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# Social Ecology: Lost and Found in Psychological Science

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## Abstract

This article presents a socioecological approach (accounting for physical, societal, and interpersonal environments) to psychological theorizing and research. First, we demonstrate that economic systems, political systems, religious systems, climates, and geography exert a distal yet important influence on human mind and behavior. Second, we summarize the historical precedents of socioecological psychology. There have been several waves of ecological movements with distinct emphases in the history of psychological science, such as K. Lewin's (1936, 1939) field theory and U. Bronfenbrenner's (1977) ecological approach to human development. Environmental and community psychologies, created in the late 1960s and early 1970s, promoted social activism through basic and applied research on ecological factors and social outcomes. Most recently, the rise of cultural psychology has encouraged psychologists to pay attention to cultural factors in basic psychological processes, but note that less attention has been given to socioecological factors per se. We highlight the benefits of bringing the socioecological perspective back to mainstream psychological theorizing and research.

## Keywords

social ecology, culture, environments, interdisciplinary research

In this article, we demonstrate how psychological theorizing and research can benefit from a socioecological perspective—that is, a perspective focused on delineating how physical, societal, and interpersonal environments (e.g., climate, democracy, social networks) affect the emotions, cognitions, and actions of groups and individuals and how those emotions, cognitions, and actions in turn create physical, societal, and interpersonal environments. First, we propose a socioecological approach to psychology and argue for the importance of accounting for various chronic, objective situations and environments in the scientific study of human mind and behavior. Second, we review the historical precedents of the socioecological approach to psychology and show that despite various ecology movements throughout psychology's history, the perspective on macroenvironments has never taken center stage in mainstream academic psychology during the last 40 years. Finally, we demonstrate how the socioecological approach can enrich theorizing and research in current and future psychological science.

defined as an approach to this science that investigates how mind and behavior are shaped in part by their natural and social habitats and how natural and social habitats are in turn shaped partly by mind and behavior. The main goal of this approach is to delineate how individuals and social ecologies define each other (cf. Shweder's, 1991, definition of cultural psychology as investigations of how culture and psyche make each other up).

Social ecology comprises the social and physical environments that constitute people's habitats. As ecological biologists study animals' behaviors in relation to their natural habitats (Stutchbury & Morton, 2001), socioecological psychologists study how natural and social habitats affect human mind and behavior and how human mind and behavior in turn affect natural and social habitats (see Fig. 1). Social ecology represents both physical and human environments that affect mind and behavior. Specifically, social ecology includes macrostructures

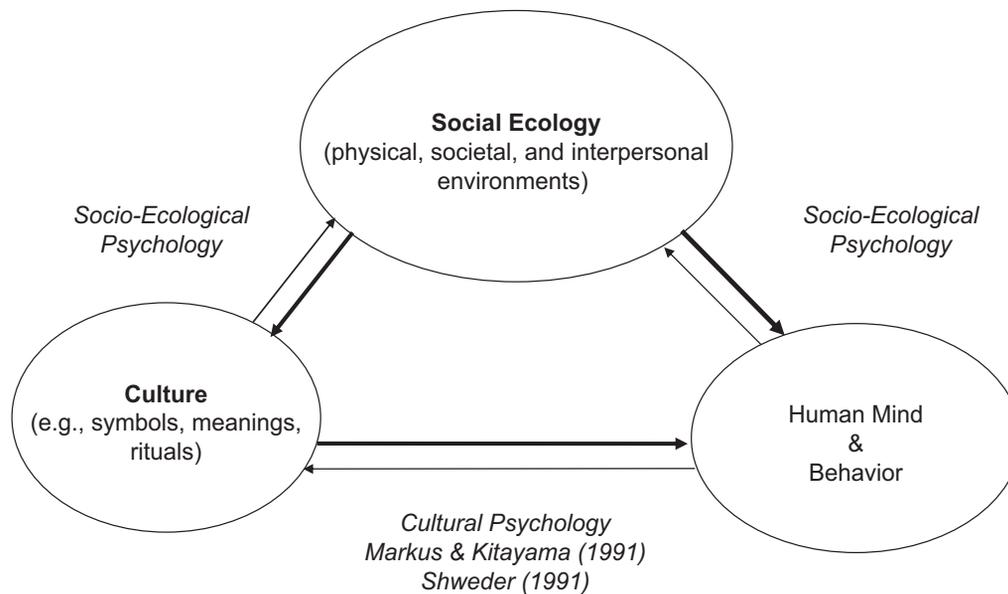
## What Is Socioecological Psychology?

Psychology is often defined as the science of mind and behavior (Myers, 2007). Socioecological psychology, then, can be

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**Fig. 1.** Culture, social ecology, and psychology. In this figure, *culture* is defined as “explicit and implicit patterns of historically derived and selected ideas and their embodiment in institutions, practices, and artifacts” (Adams & Markus, 2004, p. 341).

such as economic systems (e.g., free market capitalism, agriculture-based economies), political systems (e.g., democracy), educational systems (e.g., elitism), societal and organizational reward systems (e.g., meritocracy), population structures (e.g., ethnic diversity, population density), geography (e.g., mountainous, urban), climate (e.g., humidity), and religious systems (e.g., orthodox). It also includes intermediate structures such as the characteristics of cities, towns, and neighborhoods (e.g., median income); housing (e.g., high-rise apartment); and family and kin relationships (e.g., extended). Many socioecological factors cut across different levels of environments, such as economic conditions (e.g., unemployment at the individual level, recession at the macrolevel) and residential mobility (e.g., frequent moves at the individual level, mobile versus stable neighborhoods at the macrolevel; e.g., Oishi, 2010).

The socioecological approach shares several key similarities with the cultural psychological approach (attention to cultural factors) and the evolutionary approach (attention to distal factors). Note that there are more similarities than dissimilarities between the socioecological approach and these approaches. However, we briefly contrast each of these approaches with the socioecological approach to clarify the essence of the approach we promote in this article. The main goal of cultural psychology is to delineate how psychic processes are grounded in culture (Bruner, 1990; Markus & Kitayama, 1991; Mesquita & Frijda, 1992; Shweder, 1991). Cultural psychologists have deconstructed the implicit cultural assumptions behind well-established cognitive and motivational theories in psychology, such as cognitive dissonance (e.g., the aversion to inconsistency driving dissonance reduction might be a cultural product of North America; see Heine & Lehman, 1997) and attribution theories (e.g., chronic attention to internal factors might also be

a cultural product of the North American middle class; see Choi, Nisbett, & Norenzayan, 1999). Cultural psychologists have typically focused on mental processes and cultural symbols, paying scant attention to objective macroenvironments, such as economic, political, demographic, and geographic factors (see Rozin, 2003, 2007, for critiques of cultural psychology on this point). One major difference between the cultural and socioecological approaches is that the socioecological approach explicitly tests the relations between objective macroenvironments and human mind and behavior (see Fig. 1).

Like cultural psychology, evolutionary psychology has provided an important new perspective in psychological science during the last 20 years (Buss, 1995, 2004; Caporael, 2001; Gangestad & Simpson, 2000, 2007; Pinker, 2002; Tooby & Cosmides, 2005). Although some evolutionary theorists focus primarily on changes in population gene frequencies by investigating natural selection, inclusive fitness, and selfish genes (Daly & Wilson, 1988; Hamilton, 1964; Trivers, 1971), other evolutionary theorists get inspiration from ancestral environments. For instance, Caporael (1997, 2001) theorized that many fundamental psychological mechanisms (e.g., altruism, cheater detection) evolved from a fundamental characteristic of ancestral living conditions—namely, obligatory interdependence. Because it was advantageous to form an alliance with others and belong to a group for survival, human ancestors were likely to be people who could curb their self-interests and balance them with the interests of the group (see also Baumeister & Leary, 1995, for an evolutionary analysis of the need to belong). In their inclusion of macrolevel factors as determinants of behavior, the evolutionary perspective and the socioecological perspective are very similar. One major difference, however, is that the evolutionary perspective is typically concerned with ancestral environments (often called

“environments of evolutionary adaptedness”), whereas the socioecological perspective is concerned with current as well as past environments.

Another way in which the socioecological approach is similar to yet different from cultural and evolutionary approaches is in its role in bringing neighboring disciplines closer to psychological science. Cultural psychology has brought anthropology closer to psychology, whereas evolutionary psychology has built a bridge with biology. In contrast, the socioecological approach aims to bring sociology closer to psychological science. Although such prominent psychologists as Edward Tolman (1952) and Gordon Allport (1940) saw the sociological perspective as fundamental to psychological science, the link with sociology has been largely lost during the last 40 years (Oishi, Kesebir, & Snyder, 2009). With the exception of cultural and evolutionary psychologists, most psychologists investigate the proximal causes of the phenomenon under study and eschew entertaining the possibility of distal factors affecting the same phenomenon. For instance, psychologists interested in suicide typically investigate immediate causes of suicide, such as depression (e.g., Lester, Beck, & Mitchell, 1979) and interpersonal conflicts (e.g., Farberow, & Reynolds, 1971). In contrast, sociologists pay close attention to distal macrofactors, such as social control of community and organization, when investigating such seemingly personal issues (Durkheim, 1897/1951; Halbwachs, 1930/1978). C. Wright Mills (1959/2000) famously advocated the development of a “sociological imagination,” or the ability to look beyond immediate situations to see the influence of social forces operating in a larger societal context. The socioecological approach promotes this sociological imagination, allowing for more conceptual audacity in psychological science. In the text that follows, we provide several examples of the socioecological approach that have successfully used the sociological imagination and gone beyond the typical research paradigms of psychological science.

## Economic Systems

How might economic systems (e.g., dominant economic activities, payoff system) be associated with human mind and behavior? In their seminal study on the culture of honor, Nisbett and Cohen (1996) described how herding is in part responsible for the origin of the honor culture in the U.S. South. In the 19th century U.S. South, herders had to protect their livestock by maintaining a reputation for toughness, partially because there was no reliable police force in rural areas. Nisbett and Cohen’s research on the culture of honor showed that distal factors such as herding, combined with immigration history (e.g., Scottish Highlanders) and social conditions (e.g., lack of police force), gave rise to the creation and maintenance of social norms of toughness, self-defense, and violence in the U.S. South.

Since J.S. Mill (1879/1979), economists have often assumed that individual decision makers seek to maximize their own gains (Persky, 1995). By examining diverse economic bases across 15 small-scale societies, Henrich and colleagues

(2005) were able to dethrone the previous assumption that *homo economicus* (i.e., economic man) acts the same universally. These researchers showed that an individual’s decision about monetary gain and cooperation is linked to the dominant economic activities of society, such as horticulture and whale hunting. Using the ultimatum game and its variants, Henrich and his colleagues found that the type of economic base and payoffs to cooperation in the participants’ daily economic activities predicted willingness to cooperate with others. In a society in which the payoff for cooperation is large (e.g., the whale-hunting Lamelera of Micronesia), the majority of residents showed cooperative responses, whereas in a society in which the payoff for cooperation is small (e.g., the horticultural Machiguenga of Peru), far less than half of the residents showed cooperative responses. This study demonstrated that the willingness to cooperate with others varies across individuals, depending on the large, societal economic systems in which those individuals live.

Similar to Henrich et al. (2005), Uskul, Kitayama, and Nisbett (2008) investigated how perceptual tendencies might differ among farmers, fishermen, and herders in a single region of Turkey. Earlier studies found that East Asians show holistic perceptual tendencies, whereas North Americans show analytic perceptual tendencies (see Nisbett, 2003, for a review). For instance, when participants are asked to pick the one object out of three (rooster, cow, grass) that is different from the others, most North Americans pick grass as the object that does not belong, because the rooster and cow are animals and grass is a plant. The key in this type of categorization is the characteristics of each object rather than the relationships among them. East Asians, in contrast, typically pick rooster as the object that does not belong, because the cow eats grass but the rooster does not. The key in this categorization is the relationship among the objects rather than the characteristics of each element. Because East Asians and North Americans are different in many respects (e.g., language, religion, history), it was difficult to determine why these cultural differences emerged. The genius of Uskul et al.’s research was that by focusing on a single region in Turkey, they were able to control for many confounding factors typical of cross-cultural research. Because the daily economic activities of farmers and fishermen are more dependent on others than are the economic activities of herders, these researchers predicted that farmers and fishermen would show more holistic perceptual tendencies (e.g., tendencies to categorize on the basis of relationships rather than characteristics of elements) than would herders. In several different perceptual tasks, they generally found support for their prediction. Together, these studies (Henrich et al., 2005; Nisbett & Cohen, 1996; Uskul et al., 2008) demonstrate that economic systems at the societal level play a critical role in such fundamental psychological tendencies as aggression, cooperation, and perception.

Whereas the studies summarized earlier assume a causal effect of economic systems on psychological tendencies, other studies point to the opposite causal direction. In his pioneering work on need for achievement, David McClelland (1961) used

creative methodologies to measure the need for achievement, ranging from content coding of folklore, children's stories, and literatures to vase designs in various cultures over historical periods, successfully predicting later economic development. For example, McClelland showed that more need for achievement expressed in children's stories in 1925 forecasted more economic growth in 1950 among modern societies (e.g., Sweden, United States, Mexico, Russia). Most impressive, McClelland demonstrated that changes in need for achievement predicted changes in economic activities within the same society. The economic spurts of Ancient Greece, 16th-century Spain, and 18th-century England were preceded by high levels of need for achievement in their respective literatures. Furthermore, a subsequent decline in each culture was also predicted by lower need for achievement seen during the rapid economic growth. These historical analyses reveal that (a) need for achievement changes over time within the same society and (b) these changes are associated with systematic changes in economic activities later in time.

