained. Wasserman and Faust (1994) illustrated how multidimensional scaling and hierarchical clustering techniques can be applied to network data to identify cliques.

Network analyses can also be used to examine interactions between groups. Proposition 7 ("Members who share cultural mosaic tiles with members of other groups are more likely to bridge structural holes between these groups") might be examined by experimentally manipulating structural holes among groups. Individuals may be assigned to groups on the basis of salient cultural identities, and groups may vary on the number of individuals who share cultural identities with members of other groups. Cooperation between groups may increase when one group's member links with another group's member via shared cultures. Comparisons between spontaneous links and managed links would lend insight on how intergroup cooperation might be enhanced through organizational interventions.

Given the new science foundations of chaos, complexity, and network theories, their application to the cultural mosaic challenges researchers to design new methods to examine complex social systems. Relationships between cultural tiles within and between persons need to capture dynamic changes that may be nonlinear and/or abrupt. The theoretical foundations behind the cultural mosaic are already being explored by social sciences outside of psychology. Their potential for contributions to organizational psychology has just begun.

Applying the Cultural Mosaic to Organizational Psychology

Earley and Singh (1995) explained hybrid forms of intercultural research that incorporate both gestalt forms (examination of a system as a whole) and reduced forms (breaking down a system into component parts) of research. Earley and Singh detailed the process of hybrid forms of research as a four step process in which (a) researchers first gain understanding of the gestalt system, (b) researchers construct hypotheses across systems, (c) constructs and relationships are deemed separable from the system in which they are embedded, but the "mapping back onto an existing system may not be simply linear or additive" (p. 332), and (d) interpretation occurs at both the reduced parts of the system with reference to the general system.

This article conceptualizes culture through a mosaic perspective and calls for a new strategy of discerning the antecedents and causes of organizational level cultural forms. The reason that departments and organizations fret about any particular addition is that they implicitly know that any one individual member can influence the future culture as well as being influenced by the present culture. Future research examining perceived similarities and differences among individuals and between individuals and organizations can benefit from a cultural mosaic perspective.

For example, consider a typical study wherein variance of tenure among a top management team is used as a measure of heterogeneity. Three White men, all from New York, all graduates from the same university, and having 1, 10, and 20 years of experience, respectively, within the firm would be considered comparably heterogeneous to a team of one Asian man from Los Angeles who graduated from a state university, one African American woman from Pittsburgh who graduated from an elite private university, and one White man from Atlanta who dropped out of high school, but all having the same years of experience, respectively, as the sample above. It is quite obvious, that a more inclusive model of heterogeneity would be required to fully understand the influence of dissimilarity on subsequent outcomes. Research designs that included several cultural identities as indicators of heterogeneity could identify key cultural tiles that affect a group within a specific context. With the above example, four terms for group heterogeneity that were based on tenure, gender, education, and race could identify which factors most influence group interactions and performance. Williams and O'Reilly (1998) reviewed 40 years of demography and diversity research and noted only one study that reported interactions between demographic variables. This study was listed as an unpublished working paper. In this regard, we extol the virtues of researchers examining more than one group identity in relational demography differences (cf. Bantel & Jackson, 1989; O'Reilly, Williams, & Barsade, 1998; Tsui, Egan, & O'Reilly, 1992).

Kozlowski and Klein (2000) have provided a typology of emergence to describe how higher level phenomena can emerge from lower level, elemental phenomena. Composition models of emergence assume contextual factors and interaction processes shape individual responses to converge around a valid stereotype. Thus, strong homogeneous cultures can be measured by aggregating individual-level data because there is high agreement among individuals describing their shared culture. Traditionally, composition models of emergence have been used when culture has been

equated with countries or nation-states. In contrast to the composition model, compilation models of emergence assume variance in individual-level data is meaningful (Kozlowski & Klein, 2000). Instead of a uniform convergence point, nonuniform patterns describe subgroups. With this perspective, an individual-level approach to culture can capture multiple cultural influences. This bottom-up approach can help us to understand how multiple cultural influences interact and influence individuals.

Confusion regarding proper levels of analysis and aggregation of data is not limited to research in culture (Klein, Dansereau, & Hall, 1994; Rousseau, 1985). However, Kozlowski and Klein (2000) recently highlighted the fact that the organizational sciences have paid increasing attention to the proper specification of levels of analysis when conducting research within an organizational setting. For example, Kozlowski and Salas (1997) proffered that even though much of the research regarding training and training transfer has been conducted at the individual level of analysis, the positive influence of training within an organizational setting most often occurs at higher levels of analysis. Morgeson and Hofmann (1999) used the term *collective construct* to describe how constructs at higher levels of analysis can exert independent influences. They point out “as interaction occurs within a larger group of individuals, a structure of collective action emerges that transcends the individuals who constitute the collective” (p. 252). Both Kozlowski, Gully, Nason, and Smith (1999) and Morgeson and Hofmann (1999) have provided examples in which theorizing should occur at a level beyond individual inputs.

The cultural mosaic provides a new framework for research in organizational psychology; however, additional data requirements for multiple cultural identities can pose challenges for researchers. In addition, new data analytic techniques to handle these data may need to be developed. Models for how culture affects behavior have been proposed (cf. Berry et al., 2002; Kitayama, 2002), but none address how multiple cultural identities are organized. The cultural mosaic fills this black box.

Conclusions

New ways of conceptualizing culture are needed as more cultures interact. Many organizations are increasing the diversity of their populations. Across the globe, political, economic, and health issues force many opportunities for people to interact with others who are different from themselves—technological advances in travel and communication facilitate these interactions. Thus, the need to better understand multiple cultural effects is a timely one. Recent developments in new sciences of chaos, complexity, and network theories have seen exciting gains in physics (Barabási, 2003; Wolfram, 2002). It is time for social scientists to apply these new models to the study of organizational behavior.

We present a mosaic metaphor for culture that is framed by three primary factors (demographic, geographic, and associative) that shape multiple group identities for people. Current research has been limited to examining single tiles of culture that ignore the complexity of a cultural mosaic. Theoretical developments in the new sciences can help researchers recognize that we need to embrace this complexity, not dissect it. Multiple cultural identities are likely to be organized in dynamic and nonlinear ways. A new model for researching culture has been made available with which to examine multiple cultural identities at individual and group

levels. At the individual level, we propose that chaos and complexity theories be used to better understand the complexities associated with the influence of culture on an individual's values through a mosaic perspective. At the group level, we propose the methodology behind network theory be used as a means by which researchers can better understand the interpersonal dynamics within an organization. We hope the cultural mosaic can stimulate future research to examine the complexity of culture at all levels of organizational behavior.

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