Similarly, Zak and Knack (2001) found that national measures of general trust in earlier survey data predicted the percentage of gross domestic product (GDP) per capita invested and economic growth over time. Nations high in general trust (e.g., Korea, Brazil) had more subsequent capital investment and economic growth than nations low in general trust (e.g., Peru, the Philippines). These findings illustrate that not only do economic systems and activities affect mind and behavior, but mind and behavior also influence economic systems and activities.

### Political Systems

Like economic systems, political systems have a profound influence on people's daily lives and are likely to shape human mind and behavior. Lewin and Lippitt's (1938) classic study showed that experimentally created political systems (democracy vs. autocracy) affected individual members' cooperative behavior and a stronger collective identity ("we-ness"). A recent experiment also showed that intergroup aggression was perceived as less legitimate in an egalitarian "society" than in an authoritarian "society" (Falomir-Pichastor, Staerklé, Depuiset, & Butera, 2005). These experiments show that political systems have a causal influence on diverse psychological phenomena such as cooperation, collective identity, and perceptions of intergroup aggression.

The association between democracy and cooperation has been repeatedly observed in survey responses from all over the world. In their classic work *The Civic Culture*, Almond and Verba (1963) showed that interpersonal trust was higher in nations where democracy had been institutionalized for a longer period of time (e.g., the United States and the United Kingdom) than in other nations where democracy was still young (e.g., Mexico, Italy). Extending this work, Inglehart (1997) and Inglehart and Welzel (2005) have shown the reciprocal relations among political systems, interpersonal trust, and subjective well-being: (a) People who live in democratic

societies are happier and more trusting than those living in authoritarian regimes, and (b) the higher the citizens' subjective well-being and interpersonal trust, the more quickly undemocratic societies adopted democracy over time. Inglehart's research has clearly demonstrated the mutual constitution of democracy and trust/subjective well-being.

### Religious Systems

One of the most famous social scientific research projects to date is Emile Durkheim's (1897/1951) investigation of the relation between religion and suicide. On the surface, suicide is an individual behavior in that one kills himself or herself. It is not surprising that an individual's religious belief is associated with the likelihood of one's committing suicide. Namely, individuals who believe that suicide is a sin are less likely to commit suicide than those who do not believe so. What was remarkable in Durkheim's analysis was his demonstration of regional and international differences in the prevalence of suicide. Although the members of each region or nation change over time, the suicide rate was surprisingly constant. On the basis of this observation, Durkheim argued that suicide is determined not only by an individual's belief or predisposition but also by societal forces. Specifically, he observed that predominantly Catholic nations (e.g., France) and regions (e.g., Bavaria) have lower suicide rates than predominantly Protestant nations (e.g., Denmark) or regions (e.g., Northern Germany), in part because Catholic communities tend to be much more tightly knit than Protestant communities.

Inglehart and Baker (2000) analyzed the World Values Surveys and found that nations with similar religious traditions clustered together on value orientations. Specifically, traditionally Protestant countries (e.g., Sweden, Norway, Germany) were high in self-expression and secular values, whereas historically Catholic countries (e.g., France, Italy, Austria) were lower in self-expression and higher in traditional values. On the basis of teachers' self-reported values, Schwartz (2008) largely replicated Inglehart and Baker's findings (see also Georgas, van de Vijver, & Berry, 2004, for similar results).

### Climates

Jared Diamond (1997) popularized the idea that climates might have played an integral role in human history (e.g., temperate climate providing a disproportionate advantage for farming in Eurasia). Even before Diamond's (1997) *Guns, Germs, and Steel*, several influential programs of research existed on the relations between climate and psychology. Perhaps most famous is Craig Anderson and colleagues' research on climate and aggression (e.g., Anderson, 1989, 2001). For instance, Anderson, Anderson, Dorr, DeNeve, and Flanagan (2000) found that violent-crime rates are significantly higher in U.S. cities higher in average temperature than in those lower in average temperature, controlling for population size and median income. Furthermore, when Anderson et al. (2000) analyzed the same city over time, they also found that violent-crime rates

were higher in months higher in average temperature than in months lower in average temperature. Even more amazing, they found that even within a day, temperature played a role in predicting the prevalence of violent crimes. Conversely, researchers found that people are more likely to help others on sunny, pleasant days than on cold, unpleasant days. Cunningham (1979), for instance, sent his research assistants into the field and recorded how many of 80 survey questions pedestrians said they would be willing to answer in Minneapolis from winter to summer. Both in summer and winter, pedestrians were more willing to help the survey interviewer on sunny days than on cloudy days. Pedestrians were more willing to help on cooler days in summer and on warmer days in winter. These studies show, then, that both prosocial and antisocial behaviors are affected by weather.

In addition, the relation between climate and psychopathology has been widely investigated. Photoperiod (the length of light exposure during the day) is shown to predict the onset of seasonal affective disorder (Young, Meaden, Fogg, Cherin, & Eastman, 1997). Recently, Hartig, Catalano, and Ong (2007) analyzed the average temperature in July in Sweden and the consumption of selective serotonin reuptake inhibitors. These researchers found that Swedes consumed more selective serotonin reuptake inhibitors in cold summers than in warmer summers. Thus, the link between weather and depression has been demonstrated not only by self-reports but also by an objective behavioral index. The relation between weather and mood has been repeatedly demonstrated among nonclinical populations. In a 30-day diary study of more than 1,200 participants in Germany, Denissen, Butalid, Penke, and van Aken (2008) found a sizable effect of temperature, wind, and sunlight on negative affect, but they found no effect on positive affect.

Recently, several researchers have started to investigate pathogen prevalence as an environmental factor in understanding the emergence of cultural values. For instance, Fincher, Thornhill, Murray, and Schaller (2008) showed that the historical prevalence of pathogens in a particular region could predict the emergence of various cultural traditions indexed by individualism–collectivism. Specifically, they showed that the more pathogens there had been in a nation, the more collectivistic the nation became, presumably because the presence of various pathogens encouraged residents to make a sharp distinction between ingroup and outgroup members and avoid contacts with outsiders. These results show that historical climate, not just current climate, is intertwined with the formation of cultural values (see also Schaller & Murray, 2008).

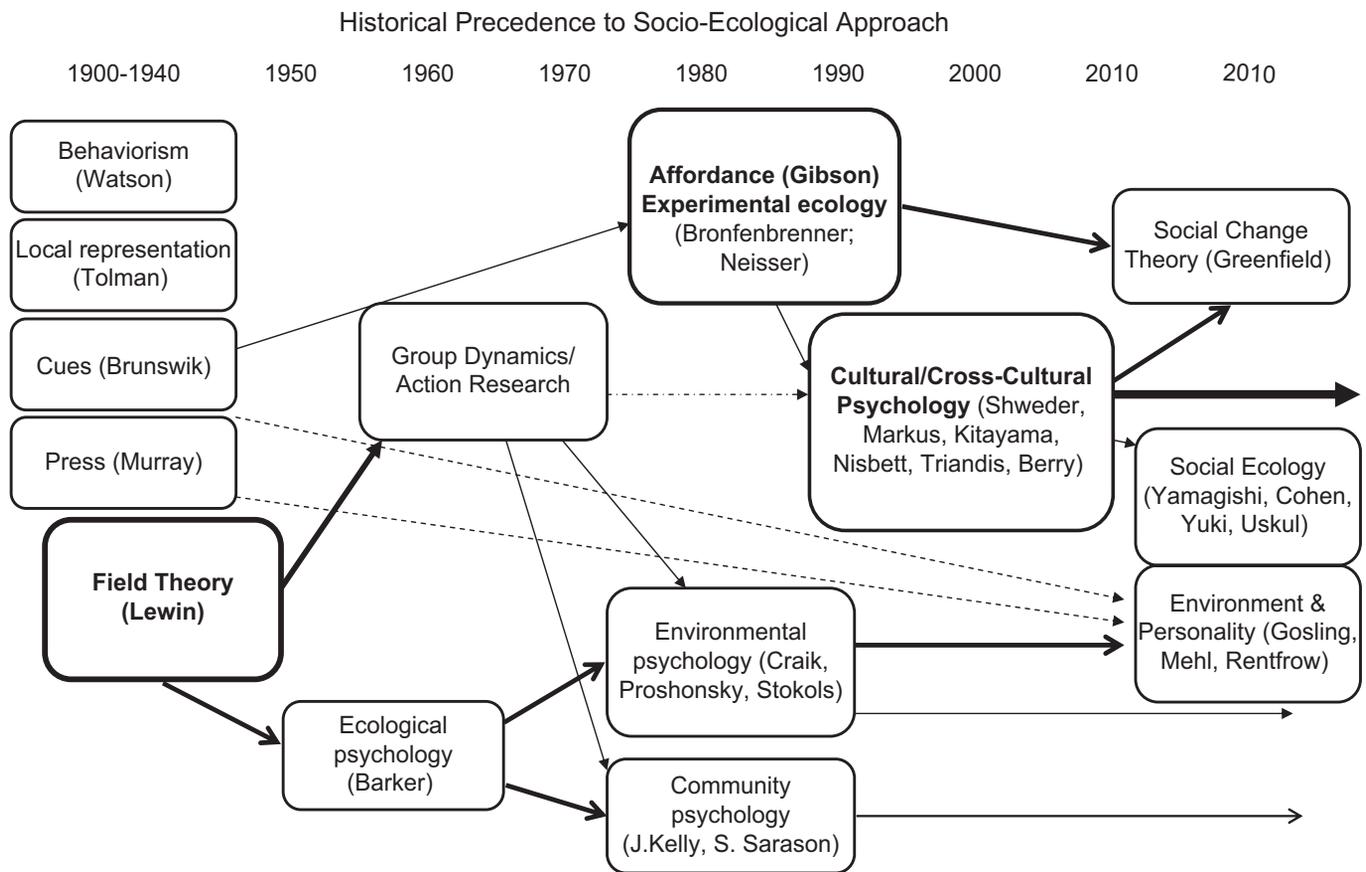
## Geography

Geographical clustering has been demonstrated on various psychological characteristics. As noted earlier, values such as autonomy, self-expression, and tradition are clustered geographically across the world (Georghas et al., 2004; Inglehart & Baker, 2000; Schwartz, 2008). Self-reported personality traits have also been shown to cluster geographically. For instance, D.P. Schmitt et al. (2007) found that East Asian nations

(e.g., Korea, Japan) show similar patterns of personality (high neuroticism, low extraversion) and African nations (e.g., Congo, Ethiopia) show similar profiles (high agreeableness and conscientiousness). Personality patterns tend to cluster within nations as well; for instance, neuroticism is most concentrated in the northeastern states in the United States (Rentfrow, Gosling, & Potter, 2008). Similarly, geographical clustering of life satisfaction occurs across the world (Diener, Diener, & Diener, 1995). Western European nations, particularly in the north (e.g., Sweden, Denmark), are among the highest in self-reported life satisfaction, and African and former Communist nations are among the lowest. In addition, Latin American nations generally are higher in life satisfaction than expected from their GDP per capita, whereas East Asian nations are lower than expected from their GDP per capita.

Similarly, values are shown to cluster geographically within the United States. Vandellos and Cohen (1999), for instance, found that collectivism (indexed by percentage of households living with grandchildren, percentage of people living alone [reverse item], percentage self-employed [reverse item], etc.) was high in many states in the South (e.g., Louisiana, Mississippi, Georgia, South Carolina, Virginia) and low in the Northwest (e.g., Washington, Oregon) and the Mountain West (e.g., Montana, Wyoming). Similarly, Plaut, Markus, and Lachman (2002) found that autonomy is high in many states in New England and Mountain West and low in Eastern South Central (e.g., Alabama, Mississippi). Using self-reported personality data collected on the Internet, Rentfrow et al. (2008) showed that Great Plains states (e.g., North Dakota, South Dakota, Minnesota) were among the highest in extraversion, whereas Northwestern states (e.g., Washington, Oregon) were among the lowest in extraversion. New York, New Jersey, and Connecticut were very similar in their personality profiles (i.e., low agreeableness, low conscientiousness, and high neuroticism). Rentfrow et al. further found that crime rate, social involvement, religiosity, health behavior, and mortality were also geographically clustered in the United States in predictable ways (e.g., crime rate was higher in states lower in self-reported agreeableness).

Besides geographical clustering, physical distance plays an important role in predicting friendships, social networks, and various political behaviors. For instance, the sociologist James Bossard (1932) showed that people tend to marry someone who lives close. He examined marriage license applications submitted in the first 5 months of 1931 in the city of Philadelphia and immediate surrounding cities and found that roughly one third of the couples had lived within five blocks of each other. This finding has been replicated in New Haven, CT; Columbus, OH; New York City; and Duluth, MN, from the 1930s to the early 1950s (see Marches & Turbeville, 1953). Festinger, Schachter, and Back (1950) famously demonstrated that physical and functional distance predicted friendship formation and the transmission of rumors. More recently, using a geographic information system, Dyck and Gimpel (2005) found that the distance to the voting site predicted voter turnout. Currie, DellaVigna, Moretti, and Pathania (2009) recently found that



**Fig. 2.** Historical precedents of socioecological psychology.

ninth graders who went to a school with a fast food restaurant nearby were significantly more likely to be obese than were those who went to a school without a fast food restaurant nearby. Likewise, Rozin, Kabnick, Pete, Fischler, and Shields (2003) wondered why the French are less obese than Americans, even though the French indulge in calorific foods (e.g., wine, chocolate) as often as Americans do. Instead of focusing on personal factors (e.g., self-control, exercise habits, values), these researchers examined the ecology of eating, assessing food portion sizes in grocery stores, restaurants, and cook-books. They found that, as predicted, the portion sizes were substantially smaller in France than in the United States. These findings indicate that mating, voting, and eating behaviors are the function not only of conscious will or personal attributes but also of physical and social environments, such as nearby singles, voting sites, and restaurants.

**Summary**

As these examples show, the socioecological approach acknowledges the power of chronic, objective macroenvironments on mind and behavior and empirically tests these relations. As shown in Figure 1, the studies described in the preceding text explore the effects of socioecological factors (economic systems, political systems, religious systems,

climates, geographies) on thought, behavior, and culture, and in many cases, they also explore the effects of human thought, behavior, and culture on those ecological factors. In our view, these studies illustrate the value of the sociological imagination, or the ability to look beyond person factors (e.g., traits, values) and microsituational factors (e.g., cognitive overload, mood), in psychological theorizing and research and point to the need to mainstream such an approach.

In summary, although cultural and evolutionary psychologies have brought back a macroperspective to psychological science during the last two decades, and there are notable similarities between the socioecological perspective and cultural and evolutionary psychologies, there are also important distinctions. First, whereas cultural psychology has typically paid scant attention to objective macroenvironments, socioecological psychology gives critical attention to such environments. Second, whereas evolutionary psychology has concentrated on distal influences of ancestral environments in shaping species-wide characteristics, socioecological psychology focuses on the influence of the present or recent environments in shaping human behavior. Finally, whereas psychology has built bridges to neighboring fields such as anthropology (cultural psychology), political science (political psychology), evolutionary biology (evolutionary psychology), and economics (behavioral economics), a fruitful use of the sociological

perspective is missing (see Oishi, Kesebir, & Snyder, 2009, for a historical survey). Socioecological psychology provides this missing link to sociology. In the next section, we look at the historical precedents of socioecological psychology and delineate why this approach has played a limited role in mainstream psychological science for the last 40 years and why the time is ripe for its resurgence.

## Historical Precedents of Socioecological Psychology

Within various areas of psychology, there have been several historical waves of ecological movements (see Fig. 2). James Watson's (1913) behaviorism is one of the first psychological movements that emphasized the relation between (micro)environment and behavioral responses in psychology. While attacking psychology's emphasis on unobservable mental processes, Watson declared "The psychology which I should attempt to build up would take as a starting point, first, the observable fact that organisms, man and animal alike, do adjust themselves to their environment by means of hereditary and habit equipments" (p. 167). Whereas Watson's view of animals and humans was passive in that they adjust themselves to the environment, Tolman and Brunswik (1935) famously advocated the active role that animals and humans play in selecting certain objects as "local representatives" or "cues" of the environment. Egon Brunswik (1943, 1955) lamented the lack of attention to the representativeness of experimental stimuli in psychological research and argued for a representative research design that starts with an environmental analysis of cues in everyday living conditions. Brunswik contended that preparation of experimental materials must involve considerations about how representative these stimuli or situations might be in the real world (i.e., how ecologically valid experimental materials might be). Henry Murray's (1938) theory of personality was also inherently ecological in that it included two types of environments as key elicitors of human needs: *alpha press* (objective characteristics of the environment) and *beta press* (perceived characteristics of the environment).

Although these pioneers deemed environment critical in psychological theorizing, Kurt Lewin (1936, 1939) most clearly made ecology central with his famous field theory and concept of life space. Lewin presented the formula that behavior (B) is a function (F) of both person (P) and environment (E),  $B = F(P, E)$ . The far less-known sequence of this formula is  $F(P, E) = F(\text{life space})$ : Behavior is the function of life space, the interdependent field of which the person and psychological environments are part. For instance, Lewin (1939) explained adolescents' identity crises in terms of an "instability" in life space that arises from changes in their bodies, their position in the group, the type of groups to which they belong, relationships with their parents, and future expectations. He maintained that the major challenges of psychology and sociology are to provide the common language and concepts that capture various levels of phenomena, from the psychological (intelligence, goals) to the physical (the size of physical areas) to the cultural

(values). Lewin argued that life space is the common concept that unites various levels of social behaviors (e.g., a conflict in a play group and a conflict between nations) and small face-to-face groups are the units of analysis that could be best used in laboratory experiments on life space.

After Lewin's untimely death in 1947, his students—Leon Festinger, Stanley Schachter, Dorwin Cartwright, John Thibaut, Harold Kelley, and Morton Deutsch, among others—continued the traditions of field theory and group dynamics through the late 1950s (e.g., Deutsch, 1954; Festinger et al., 1950; Thibaut & Kelley, 1959). However, Festinger later moved on to projects that focused increasingly on intrapsychic phenomena such as social comparison (Festinger, 1954) and cognitive dissonance (Festinger & Carlsmith, 1959), and then, he eventually moved to research areas outside of group dynamics and field theory (e.g., vision) in the late 1960s (Gazzaniga, 2006). Schachter also moved on to investigate the role of physiological states on need for affiliation (Schachter, 1959), emotion (Schachter & Singer, 1962), and obesity (Schachter, 1968). Festinger, Schachter, and their respective students conducted a series of elegant laboratory experiments and shaped the course of social psychology from the 1960s on (e.g., Darley & Latané, 1968). As experimentation in laboratory settings became the standard method for social psychology, the original emphasis on interdependent life space and group dynamics advocated by Lewin was largely lost by the late 1960s in mainstream social psychology (Steiner, 1974). With the winds of cognitive revolution in the 1960s and the emphasis on laboratory experiments, American social psychology in the 1970s and 1980s became a discipline that mainly investigated the cognitive processes of social stimuli (Taylor, 1998).

Reviewing the history of social psychology, Lewin's former student Morton Deutsch (1999) attributed the current emphasis on intrapsychic phenomena in social psychology to an individualistic American ethos, stating "I think this image has influenced much of American social psychology, which has been too focused on what goes on in the isolated head of the subject, with a corresponding neglect of the social reality in which the subject is participating" (p. 29). Similarly, Leonard Berkowitz (1999), another prominent social psychologist, observed that for most psychologists, research done at other labs replaced life outside the lab as a source of inspiration for research hypotheses. Rozin (2001, 2006) also criticized social psychologists' obsession with tight experimental control and theory-driven research and urged them to use "informed curiosity" and investigate the major daily concerns of ordinary people (e.g., money, food, work).

Of course, the emphasis on tight experimental control and theory-driven research has not completely eliminated empirical research relevant to important social issues. Several prominent psychologists devoted their research careers on how to improve race relations (see Crocker, Major, & Steele, 1998; Dovidio, Glick, & Rudman, 2005; S. Fiske, 1998; Pettigrew, 2004; Sears, Sidanius, & Bobo, 2000, for reviews). Similarly, many leading psychologists investigated gender inequality in hopes of reducing it (e.g., Deaux & LaFrance, 1998; Eagly, Beall,

& Sternberg, 2004; Glick & Fiske, 2001; Wood & Eagly, 2002). Moreover, some prominent psychologists conducted research to create a peaceful society (Deutch & Coleman, 2000), to increase proenvironment behaviors (Bator & Cialdini, 2000; Cialdini, Reno, & Kallgren, 1990; Gonzales, Aronson, & Costanzo, 1988), to decrease HIV (Stone, Aronson, Crain, & Winslow, 1994), and to increase volunteerism (Omoto & Snyder, 2002). Thus, the remnant of Lewinian action research can be seen in these programs of research. As Cialdini (2009) mourned, however, in the last 20 years most prestigious journals in social psychology, such as *Journal of Personality and Social Psychology* and *Journal of Experimental Social Psychology*, have increasingly given preference to controlled laboratory experiments over less controlled field studies that directly address important social issues. As a result, social psychologists working on environmental protection, peace, volunteerism, and other important social issues have become marginalized (see Oishi, Kesebir, & Snyder, 2009, for a review).

As most students of Lewin became laboratory-based social psychologists, one of them, Roger Barker, went in the opposite direction of the field and started an ecological approach to personality in the late 1940s. Barker and his colleagues maintained that human mind and behavior could be best understood in the context of their naturally occurring environments or habitats. Barker and colleagues assessed individuals' behavior as it occurred in their daily contexts (e.g., Barker & Wright, 1951). Whereas Lewin (1936, 1939) emphasized psychological environments (i.e., perceived environments) and advocated the use of the experimental method, Barker and the ecological-assessment movement emphasized objective environments and a nonexperimental approach. Barker (1968) later published a book titled *Ecological Psychology* and promoted a detailed descriptive study of human behavior in natural contexts. Although Barker's ecological psychology itself did not proliferate, several new assessment techniques of personality and emotion (e.g., experience sampling and event sampling methods) were developed in the late 1970s and became prominent data-collection methods in personality and emotion research (Csikszentmihalyi, Larson, & Prescott, 1977; Diener, Larsen, & Emmons, 1984; Wheeler & Nezlek, 1977) and continue to thrive today (Mehl, Gosling, & Pennebaker, 2006; Mehl, Vazire, Ramirez-Esparza, Slatcher, & Pennebaker, 2007).

As the ecological approach weakened in social psychology in the 1960s and 1970s, several versions of ecological movements emerged in various areas of psychology. Urie Bronfenbrenner (1977) famously spearheaded the ecological movement in developmental psychology. Like Lewin, Bronfenbrenner emphasized the interdependence of human behavior and encouraged researchers to experimentally investigate the highly nested nature of human development (e.g., an infant with a mother who is married to X and lives in neighborhood Y, in the historical period Z). Bronfenbrenner's influence has been enduring, as developmental psychologists have explored the effects of family and school environments on children's cognition, emotion, and behavior (e.g., Eccles et al., 1993; Lamb, Hwang, Ketterlinus, & Fracasso, 1999; Lillard,

2005). For instance, Dmitrieva, Steinberg, and Belsky (2007) showed that (a) individual children's child-care history (the degree of nonparental child care at an earlier age) predicts their own aggressive behaviors and school preparedness later, and (b) the percentage of children who had nonparental child care at an early age in the same classroom also predicted their peers' aggressive behaviors and academic achievement. This study nicely demonstrates the contextual effects of classroom composition on children's development and shows that individual children's development is the function not only of their own personal predisposition and history but also of their macroenvironments. Recently, Greenfield (2009) presented a theory of social changes and human development that explicitly incorporates the role of social ecology (e.g., rural–urban, simple–complex, low–high technology) in creating particular learning environments for human development.

Soon after Bronfenbrenner (1977) published his article on the ecological approach to human development, James Gibson (1979) proposed an ecological approach to research on perception that was radically different from the traditional model, focusing on the concept of affordance. Gibson argued that the perception of an object is determined in part by the functional affordances of the object (e.g., "sitability"). In this approach, perception was conceptualized in terms of a dynamic mutual constitution between the perceiver and the object (e.g., the perception of a chair depends on perceived sitability of a chair, which in turn depends on how tired the perceiver is; see Heft, 2001, for the history of Gibsonian psychology; see Proffitt, 2006, for the latest developments in Gibsonian research). In cognitive psychology, Ulric Neisser (e.g., Neisser, 1982) advocated the ecological movement in the spirit of Barker's (1968) ecological assessment. Neisser cautioned against the exclusive reliance of cognitive psychologists (memory researchers in particular) on artificial experimental materials as well as their obsession with internal validity at the expense of external validity. Neisser encouraged cognitive psychologists to go into the field to study memory and other cognitive processes in naturally occurring environments (e.g., earthquake victims' memory of the earthquake). In cross-cultural psychology, John Berry has formulated perhaps one of the most comprehensive ecological models of social behaviors to date (e.g., Berry, 1979), specifying the associations among economic activities (e.g., agriculture vs. hunter–gatherer), settlement patterns (e.g., nomadic), and psychological differentiation (e.g., field independence–dependence).

Whereas the efforts of Bronfenbrenner (1977), Gibson (1979), Neisser (1982), and Berry (1979) were to bring about paradigm shifts within each of their established areas in psychology, other psychologists dissatisfied with experimentally oriented psychology also sought to establish entirely new areas of psychology, such as community psychology (Kelly, 1971) and environmental psychology (Craik, 1973; Stokols, 1978).

Since its inception, community psychology has taken an ecological perspective, in that it attempts to understand individuals' behaviors in the context of their community settings (Kelly, 1971; Trickett, 2009). The explicit goal of community

psychology has been social change, namely, changes to aspects of the environments that are not conducive to the fulfillment of individuals' potential. Successful preventive intervention programs initiated by community psychologists demonstrate this goal (e.g., sexual assault interventions and victim advocate programs; see Reppucci, Woolard, & Fried, 1999).

Because environmental psychology is the closest in its ambition to the socioecological psychology that we are proposing, we review its history and research topics in detail in the following text to highlight some similarities and differences. In the first *Annual Review of Psychology* article, titled "Environmental Psychology," Craik (1973) defined it as the scientific study of the interplay between human behavior and environmental settings. Craik's review covered the following topics: environmental assessment (descriptive properties of environmental settings), environmental perception (impressions of environmental settings), cognitive representation of large-scale environments (e.g., image of city), personality and the environment (e.g., privacy preference, individual differences in reaction to tornadoes), environmental decision making (e.g., how a decision about the location of water reservoirs is made), public attitudes toward the environment (e.g., attitudes toward Earth Day), the quality of sensory environments (smell, noise), human spatial behavior (e.g., personal space, territoriality), behavioral effects of density (e.g., crowding), behavioral factors in residential environments (e.g., the use of the home environment), behavioral factors in institutional environments (e.g., the floor plans of psychiatric wards), outdoor recreation and responses to landscape (e.g., appreciation of scenery), and Barker's ecological psychology of behavioral settings (e.g., small school vs. large school).

In the 1970s, environmental psychology was expanding rapidly. In an *Annual Review of Psychology* article 5 years after Craik's (1973) article, Stokols (1978) stated, "During the past 5 years, no fewer than ten textbooks and six edited readers were published, all of which pertain to the interface between human behavior and the sociophysical environment" (p. 253). One change from Craik's review was that Stokols explicitly acknowledged the social activism side of environmental psychology, namely, its goal to provide solutions to community-environment problems (e.g., air pollution, crowding). Stokols (1995) later summarized the development of environmental psychology in terms of new concepts for studying the relation between environment and behaviors. He noted Craik's (1976) response tendencies toward urban, natural, and other kinds of physical settings; Moos' (1976) social climate; Proshansky's (1978) place identity; and Altman's (1975) human spatial behavior based on privacy, territoriality, personal space, and crowding as major conceptual developments in environmental psychology. Stokols deemed research on energy consumption and conservation as a major research accomplishment of environmental psychology.

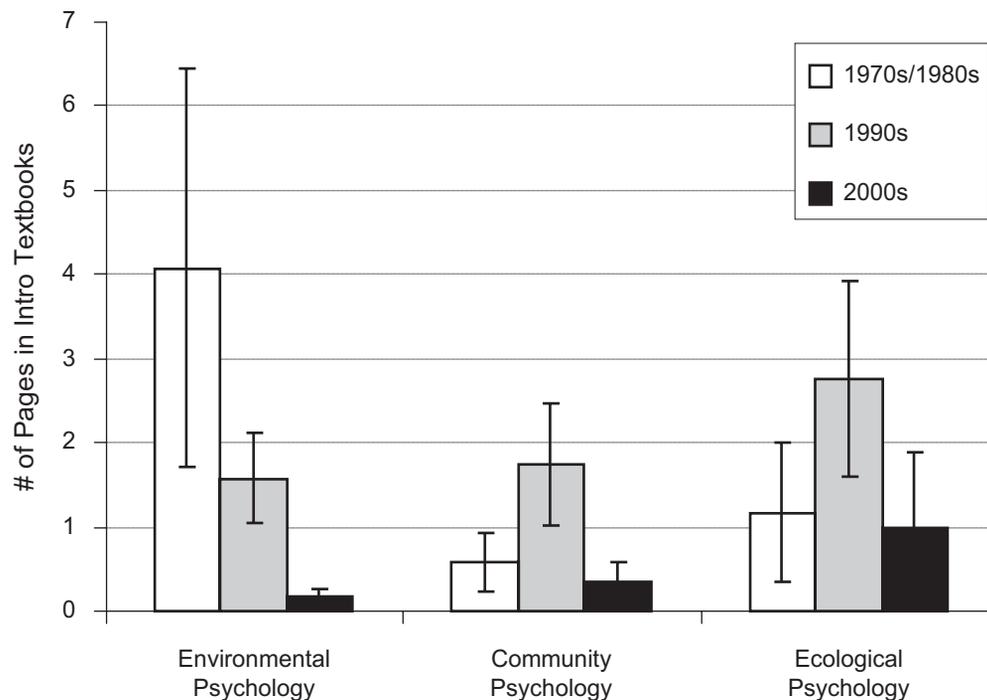
Enthusiasm toward environmental psychology was evident in the introductory textbooks published in the 1970s and 1980s. For instance, Wheeler, Goodale, and Deese (1975) devoted one entire chapter (29 pages) to environmental

psychology, covering such topics as personal space and crowding. A popular introductory textbook written by eminent psychologists Richard Bootzin, Gordon Bower, Robert Zajonc, and Elizabeth Hall (1986) listed environmental psychology and health psychology as emerging specialties at that time (p. 15). Among the 12 introductory textbooks published in the 1970s and 1980s that we were able to collect, the term *environmental psychology* or *environmental psychologist* was mentioned on average on 4.08 pages (or 0.68% of the total textbook pages; see Fig. 3).

Despite early enthusiasm and active scholarship from the late 1960s on (Stokols, 1995; Stokols & Altman, 1987; Stokols, Misra, Runnerstrom, & Hinn, 2009), the insights, methods, and findings of environmental psychology were largely neglected by mainstream psychology, as evidenced by the lack of references to their endeavors in introductory psychology textbooks in the 1990s and the 2000s. Indeed, among the 12 introductory textbooks published in the 1990s that we were able to collect, the term *environmental psychology* or *environmental psychologist* appeared only on 1.58 pages (0.24% of the total pages). Among the 17 introductory textbooks published since 2000, the terms *environmental psychology* and *environmental psychologist* nearly disappeared, averaging only 0.18 pages (or 0.03% of the total pages) per textbook. The decrease in use of *environmental psychology* and *environmental psychologist* in textbooks is significant, as the year of publication is negatively associated with the number of pages including these terms ( $r = -.33, p < .05$ ) as well as with percentage of total pages in the textbooks ( $r = -.33, p < .05$ ).

We also analyzed the presence of community psychology or community psychologist and ecological psychology, ecological approach, or ecological perspective in these 41 introductory textbooks. Entries of community psychology or community psychologist averaged 0.58 pages per textbook in the 1970s and 1980s, 1.75 in the 1990s, and 0.35 in the 2000s (no historical change,  $r = -.05, ns$ ). Entries of ecological psychology, ecological approach, or ecological perspective were also rare: 1.17 in the 1970s and 1980s, 2.75 in the 1990s, and 1.00 in the 2000s (no historical change,  $r = -.08, ns$ ). In short, introductory textbooks published in the 2000s rarely mentioned environmental, community, or ecological psychology (see Fig. 3).

Whereas environmental, community, and ecological psychology are virtually invisible in introductory textbooks today, health psychology (recognized as another emerging specialty by Bootzin et al., 1986) is quite visible. Indeed, several new textbooks by high-profile psychologists have one entire chapter devoted to health psychology (e.g., Gazzaniga, Heatherton, & Halpern, 2010; Kassin, 2006; King, 2010; Kowalski & Westen, 2005; Schacter, Gilbert, & Wegner, 2009). Likewise, cultural psychology and evolutionary psychology are highly visible in these new textbooks. For instance, the terms *culture* and *cultural psychology* appear on more than 60 pages of Gazzaniga et al. (2010) and Kowalski and Westen (2005), whereas the terms *evolution* and *evolutionary psychology* appear on more than 50 pages in Schacter et al. (2009). The relative neglect of environmental and community psychology might be due to



**Fig. 3.** Coverage of the terms *environmental psychology*, *community psychology*, and *ecological psychology* in introductory psychology textbooks published in the 1970s–1980s, 1990s, and 2000s (the average number of pages per textbook). Error bars indicate standard errors. There were 12 books from the 1970s–1980s, 12 books from the 1990s, and 17 books from the 2000s that we were able to obtain via the University of Virginia’s libraries and the personal collections of two colleagues who have taught introductory psychology courses for an extended period of time (John Bonvillian for more than 30 years and Jon Haidt for more than 10 years). These textbooks are marked with asterisks in the References.

an erroneous perception that they relied heavily on qualitative methods and emphasized applied over theoretical issues and to mainstream empirical psychologists’ general distrust of such methods and applied orientation (Rozin, 2007; see Stokols, 2006, for an argument that such perceptions were wrong).

The relative lack of references in introductory textbooks does not, however, mean that environmental psychology had no impact on subsequent research in psychological science, in particular personality research. For instance, one early theme in environmental psychology, personality and the environment (Craik, 1973), has seen a great revival in personality research. Gosling, Ko, Mannarelli, and Morris (2002) analyzed dorm rooms and offices and reliably discerned owners’ personality. Similarly, Roger Barker’s ecological approach was recently revived by Mehl et al. (2006), who analyzed ambient sounds in participants’ immediate environments and predicted participants’ personality on the basis of the environmental cues. As stated earlier, Rentfrow et al. (2008) also found geographical clustering of personality within the United States, demonstrating the link between macroenvironments (e.g., U.S. states) and personality.

Like the emergence of environmental psychology and community psychology in the late 1960s and early 1970s, the emergence of cultural psychology in the late 1980s and early 1990s can be seen as intellectual dissidence to the increasingly

intrapsychic and cognitive focus of American psychology in the 1970s and 1980s (Markus & Kitayama, 2003; Shweder, 1991). It has become one of the major theoretical approaches in social and developmental psychology since the mid-1990s and has brought a perspective on macroenvironments back to the discipline. The success of cultural psychology can be observed in the extraordinarily high citation rate of the seminal *Psychological Review* article by Markus and Kitayama (1991). According to the ISI Web of Knowledge (<http://isiwebofknowledge.com>; data obtained on April 24, 2009), this article has been cited 2,660 times—compare this to Bronfenbrenner’s (1977) *American Psychologist* article, cited only 765 times! It is not an exaggeration to say that cultural psychology has revolutionized psychological science during the last 20 years. The intellectual vitality of cultural psychology is evident in the numerous references made to it in many introductory psychology textbooks (e.g., Myers, 2007) as well as in the handbook edited by Kitayama and Cohen (2007).

Although cultural psychology has contributed to reviving interest in the role of chronic macrolevel situations to social psychology, empirical examinations of socioecological factors have been surprisingly limited (see Haidt, Koller, & Dias, 1993; Miyamoto, Nisbett, & Masuda, 2006; Nisbett & Cohen, 1996; Uskul et al., 2008, for exceptions). This limitation might be in part due to cultural psychology’s emphasis on

interpretation, meanings, and symbols on one hand and the field's general lack of connection to sociology on the other (see Schooler, 1996, for the latter point). Following the anthropological tradition, many cultural psychologists have been committed to "thick" descriptions, interpretations, and cultural products that highlight the uniqueness of each cultural tradition (see Kim & Markus, 1999; Markus, Uchida, Omeregic, Townsend, & Kitayama, 2006; Tsai, Louie, Chen, & Uchida, 2007, for excellent examples). Consequently, cultural psychologists are typically hesitant to generalize their findings to other social, cultural, and historical contexts (see, however, Atran, Medin, & Ross, 2005; Heine & Norenzayan, 2006; and Norenzayan & Heine, 2005, for instructive approaches to identifying psychological universals). The sociologist Toshio Yamagishi's (1998) critique of cultural psychology is instructive in this context. Yamagishi has noted the possibility that observed cross-cultural differences could be due to differences in social structures and systems (e.g., stability of employment, social hierarchies) and that it is imperative to investigate whether cultural variations could be explained by socioecological variables. Without such an endeavor, it remains ambiguous as to where and how observed cross-cultural differences emerged. Like Yamagishi (1998), we believe that the socioecological perspective will add to interpretative cultural psychology by shedding light on the ecological conditions that can give rise to particular meaning systems.

To this end, note that the maverick anthropologist Robert Edgerton (1971) in the 1960s and 1970s had done exactly what Yamagishi (1998) promoted. His culture and ecology project at the University of California, Los Angeles, investigated four East African peoples: the Hehe of Tanzania, the Kamba of Eastern Kenya, the Pokot of Kenya, and the Sebel of Uganda. Ingeniously, Robert Edgerton, Walter Goldschmidt, and their colleagues (Edgerton, 1971; Edgerton & Kennedy, 1982; Goldschmidt, 1966) also sampled agricultural and pastoral subgroups from each culture, which allowed them to test the effects of culture versus ecology on various domains of life. For instance, Edgerton found that the Pokot (both farmers and pastoralists) preferred cattle over land, whereas all three other cultures preferred land over cattle. Interestingly, however, in all four cultures, farmers preferred having more friends over having more kinsmen, whereas pastoralists preferred having more kinsmen over having more friends. Thus, the preference for land versus cattle seems to be the product of culture, whereas the preference for friends versus kinsmen seems to be the product of economic environments. An investigation like this helps clarify what is a cultural product and what is not.

A more recent socioecological approach can be seen by Yamagishi, Hashimoto, and Schug (2008). These researchers hypothesized that Kim and Markus's (1999) famous finding that North Americans prefer uniqueness more than East Asians prefer uniqueness came from social structures of openness versus closeness. These authors reasoned that differences between North Americans and East Asians come from differences in the adaptive (default) strategies in their respective societies. In a

closed society (such as Japan, where a sharp distinction is drawn between ingroup and outgroup members), the cost of being regarded negatively by others is higher than in an open society (such as the United States, where there are more opportunities to move to another group). Thus, the authors expected that (a) the Japanese default strategy would be to minimize potential offense to others (i.e., choose a majority color pen, in case others want to pick a unique pen) but (b) when there was not concern for offending others (i.e., when participants were the last person to pick the pen), Japanese and Americans should not differ. This result is indeed what they found. Yamagishi and colleagues' findings provide an insight into the possible socioecological origins of observed cultural differences between Americans and East Asians.

Similarly, Oishi, Lun, and Sherman (2007) attempted to explain previously observed cultural differences in the self from a socioecological perspective. Cultural psychologists have shown that many Americans use personality traits to define who they are, whereas many East Asians describe themselves in a more context-specific fashion using their roles and situations (see Markus & Kitayama, 1991; Triandis, 1989, for reviews). From a socioecological perspective, Oishi et al. hypothesized that these cultural differences came from societal differences in residential mobility. Indeed, about 50% of the American population moved between 1995 and 2000 (E. Schmitt, 2001), whereas only 28.1% of the Japanese population moved during the same 5-year period (Statistics Bureau & Statistics Center of Japan, 2001). When someone lives in the same community for an extended period of time, his or her self-definition is more likely to be based on collective attributes such as role, status, and group membership than when he or she changes residence and thereby changes the community in which he or she lives. When someone lives in a community for an extended period of time, he or she will also likely develop stable relationships with other members, establish and occupy a unique role or position in the community, and consequently come to view himself or herself in terms of this role or position. When someone changes residences (and thus changes groups) often, his or her role also changes, and he or she is unlikely to develop a self-perception based on that role. In such a mobile condition, the person is more likely to base his or her self-definition on relatively permanent attributes, such as personality traits and skills.

If the previously observed cross-national differences in centrality of self-concepts are indeed due to societal differences in residential mobility, there should be parallel individual differences within nations, such that frequent movers deem their personal selves to be central, whereas nonmovers deem their collective selves to be central. As an initial test of this hypothesis, Oishi, Lun, and Sherman (2007, Study 1) assessed how many times American college students had moved before attending college, asked them to describe themselves using personality traits and to list important group affiliations, and finally asked them to rate the centrality of each personality trait and group affiliation in defining who they are. As predicted, students who had moved often while growing up viewed their

personal selves to be more central than their collective selves to their self-definition, relative to students who had not moved as much. In the same study, it was also found that frequent movers were less likely to have important group affiliations than were nonmovers. In other words, it appears that frequent movers do not invest as much in group life, and consequently their groups do not provide such a stable source of self-definition.

It should be noted, however, that the socioecological studies summarized in the preceding text were all correlational. Thus, the causal effect of social ecology on preference for uniqueness and self-concept, for instance, is undetermined. It is possible that a particular cultural ethos (American individualism) causes high residential mobility, as opposed to high residential mobility causing American individualism.

To this end, socioecological studies must be supplemented by experimental studies. We describe one such example. First, Oishi, Rothman, et al. (2007, Studies 1 and 2) found that residentially mobile communities do not show as much procommunity support as residentially stable communities. Specifically, the proportion of residents who purchased a "Critical Habitat" license plate in the Minneapolis and St. Paul metropolitan areas (owners pay an extra registration fee to obtain this license, and the money is used to maintain natural habitats in Minnesota) was smaller in zip-code areas with high residential mobility than in zip-code areas with low residential mobility, controlling for median income and percentage of political donations to Democrat versus Republican parties (Study 1). In Study 2, it was found that Major League Baseball's home game attendance fluctuated depending on the record of the team in residentially mobile cities (e.g., Miami, Denver, Houston), whereas it did not fluctuate in residentially stable cities (e.g., Pittsburgh, Philadelphia). Namely, the support for the home team was more conditional (more fair-weather fans) in residentially mobile cities than in stable cities. To test the causal effects of residential mobility on procommunity action, Oishi, Rothman, et al. (2007) manipulated the residential mobility of a microcommunity (or group) in Study 3. In the stable community, participants completed four different group tasks in the same groupings, whereas in the mobile community, participants completed four different group tasks in four different groupings. In the final task, a confederate played the clueless participant, and the real participants' behaviors were videotaped. As predicted, members of residentially mobile communities were less likely to help the confederate than were those of residentially stable communities. Residential mobility has also been successfully manipulated using a mindset manipulation, showing that residential mobility has a causal effect on preferences for type of friends (Lun, Oishi, & Tenney, 2009) and gratitude (Koo & Oishi, 2009).

These findings show that a socioecological perspective provides concrete, testable hypotheses regarding individual, cultural, and regional differences (see also Chen, Chiu, & Chan, 2009; Kitayama, Ishii, Imada, Takemura, & Ramaswamy, 2006; Oishi, Ishii, & Lun, 2009; Oishi, Rothman, et al., 2007; Sato, Yuki, Takemura, Schug, & Oishi, 2008). Furthermore,

researchers can manipulate a key socioecological variable to test its causal role in a phenomenon of interest.

The socioecological approach, then, is likely to advance cultural psychology in that it (a) helps dissect the complexity of cultural differences into more concrete and empirically tractable components (e.g., institutional norms and residential mobility) and (b) helps distill the role of culture (e.g., ideas, practices, and artifacts) from the role played by environmental factors. In other words, if observed cross-societal differences in the target phenomenon (e.g., uniqueness preference, self-concept) cannot be attributed to socioecological factors such as economic activities, wealth, and residential mobility, then researchers can be more confident that the observed cross-societal differences are likely due to cultural differences in the symbols, rituals, and meaning systems developed over time in the respective societies. In addition, it is possible that particular social ecologies are likely to give rise to particular cultural patterns (akin to Tooby & Cosmides's, 1992, notion of evoked culture), and the socioecological perspective might give clues about the origins of those patterns. The socioecological perspective also allows researchers to delineate dynamic relations between societal structures and cultural practices and meaning systems over time (see Greenfield, 2009, for more details). Finally, it will allow researchers to predict within-society changes over time (e.g., if residential mobility increases over time, the cultural ethos of society X might shift toward Y). Please note that the present proposal is not to replace the current form of cultural psychology but rather to add a sociologically oriented approach to its anthropological focus, to broaden the already substantial intellectual basis of cultural psychology (see also Markus & Hamedani, 2007).

In summary, several waves of ecological movements with distinct emphases have occurred in the history of psychological science (see Fig. 2). Lewin's (1936, 1939) field theory and Bronfenbrenner's (1977) experimental ecology of human development promoted the scientific study of the highly interdependent and nested nature of human mind and behavior, using experimental methods. Barker's (1968) and Neisser's (1982) ecological psychology emphasized the assessment of personality and cognition in naturally occurring contexts. Gibson's (1979) ecological psychology of perception centered on the concept of affordance, or the mutual interdependence of object and perceiver. Berry's (1979) ecological model of social behavior aimed to explicate the links between physical features of macroenvironments and social behaviors and cognitions. Environmental and community psychologies promoted social activism through basic and applied research on ecological factors and social outcomes. Most recently, the rise of cultural psychology has helped psychologists to pay attention to cultural factors in basic psychological processes, but note that less attention has been paid to socioecological factors per se.

## Summary, Future Directions, and Conclusion

In this article, we have presented a socioecological approach to psychology that explores the mutual constitution between psyche and social ecology, such as economic, political, and

religious systems and geography, climates, and other environmental and social structural factors. We have described the historical precedents of socioecological psychology, such as Lewin's (1939) field theory and Bronfenbrenner's (1977) ecological approach to human development (see Fig. 2). Most directly relevant to the current approach, environmental psychology gained momentum in the 1970s and 1980s by investigating the various ways in which physical environments affect human behaviors (e.g., personal space, crowding; see Stokols, 1978, 1995, for reviews). Despite this active scholarship from an interdisciplinary perspective, environmental psychology has not gained the level of recognition that it deserves in mainstream psychology.

In the 1990s, with the emergence of cultural psychology, the attention to a chronic situational factor (culture) was partly regained (A.P. Fiske, Kitayama, Markus, & Nisbett, 1998; Markus & Kitayama, 1991; Shweder, 1991). Cultural psychology has made a significant contribution to the scientific study of mind and behavior by broadening the intellectual scope of psychological theorizing and research. However, cultural psychologists have typically focused on culture-specific meanings, interpretations, and practices rather than on socioecological factors such as residential mobility (Oishi, Rothman, et al., 2007), dominant economic activities (Henrich et al., 2005), and political systems (Inglehart & Welzel, 2005). Socioecological psychology explicitly tests the relations between such factors and mind and behavior. Like cultural psychology, evolutionary psychology has made a substantial contribution to psychological science in the last two decades by encouraging psychologists to take distal macroenvironments seriously. In part thanks to their long-term macroperspective, evolutionary psychologists were able to generate the most daring theories and hypotheses in psychology in the last 20 years (e.g., Dunbar, 1993; Fincher et al., 2008; Thornhill & Gangestad, 1999). On the basis of ancestral living conditions and survival strategies, evolutionary theorists have identified several important species-wide characteristics of human beings, such as the origin of language (Dunbar, 1993), the nature of happiness (Buss, 2000), interpersonal attraction (Thornhill & Gangestad, 1999), and altruism (Hamilton, 1964; Trivers, 1971). The sociological imagination that the socioecological approach promotes is similar to the theoretical audacity of evolutionary psychology. One major difference is that whereas evolutionary psychologists get inspiration from ancestral environments, socioecological psychologists get inspiration from current environments as well as past environments.

### **Benefits of the Socioecological Perspective**

The socioecological perspective offers several benefits to psychology. First, the socioecological approach encourages psychologists to be theoretically daring and macrominded. In various subfields of psychological science, methodological rigor has become such a primary concern in prestigious journals that psychologists have started working on the variables that could be easily manipulated rather than on the variables

of real-world relevance. For instance, the theoretical orientation of social psychology, which was supposed to be concerned with socioecological factors (Lewin, 1939), has become increasingly intrapsychic, within a subject's head (e.g., cognitive representation, construct accessibility) or heart (e.g., emotion, motivation), during the last 40 years (see Cartwright, 1979; Greenwood, 2004; Oishi, Kesebir, & Snyder, 2009; Rozin, 2001, 2007; E.R. Smith & Semin, 2004, for this critique). Similarly, despite Neisser's (1982) and Gibson's (1979) cry for an ecological perspective in cognitive psychology, mainstream cognitive psychology has not become more ecological in the last 30 years. Instead, it has moved its research endeavors increasingly inside the head and body (the brain and other biological mechanisms; see Willingham, 2007, for review). There is no question that cognitive neuroscience has produced an exciting body of research on visual and auditory processes (e.g., Engel, 2008; Zatorre, Chen, & Penhune, 2007) and unconscious processes governing various judgments and decision making (Glimcher, Camerer, Fehr, & Poldrack, 2009). Segall, Campbell, and Herskovits's (1963) classic work on cultural differences in visual illusions and Uskul et al.'s (2008) recent work among Turkish farmers, fishermen, and herders, however, demonstrate that there are important ecological factors that affect chronic perceptual and cognitive processes. Likewise, despite Bronfenbrenner's (1977) famous call for an ecological approach, most developmental psychologists have remained focused on the most immediate environments for children's developments, namely, mother–infant relationships (e.g., Beebe et al., 2007). Of course, universal, almost innate abilities do exist (e.g., basic geometric knowledge; Dehaene, Izard, Pica, & Spelke, 2006). However, macroenvironments surrounding mother–infant relationships vary considerably across societies and times (DeLoache & Gottlieb, 2000). As articulated by Greenfield (2009), therefore, although some developmental processes are no doubt species-wide and universal, specific developmental pathways are likely to differ, depending on mother–infant relationships, family environments, informal and formal learning environments, and larger societal environments. In a variety of subareas of psychological science, then, the socioecological approach will help psychologists pay attention to people's larger social contexts and physical, objective environments; broaden research attention to activities in daily chronic situations; and encourage psychologists to exercise sociological imagination (e.g., Asch, 1952; Brunswik, 1955; Cohen, Vandello, Puente, & Rantilla, 1999; Lewin, 1939; Sherif, 1954; Tolman, 1952; Wood & Eagly, 2002; see Rozin, 2006, for a similar point).

Second, the socioecological approach presents a complementary role in cultural and evolutionary psychologies. The long-term macroperspective of evolutionary psychology (e.g., ancestral conditions and survival strategies) provides a unique insight into such fundamental issues as human nature (e.g., Dunbar, 1993) and gender differences (e.g., Buss, 1989). For instance, this perspective explains why human beings have such a strong need to form relationships (Baumeister & Leary, 1995) and why the greatest strength of humans is other humans

(Berscheid, 2003). The evolutionary perspective alone is, however, less likely to provide specific predictions regarding people's adaptations to specific contexts. In other words, although the evolutionary perspective makes it clear why humans cannot live without other humans, it does not provide specific predictions regarding the type of alliance formation that is advantageous in one ecological situation over another. For example, does a larger friendship network size have more of an adaptive advantage in one type of society than in another? To answer this question, psychologists must have an ecological perspective. Let us bring in a parallel example in biology: Like evolutionary psychologists, evolutionary biologists tend to provide a large framework for animals' species-wide long-term adaptations. In contrast, ecological biologists examine animals' (shorter term) adaptations to specific natural habitats. For instance, the evolutionary perspective helps understand why singing abilities are so important for male sparrows (e.g., protecting territory, attracting mates), whereas ecological biologists elucidate how habitat-specific ecological factors provide different signals for singing behaviors (e.g., photoperiod, precipitation, temperature; Moore, Wingfield, & Brenowitz, 2004).

Just as ecological biologists provide hypotheses regarding context-specific, short-term adaptations, the socioecological perspective complements the evolutionary perspective that is mainly concerned with long-term species-wide adaptations. For example, Kesebir, Oishi, Lun, and Roth (2010) tested the advantage of broad, weak social ties versus narrow, but deep social ties in different societal contexts using agent-based modeling (E.R. Smith & Conrey, 2007). As predicted, individuals with broad, weak ties were better off than those with deep, narrow ties, especially in a residentially mobile context. Specifically, the likelihood of receiving help in a minor crisis was greater among individuals who had broad, weak ties than among those who had deep, narrow ties. Interestingly, however, the one condition in the simulation in which individuals with deep ties had an advantage over those with weak but broad ties was when residential mobility was low and when there was a high likelihood of major crises (in which the cost of helping was large). Whereas the evolutionary perspective explains why alliance formation is important for the survival of humans, the socioecological perspective helps explain why one type of alliance formation is more advantageous in one ecological context than in another (see Gangestad, Haselton, & Buss, 2006, for the combination of evolutionary and ecological perspectives on gender differences in mate preferences). Thus, the socioecological perspective provides a complementary role to the evolutionary perspective.

Likewise, the socioecological perspective presents a complementary role to cultural psychology. The main challenge of cultural psychology has been the difficulty of pinpointing the driving forces of various observed cultural differences (Cohen, 2001; Yamagishi, 1998). The socioecological model delineated in this article presents one approach to tackle this challenge by examining the role of concrete socioecological factors. Obviously, not all cultural differences could be reduced to any single social structural factor (Cohen, 2001, 2007).

However, by examining concrete, measurable socioecological factors, researchers will be able to distinguish the unique role of culture (practices, symbols, meanings, and ideas) from the role of social ecology in the phenomenon under study (see Edgerton, 1971, for an example of this approach).

In addition, it is important to investigate the ways in which socioecological factors give rise to or evoke particular patterns of cultural ideas, images, practices, and representations and how those cultural factors may in turn affect socioecological factors (e.g., how cultural differences may lead to different residential mobility rates in different societies). These investigations will then enrich and broaden the scope of cultural psychology and psychological theorizing and research in general. Cultural psychology and socioecological psychology complement each other because cultural psychology brings anthropology to psychology, highlighting the unique cultural ethos of a given society, whereas socioecological psychology brings sociology to psychology, identifying a parsimonious explanation that could then be applied to predict variations across societies and changes within a society across time. Moreover, the socioecological approach to psychology offers testable hypotheses not only concerning cultural differences but also concerning individual and regional differences in the phenomenon under study (e.g., Oishi, Lun, & Sherman, 2007; Oishi, Rothman, et al., 2007; Uskul et al., 2008). Finally, the socioecological perspective helps bridge cultural and evolutionary perspectives, as exemplified by Fincher et al.'s (2008) work on the link between cultural values and historical pathogen prevalence and Gangestad et al.'s (2006) research on ecological moderators of gender differences in mate selection. Overall, the socioecological perspective provides psychologists with a bigger intellectual toolbox with which they can investigate their interests at multiple levels.

Third, because of the epistemic preference given to basic research over applied research in psychological science (Allport, 1940; Rozin, 2007), environmental, community, and applied social psychologies have been unfairly marginalized in psychological science. The topics covered by environmental, community, and applied social psychologists (e.g., environmental hazards, volunteerism), however, are highly relevant to how individuals function in the real world. As noted earlier, the socioecological approach to psychology attempts to bring together applied and basic research traditions to provide a single conceptual framework for understanding human mind and behavior. A reemergence of the socioecological approach in psychological science would entail reintegrating environmental, community, and applied social psychologies into mainstream psychological science, benefiting all subfields and theoretical and empirical perspectives in psychological science.

### **How to Apply the Socioecological Approach?**

In this section, we describe three ways psychology researchers can begin to incorporate the socioecological approach in their work.

1. By training, most psychologists have a proclivity to think of immediate causes of mind and behavior, either in terms of person factors (e.g., traits, motivation, values) or micro-situational factors (e.g., primed concept, mood, expectations). If you are interested in helping behavior, for instance, you can conduct a literature search. You will surely find that many proximal factors are important, ranging from the number of persons present at the time (Darley & Latané, 1968), to mood (Isen & Levin, 1972), to time urgency (Darley & Batson, 1973). Socioecological thinking could start from here (the typical first step of psychological research). Instead of thinking of another within-person or micro-situational factor or boundary conditions for these well-established effects, you can think of the factors that lead to these well-established proximal factors. Like Cunningham (1979), you might think of a distal factor that affects one's mood, such as weather, and test whether weather has an effect on helping behavior (see also Anderson's, 1989, 2001, work on temperature and aggression). Like Levine, Martinez, Brase, and Sorenson (1994), you might think of population density of the city as a distal factor affecting the number of people present at any given emergency situation and test whether population density is associated with the rate of helping behavior. Like Levine and Norenzayan (1999), you might think of the pace of life (e.g., walking speed) as a distal factor affecting sense of time urgency, and test whether one would observe higher rates of helping behaviors in a society with a slower pace of life than in a society with a faster pace of life. In short, one concrete way to incorporate the socioecological perspective in one's program of research is to think of macrofactors that might affect the proximal factors already established as having an effect on the target outcome.
2. Alternatively, you might start with an observation of cultural or regional differences, identify the objective, distal factors that lead to these differences and then investigate the proximal factors through which the distal factors affect behavior. For instance, you might read a news report that shows that lost items are more likely to be returned to the owners in Urbana–Champaign, Illinois, than in Chicago, Illinois. Let us assume that you find this report fascinating. Then, you could start listing possible dimensions in which Urbana–Champaign is different from Chicago (e.g., rural vs. urban, college town vs. not a college town). If you hypothesize that this finding is due to rural–urban differences, then you should collect data from more urban and rural areas throughout the United States and test whether your hypothesis is correct (e.g., Levine et al., 1994). If your hypothesis is confirmed, then you may think of psychological dimensions in which urban and rural areas are different. Milgram (1970), for instance, hypothesized that urban–rural differences in helping behaviors are due to the amount of information overload. This hypothesis could then be tested in a laboratory experiment. One advantage of this top-down socioecological approach is

that it can give rise to theories regarding helping behaviors that are distinct from typical psychological theorizing about helping behaviors. In summary, the second approach to incorporate the socioecological perspective is to observe cultural or regional differences in a real-life context, followed by systematic sociological, archival data analyses and psychological experiments (e.g., Nisbett & Cohen, 1996).

3. Finally, the third way to incorporate a socioecological perspective is, as advocated by Rozin (2001), to start with informed curiosity. For instance, Rozin and colleagues (2003) wondered why French are less obese than Americans despite the fact that the French seem to eat lots of chocolate and are less obsessed with caloric intake. In the obesity literature, one might find various sources of obesity, ranging from genetic factors (heritability) to exercise habits to self-control. The genius of Rozin et al.'s approach was that they looked outside the psychological box and toward data in the social environment, examining food portion sizes in grocery stores and restaurants. In a similar line of thinking, one might hypothesize that the average distance French citizens walk is longer than the average distance Americans walk and further hypothesize that there are more places to which the French can walk than to which Americans can walk.

In summary, we suggest three concrete ways researchers can begin incorporating socioecological thinking into their research. First, you can think of distal factors (e.g., weather, population density, pace of life) that are likely to affect the well-established proximal factors (e.g., mood, time urgency) in your topic of interest. In this regard, it is important to note that vast sociological–ecological data are available for free (e.g., the Central Intelligence Agency's world fact book and the United Nations' economic and social statistics for basic demographic and socioeconomic information; the World Health Organization's Global Health Atlas for longevity and other health related statistics; World Values Survey for various attitudinal data; American National Election Survey for political behaviors; and U.S. Census Data for various socioeconomic data at the state, city, county, zip code, and block levels of analyses). Second, you can begin with observations of cultural, regional, or geographic differences in some psychological phenomenon and see whether the same differences replicate with other contrasts of certain socioecological factors (climate, rural–urban, etc.). Third, you can use informed curiosity to generate hypotheses and research questions about cultural or regional differences and look to features of the physical or social environment (rather than just beliefs, symbols, and cultural products) for the cause.

## Conclusion

Socioecological psychology explores how the physical and social environment (from climate to economic systems) affects mind and behavior and how mind and behavior in turn help

create features of the physical and social environment. The socioecological approach encourages psychologists to engage in audacious theorizing and multilevel investigation of phenomena relevant to people's everyday concerns. In 1939, Lewin stated that the progress of psychology would depend on overcoming the following challenges:

1. The integrating of vast areas of very divergent facts and aspects: The development of a scientific language (concepts) which is able to treat cultural, historical, sociological, psychological, and physical facts on a common ground
2. The treating of these facts on the basis of their interdependence
3. The handling of both historical and systematical problems
4. The handling of problems related to groups as well as to individuals
5. The handling of all "sizes" of objects or patterns (problems of a nation and its situation, as well as of a play group of three children and their momentary struggle)
6. Problems of "atmosphere" (such as friendliness, pressure, etc.)
7. Find a way to bring the large-size patterns into a framework small enough for the technical possibilities of experimentation. (p. 870)

The challenge posed by Lewin 70 years ago is strangely familiar, as it is one that psychologists and other behavioral and social scientists are facing now—namely, the challenge of integrating multiple levels of phenomena and analyses (e.g., Cacioppo, Berntson, Sheridan, & McClintock, 2000; Taylor, 2004). When used creatively, the socioecological approach to psychology can address most if not all of Lewin's points to fulfill his grand vision of psychology.

As Figure 2 illustrates, the socioecological perspective was almost completely lost in psychology in the 1950s and 1960s. It was partially regained by environmental and community psychology in the 1970s and cultural and evolutionary psychology in the 1990s. However, sustained attention to current chronic macroenvironments has not been widely recognized in psychological science. With methodological sophistication and a wider recognition that larger, societal contexts are important, the time is ripe for fully recovering the socioecological perspective and incorporating it in psychological theorizing and research.

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### References

- Adams, G., & Markus, H.R. (2004). Toward a conception of culture suitable for a social psychology of culture. In M. Schaller & C.S. Crandall (Eds.), *The psychological foundations of culture* (pp. 335–360). Mahwah, NJ: Erlbaum.
- Allport, G.W. (1940). The psychologist's frame of reference. *Psychological Bulletin*, *37*, 1–28.
- Almond, G.A., & Verba, S. (1963). *The civic culture*. Boston: Little, Brown.
- Altman, I. (1975). *Environment and social behavior: Privacy, personal space, territory, and crowding*. Monterey, CA: Brooks/Cole.
- Anderson, C.A. (1989). Temperature and aggression: Ubiquitous effects of heat on occurrence of human violence. *Psychological Bulletin*, *106*, 74–96.
- Anderson, C.A. (2001). Heat and violence. *Current Directions in Psychological Science*, *10*, 33–38.
- Anderson, C.A., Anderson, K.B., Dorr, N., DeNeve, K.M., & Flanagan, M. (2000). Temperature and aggression. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 32, pp. 63–133). New York: Academic Press.
- Asch, S.E. (1952). *Social psychology*. New York: Prentice Hall.
- \*Atkinson, R.L., Atkinson, R.C., & Hilgard, E.R. (1983). *Introduction to psychology* (8th ed.). New York: Harcourt Brace Jovanovich.
- \*Atkinson, R.L., Atkinson, R.C., Smith, E.E., & Bem, D.J. (1990). *Introduction to psychology* (10th ed.). Orlando, FL: Harcourt Brace Jovanovich.
- Atran, S., Medin, D.L., & Ross, N.O. (2005). The cultural mind: Environmental decision making and cultural modeling within and across populations. *Psychological Review*, *112*, 744–776.
- Barker, R.C. (1968). *Ecological psychology: Concepts and methods for studying the environment of human behavior*. Stanford, CA: Stanford University Press.
- Barker, R.C., & Wright, H.F. (1951). *One boy's day*. New York: Harper & Row.
- Bator, R.J., & Cialdini, R.B. (2000). The application of persuasion theory to the development of effective pro-environmental public service announcements. *Journal of Social Issues*, *56*, 527–541.
- Baumeister, R.F., & Leary, M.R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529.
- Beebe, B., Jaffe, J., Buck, K., Chen, H., Cohen, P., Blatt, S., et al. (2007). Six-week postpartum maternal self-criticism and dependency and 4-month mother–infant self- and interactive contingencies. *Developmental Psychology*, *43*, 1360–1376.
- \*Benjamin, L.T., Jr., Hopkins, J.R., & Nation, J.R. (1994). *Psychology* (3rd ed.). New York: MacMillan College Publishing.
- Berkowitz, L. (1999). On the changes in U.S. social psychology: Some speculations. In A. Rodrigues & R.V. Levine (Eds.), *Reflections on 100 years of experimental social psychology* (pp. 158–169). New York: Basic Books.
- \*Bernstein, D.A., Clarke-Stewart, A., Roy, E.J., Srull, T.K., & Wickens, C.D. (1994). *Psychology* (3rd ed.). Boston: Houghton Mifflin.
- \*Bernstein, D.A., Clarke-Stewart, A., Roy, E.J., & Wickens, C.D. (1997). *Psychology* (4th ed.). Boston: Houghton Mifflin.

- Berry, J.W. (1979). A cultural ecology of social behavior. *Advances in Experimental Social Psychology*, 12, 177–206.
- Berscheid, E. (2003). The human's greatest strength: Other humans. In L.G. Aspinwall & U.M. Staudinger (Eds.), *A psychology of human strengths: Fundamental questions and future directions for a positive psychology* (pp. 37–47). Washington, DC: American Psychological Association.
- \*Bootzin, R.R., Bower, G.H., Zajonc, R.B., & Hall, E. (1986). *Psychology today: An introduction* (6th ed.). New York: McGraw-Hill.
- Bossard, J.H.S. (1932). Residential propinquity as a factor in marriage selection. *American Journal of Sociology*, 38, 219–224.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32, 513–531.
- \*Brown, C.C. & Lazerson, A. (1975). *Psychology today: An introduction* (3rd ed.). New York: Random House.
- Bruner, J.S. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.
- Brunswik, E. (1943). Organismic achievement and environmental probability. *Psychological Review*, 50, 255–272.
- Brunswik, E. (1955). Representative design and probabilistic theory in a functional psychology. *Psychological Review*, 62, 193–217.
- Buss, D.M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12, 1–49.
- Buss, D.M. (1995). Evolutionary psychology: A new paradigm for psychological science. *Psychological Inquiry*, 6, 1–30.
- Buss, D.M. (2000). The evolution of happiness. *American Psychologist*, 55, 15–23.
- Buss, D.M. (2004). *Evolutionary psychology: The new science of the mind* (2nd ed.). Boston: Allyn & Bacon.
- Cacioppo, J.T., Berntson, G.G., Sheridan, J.F., & McClintock, M.K. (2000). Multilevel integrative analyses of human behavior: Social neuroscience and the complementing nature of social and biological approaches. *Psychological Bulletin*, 126, 829–843.
- Caporael, L.R. (1997). The evolution of truly social cognition: The core configurations model. *Personality and Social Psychology Bulletin*, 4, 276–298.
- Caporael, L.R. (2001). Evolutionary psychology: Toward a unifying theory and a hybrid science. *Annual Review of Psychology*, 52, 607–628.
- \*Carlson, N.R. (1993). *Psychology: The science of behavior* (4th ed.). Needham Heights, MA: Allyn & Bacon.
- \*Carson, N.R., Miller, H., Heth, C.D., Donahoe, J.W., & Martin, G.N. (2010). *Psychology: The science of behavior* (7th ed.). Boston: Allyn & Bacon.
- Cartwright, D. (1979). Contemporary social psychology in historical perspective. *Social Psychology Quarterly*, 42, 82–93.
- Chen, J., Chiu, C.-Y., & Chan, F.S.-F. (2009). The cultural effects of job mobility and the belief in a fixed world: Evidence from performance forecast. *Journal of Personality and Social Psychology*, 97, 851–865.
- Choi, I., Nisbett, R.E., & Norenzayan, A. (1999). Causal attribution across cultures: Variation and universality. *Psychological Bulletin*, 125, 47–63.
- Cialdini, R.B. (2009). We have to break up. *Perspectives on Psychological Science*, 4, 5–6.
- Cialdini, R.B., Reno, R.R., & Kallgren, C.A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58, 1015–1026.
- Cohen, D. (2001). Cultural variation: Considerations and implications. *Psychological Bulletin*, 127, 451–471.
- Cohen, D. (2007). Methods in cultural psychology. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 196–236). New York: Guilford.
- Cohen, D., Vandello, J., Puente, S., & Rantilla, A. (1999). “When you call me that, smile!” How norms for politeness, interaction styles, and aggression work together in Southern culture. *Social Psychology Quarterly*, 62, 257–275.
- Craik, K.H. (1973). Environmental psychology. *Annual Review of Psychology*, 24, 403–422.
- Craik, K.H. (1976). The personality research paradigm in environmental psychology. In S. Wapner, S. Cohen & B. Kaplan (Eds.), *Experiencing the environment*. (pp. 55–80). New York: Plenum Press.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In S. Fiske, D. Gilbert & G. Lindzey (Eds.), *Handbook of social psychology*. (Vol. 2, pp. 504–553). Boston: McGraw-Hill.
- Csikszentmihalyi, M., Larson, R., & Prescott, S. (1977). The ecology of adolescent activities and experiences. *Journal of Youth and Adolescence*, 6, 281–294.
- Cunningham, M.R. (1979). Weather, mood, and helping behavior: Quasi experiments with the sunshine Samaritan. *Journal of Personality and Social Psychology*, 37, 1947–1956.
- Currie, J., DellaVigna, S., Moretti, E., & Pathania, V. (2009). *The effect of fast food restaurants on obesity* (NBER Working Paper No. w14721). Cambridge, MA: National Bureau of Economic Research.
- Daly, M., & Wilson, M. (1988). Evolutionary social psychology and family homicide. *Science*, 242, 519–524.
- Darley, J.M., & Batson, C.D. (1973). “From Jerusalem to Jericho”: A study of situational and dispositional variables in helping behavior. *Journal of Personality and Social Psychology*, 27, 100–108.
- \*Darley, J.M., Glucksberg, S., & Kinchla, R.A. (1988). *Psychology* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Darley, J.M., & Latané, B. (1968). Bystander intervention in emergencies: Diffusion of responsibility. *Journal of Personality and Social Psychology*, 8, 377–382.
- \*Davis, S.F., & Palladino, J.J. (2005). *Psychology* (4th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.
- Deaux, K., & LaFrance, M. (1998). Gender. In S. Fiske, D. Gilbert & G. Lindzey (Eds.), *Handbook of social psychology*. (Vol. 2, pp. 788–827). Boston: McGraw-Hill.
- Dehaene, S., Izard, V., Pica, P., & Spelke, E. (2006). Core knowledge of geometry in an Amazonian indigene group. *Science*, 311, 381–384.
- DeLoache, J.S., & Gottlieb, A. (2000). *A world of babies: Imagined child care manuals from other cultures*. Cambridge, MA: Cambridge University Press.

- Denissen, J.J.A., Butalid, L., Penke, L., & van Aken, M.A.G. (2008). The effects of weather on daily mood: A multilevel approach. *Emotion, 8*, 662–667.
- Deutsch, M. (1954). Field theory in social psychology. In G. Lindzey (Ed.), *Handbook of social psychology* (Vol. 1, pp. 181–222). Reading, MA: Addison-Wesley.
- Deutsch, M. (1999). A personal perspective on the development of social psychology in the twentieth century. In A. Rodrigues & R.V. Levine (Eds.), *Reflections on 100 years of experimental social psychology* (pp. 1–34). New York: Basic Books.
- Deutsch, M., & Coleman, P.T. (2000). *The handbook of conflict resolution*. San Francisco: Jossey-Bass.
- Diamond, J. (1997). *Guns, germs, and steel*. New York: Norton.
- Diener, E., Diener, M., & Diener, C. (1995). Factors predicting the subjective well-being of nations. *Journal of Personality and Social Psychology, 69*, 851–864.
- Diener, E., Larsen, R.J., & Emmons, R.A. (1984). Person  $\times$  Situation interactions: Choice of situations and congruence response models. *Journal of Personality and Social Psychology, 47*, 580–592.
- Dmitrieva, J., Steinberg, L., & Belsky, J. (2007). Child-care history, classroom composition, and children's functioning in kindergarten. *Psychological Science, 18*, 1032–1039.
- Dovidio, J.F., Glick, P.G., & Rudman, L. (2005). *On the nature of prejudice: Fifty years after Allport*. Malden, MA: Blackwell.
- Dunbar, R.I.M. (1993). Coevolution of neocortical size, group size, and language in humans. *Behavioral and Brain Sciences, 16*, 681–735.
- Durkheim, E. (1897/1951). *Suicide: A study in sociology* (J.A. Spaulding & G. Simpson, Trans.). New York: The Free Press.
- Dyck, J.J., & Gimpel, J.G. (2005). Distance, turnout, and the convenience of voting. *Social Science Quarterly, 86*, 531–548.
- Eagly, A.H., Beall, A., & Sternberg, R.S. (2004). *The psychology of gender* (2nd ed). New York: Guilford Press.
- Eccles, J.S., Midgley, C., Wigfield, A., Buchanan, C.M., Reuman, D., Flanagan, C., & Mac Iver, D. (1993). Development during adolescence: The impact of stage-environment fit on adolescents' experiences in schools and families. *American Psychologist, 48*, 90–101.
- Edgerton, R.B. (1971). *The individual in cultural adaptation: A study of four East African peoples*. Berkeley: University of California Press.
- Edgerton, R.B., & Kennedy, J.G. (1982). *Culture and ecology: Eclectic perspectives*. Washington, DC: American Psychological Association.
- Engel, S.A. (2008). Computational cognitive neuroscience of the visual system. *Current Directions in Psychological Science, 17*, 68–72.
- Falomir-Pichastor, J.M., Staerklé, C, Dupuiset, M., & Butera, F. (2005). Democracy justifies the means: Political group structure moderates the perceived legitimacy of intergroup aggression. *Personality and Social Psychology Bulletin, 31*, 1683–1695.
- Farberow, N.L., & Reynolds, D.K. (1971). Dyadic crisis suicides in mental hospital patients. *Journal of Abnormal Psychology, 78*, 77–85.
- \*Feist, G.J., & Rosenberg, E.L. (2010). *Psychology: Making connections*. New York: McGraw-Hill.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*, 117–140.
- Festinger, L., & Carlsmith, J.M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and Social Psychology, 58*, 203–211.
- Festinger, L., Schachter, S., & Back, K. (1950). *Social pressures in informal groups: A study of human factors in housing*. Stanford, CA: Stanford University Press.
- Fincher, C.L., Thornhill, R., Murray, D., & Schaller, M. (2008). Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism. *Proceedings of the Royal Society B: Biological Science, 275*, 1279–1285.
- Fiske, A.P., Kitayama, S., Markus, H.R., & Nisbett, R.E. (1998). The cultural matrix of social psychology. In D. Gilbert, S. Fiske & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 2, pp. 915–981). Boston: McGraw-Hill.
- Fiske, S. (1998). Intergroup relations. In D.T. Gilbert, S.T. Fiske & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 2, pp. 554–594). Boston: McGraw-Hill.
- Gangestad, S.W., Haselton, M.G., & Buss, D.M. (2006). Evolutionary foundations of cultural variation: Evoked culture and mate preferences. *Psychological Inquiry, 17*, 75–95.
- Gangestad, S.W., & Simpson, J.A. (2000). On the evolutionary psychology of human mating: Trade-offs and strategic pluralism. *Behavioral and Brain Sciences, 23*, 573–587.
- Gangestad, S.W., & Simpson, J.A. (Eds.). (2007). *The evolution of mind: Fundamental questions and controversies*. New York: Guilford.
- Gazzaniga, M.S. (2006). Leon Festinger: Lunch with Leon. *Perspectives on Psychological Science, 1*, 88–94.
- \*Gazzaniga, M.S., Heatherton, T., & Halpern, D. (2010). *Psychological science* (3rd ed.). New York: W.W. Norton.
- Georgas, J., van de Vijver, F.J.R., & Berry, J.W. (2004). The ecocultural framework, ecosocial indices, and psychological variables in cross-cultural research. *Journal of Cross-Cultural Psychology, 35*, 74–96.
- \*Gerrig, R.J., & Zimbardo, P.G. (2002). *Psychology and life* (16th ed.). Boston: Allyn & Bacon.
- Gibson, J.J. (1979). *The ecological approach to visual perception*. Hillsdale, NJ: Erlbaum.
- \*Gleitman, H., Fridlund, A.J., & Reisberg, D. (2004). *Psychology* (6th ed.). New York: W.W. Norton.
- \*Gleitman, H., Reisberg, D., & Gross, J. (2007). *Psychology* (7th ed.). New York: W.W. Norton.
- Glick, P., & Fiske, S.T. (2001). Ambivalent sexism. In M.P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 33, pp. 115–188). Thousand Oaks, CA: Academic Press.
- Glimcher, P.W., Camerer, C.F., Fehr, E., & Poldrack, R.A. (Eds.). (2009). *Neuroeconomics: Decision making and the brain*. London: Academic Press.
- Goldschmidt, W.R. (1966). *Comparative functionalism*. Berkeley and Los Angeles: University of California Press.
- Gonzales, M.H., Aronson, E., & Costanzo, M.A. (1988). Using social cognition and persuasion to promote energy conservation: A quasi-experiment. *Journal of Applied Social Psychology, 18*, 1049–1066.
- Gosling, S.D., Ko, S.J., Mannarelli, T., & Morris, M.E. (2002). A room with a cue: Personality judgments based on offices and bedrooms. *Journal of Personality and Social Psychology, 82*, 379–398.

- \*Gray, P. (1994). *Psychology* (2nd ed.). New York: Worth.
- \*Gray, P. (2002). *Psychology* (4th ed.). New York: Worth.
- \*Gray, P. (2007). *Psychology* (5th ed.). New York: Worth.
- Greenfield, P.M. (2009). Linking social change and developmental change: Shifting pathways of human development. *Developmental Psychology, 45*, 401–418.
- Greenwood, J.D. (2004). *The disappearance of the social in American social psychology*. New York: Cambridge University Press.
- Haidt, J., Koller, S., & Dias, M. (1993). Affect, culture, and morality, or is it wrong to eat your dog? *Journal of Personality and Social Psychology, 65*, 613–628.
- Halbwachs, M. (1930/1978). *The causes of suicide* (H. Goldblatt, Trans.). London: Routledge.
- Hamilton, W.D. (1964). The genetical evolution of social behavior, Parts 1 and 2. *Journal of Theoretical Biology, 7*, 1–52.
- Hartig, T., Catalano, R., & Ong, M. (2007). Cold summer weather, constrained restoration, and the use of antidepressants in Sweden. *Journal of Environmental Psychology, 27*, 107–116.
- Heft, H. (2001). *Ecological psychology in context: James Gibson, Roger Barker, and the legacy of William James's radical empiricism*. Mahwah, NJ: Erlbaum.
- Heine, S.J., & Lehman, D.R. (1997). Culture, dissonance, and self-affirmation. *Personality and Social Psychology Bulletin, 23*, 389–400.
- Heine, S.J., & Norenzayan, A. (2006). Towards a psychological science for a cultural species. *Perspectives on Psychological Science, 1*, 251–269.
- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., et al. (2005). Economic man in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. *Behavioral and Brain Sciences, 28*, 795–855.
- \*Hilgard, E.R., Atkinson, R.C., & Atkinson, R.L. (1971). *Introduction to psychology* (5th ed.). New York: Harcourt Brace Jovanovich.
- Inglehart, R. (1997). *Modernization and post-modernization: Cultural, economic, and political change in 43 societies*. Princeton, NJ: Princeton University Press.
- Inglehart, R., & Baker, W.E. (2000). Modernization, cultural change, and the persistence of traditional values. *American Sociological Review, 65*, 19–51.
- Inglehart, R., & Welzel, C. (2005). *Modernization, cultural change and democracy: The human development sequence*. New York: Cambridge University Press.
- Isen, A.M., & Levin, P.F. (1972). The effect of mood on feeling good on helping: Cookies and kindness. *Journal of Personality and Social Psychology, 21*, 384–388.
- \*Kassin, S.M. (2006). *Psychology in modules*. Upper Saddle River, NJ: Pearson/Prentice Hall.
- Kelly, J.G. (1971). Qualities for the community psychologist. *American Psychologist, 26*, 897–903.
- Kesebir, S., Oishi, S., Lun, J., & Roth, D.P. (2010). *The optimal friendship strategy in mobile versus stable society*. Manuscript in preparation, University of Virginia, Charlottesville.
- Kim, H., & Markus, H.R. (1999). Deviance or uniqueness, harmony or conformity? A cultural analysis. *Journal of Personality and Social Psychology, 77*, 785–800.
- \*King, L.A. (2010). *Experience psychology*. New York: McGraw-Hill.
- Kitayama, S., & Cohen, D. (2007). *Handbook of cultural psychology*. New York: Guilford.
- Kitayama, S., Ishii, K., Imada, T., Takemura, K., & Ramaswamy, J. (2006). Voluntary settlement and the spirit of independence: Evidence from Japan's "Northern Frontier." *Journal of Personality and Social Psychology, 91*, 369–384.
- Koo, M., & Oishi, S. (2009). *Residential mobility, friendships, and gratitude*. Manuscript in preparation, University of Virginia, Charlottesville.
- \*Kowalski, R., & Westen, D. (2005). *Psychology* (4th ed.). Hoboken, NJ: Wiley.
- Lamb, M.E., Hwang, C.P., Ketterlinus, R.D., & Fracasso, M.P. (1999). Parent-child relationships: Development in the context of the family. In M.H. Bornstein & M.E. Lamb (Eds.), *Developmental psychology: An advanced textbook* (4th ed., pp. 411–450). Mahwah, NJ: Erlbaum.
- Lester, D., Beck, A.T., & Mitchell, B. (1979). Extrapolation from attempted suicides to completed suicides: A test. *Journal of Abnormal Psychology, 88*, 78–80.
- Levine, R.V., Martinez, T.S., Brase, G., & Sorenson, K. (1994). Helping in 36 U.S. cities. *Journal of Personality and Social Psychology, 67*, 69–82.
- Levine, R.V., & Norenzayan, A. (1999). The pace of life in 31 countries. *Journal of Cross-Cultural Psychology, 30*, 178–205.
- Lewin, K. (1936). *Principles of topological psychology*. New York: McGraw-Hill.
- Lewin, K. (1939). Field theory and experiment in social psychology: Concepts and methods. *American Journal of Sociology, 44*, 868–896.
- Lewin, K., & Lippitt, R. (1938). An experimental approach to the study of autocracy and democracy: A preliminary note. *Sociometry, 1*, 292–300.
- Lillard, A.S. (2005). *Montessori: The science behind the genius*. New York: Oxford University Press.
- \*Lindzey, G., Hall, C., & Thompson, R. (1975). *Psychology*. New York: Worth.
- Lun, J., Oishi, S., & Tenney, E. (2009). *Residential mobility and friendship preferences*. Manuscript in preparation, University of Virginia, Charlottesville.
- Marches, J.R., & Turbeville, G. (1953). The effect of residential proximity on marriage selection. *American Journal of Sociology, 58*, 592–595.
- Markus, H.R., & Hamedani, M.G. (2007). Sociocultural psychology: The dynamic interdependence among self systems and social systems. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 3–39). New York: Guilford.
- Markus, H.R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.
- Markus, H.R., & Kitayama, S. (2003). Culture, self, and the reality of the social. *Psychological Inquiry, 14*, 277–283.
- Markus, H.R., Uchida, Y., Omeregic, H., Townsend, S.S.M., & Kitayama, S. (2006). Going for the gold: Models of agency in Japanese and American contexts. *Psychological Science, 17*, 103–112.
- McClelland, D.C. (1961). *The achieving society*. New York: D. Van Nostrand.

- Mehl, M.R., Gosling, S.D., & Pennebaker, J.W. (2006). Personality in its natural habitat: Manifestations and implicit folk theories of personality in daily life. *Journal of Personality and Social Psychology, 90*, 862–877.
- Mehl, M.R., Vazire, S., Ramirez-Esparza, N., Slatcher, R.B., & Pennebaker, J.W. (2007). Are women really more talkative than men? *Science, 317*, 82.
- Mesquita, B., & Frijda, N.H. (1992). Cultural variations in emotions: A review. *Psychological Bulletin, 112*, 179–204.
- Milgram, S. (1970). The experience of living in cities. *Science, 167*, 1461–1468.
- Mill, J.S. (1979). *Utilitarianism*. Indianapolis, IN: Hackett. (Original work published 1879)
- Mills, C.W. (2000). *The sociological imagination*. New York: Oxford University Press. (Original work published 1959)
- \*Mischel, W., & Mischel, H.N. (1977). *Essentials of psychology*. New York: Random House.
- Miyamoto, Y., Nisbett, R.E., & Masuda, T. (2006). Culture and the physical environment. *Psychological Science, 17*, 113–119.
- Moore, I.T., Wingfield, J.C., & Brenowitz, E.A. (2004). Plasticity of the avian song control system in response to localized environmental cues in an equatorial songbird. *Journal of Neuroscience, 24*, 10182–10185.
- Moos, R.H. (1976). *The human context: Environmental determinants of behavior*. New York: Wiley.
- \*Morris, C.G. (1975). *Introduction to psychology*. Englewood Cliffs, NJ: Prentice-Hall.
- \*Morris, C.G., & Maisto, A.A. (2005). *Psychology: An introduction*. Upper Saddle River, NJ: Pearson/Prentice Hall.
- Murray, H.A. (1938). *Explorations in personality*. Oxford, England: Oxford University Press.
- \*Mussen, P., Rosenzweig, M.R., Aronson, E., Elkind, D., Feshbach, S., Geiwitz, J., et al. (1977). *Psychology: An introduction* (2nd ed.). Lexington, MA: D.C. Heath.
- \*Myers, D.G. (1996). *Exploring psychology*. New York: Worth.
- Myers, D.G. (2007). *Psychology* (8th ed.). New York: Worth.
- Neisser, U. (1982). *Memory observed: remembering in natural contexts*. San Francisco: Freeman.
- Nisbett, R.E. (2003). *The geography of thought: How Asians and Westerners think differently... and why*. New York: Free Press.
- Nisbett, R.E., & Cohen, D. (1996). *The culture of honor: The psychology of violence in the South*. Denver, CO: Westview Press.
- Norenzayan, A., & Heine, S.J. (2005). Psychological universals: What are they and how can we know? *Psychological Bulletin, 131*, 763–784.
- Oishi, S. (2010). The psychology of residential mobility: Implications for the self, social relationships, and well-being. *Perspectives on Psychological Science, 5*, 5–21.
- Oishi, S., Ishii, K., & Lun, J. (2009). Residential mobility and conditionality of group identification. *Journal of Experimental Social Psychology, 45*, 913–919.
- Oishi, S., Kesebir, S., & Snyder, B.H. (2009). Sociology: A lost connection in social psychology. *Personality and Social Psychology Review, 13*, 334–353.
- Oishi, S., Lun, J., & Sherman, G.D. (2007). Residential mobility, self-concept, and positive affect in social interactions. *Journal of Personality and Social Psychology, 93*, 131–141.
- Oishi, S., Rothman, A. J., Snyder, M., Su, J., Zehm, K., Hertel, A.W., et al. (2007). The socioecological model of procommunity action: The benefits of residential stability. *Journal of Personality and Social Psychology, 93*, 831–844.
- Omoto, A.M., & Snyder, M. (2002). Considerations of community: The context and process of volunteerism. *American Behavioral Scientist, 45*, 846–867.
- \*Passer, M.W., & Smith, R.E. (2004). *Psychology: The science of mind and behavior* (2nd ed.). New York: McGraw-Hill.
- \*Passer, M.W., & Smith, R.E. (2007). *Psychology: The science of mind and behavior* (3rd ed.). New York: McGraw-Hill.
- \*Pastorino, E., & Doyle-Portillo, S. (2009). *What is psychology?* (2nd ed). Belmont, CA: Thomson Wadsworth.
- Persky, J. (1995). Retrospectives: The ethology of *homo economicus*. *Journal of Economic Perspectives, 9*, 221–231.
- Pettigrew, T.F. (2004). Justice deferred: A half century after *Brown v. Board of Education*. *American Psychologist, 59*, 521–529.
- Pinker, S. (2002). *The blank slate: The modern denial of human nature*. New York: Viking.
- Plaut, V.C., Markus, H.R., & Lachman, M.E. (2002). Place matters: Consensual features and regional variation in American well-being and self. *Journal of Personality and Social Psychology, 83*, 160–184.
- Proffitt, D.R. (2006). Embodied perception and the economy of action. *Perspectives on Psychological Science, 1*, 110–122.
- Proshansky, H.M. (1978). The city and self identity. *Environment and Behavior, 10*, 147–169.
- Rentfrow, P.J., Gosling, S.D., & Potter, J. (2008). A theory of the emergence, persistence, and expression of geographic variation in psychological characteristics. *Perspectives on Psychological Science, 3*, 339–369.
- Reppucci, N.D., Woolard, J.L., & Fried, C.S. (1999). Social, community, and preventive interventions. *Annual Review of Psychology, 50*, 387–418.
- Rozin, P. (2001). Social psychology and science: Some lessons from Solomon Asch. *Personality and Social Psychology Review, 5*, 2–14.
- Rozin, P. (2003). Five potential principles for understanding cultural differences in relation to individual differences. *Journal of Research in Personality, 37*, 273–283.
- Rozin, P. (2006). Domain denigration and process preference in academic psychology. *Perspectives on Psychological Science, 1*, 365–376.
- Rozin, P. (2007). Exploring the landscape of modern academic psychology: Finding and filling the holes. *American Psychologist, 62*, 754–766.
- Rozin, P., Kabnick, K., Pete, E., Fischler, C., & Shields, C. (2003). The ecology of eating: Smaller portion sizes in France than in the United States help explain the French paradox. *Psychological Science, 14*, 450–454.
- \*Ruch, J.C. (1984). *Psychology: The personal science*. Belmont, CA: Wadsworth.

- \*Ruch, F.L., & Zimbardo, P.G. (1971). *Psychology and life* (8th ed.). Glenview, IL: Scott, Foresman.
- Sato, K., Yuki, M., Takemura, K., Schug, J., & Oishi, S. (2008, February). "The openness" of society determines the relationship between self-esteem and subjective well-being (1): A cross-societal comparison. Poster presented at the annual meeting of the Society for Personality and Social Psychology, Albuquerque, NM.
- Schachter, S. (1959). *The psychology of affiliation*. Stanford, CA: Stanford University Press.
- Schachter, S. (1968). Obesity and eating. *Science*, *161*, 751–756.
- Schachter, S., & Singer, J. (1962). Cognitive, social and physiological determinants of emotional state. *Psychological Review*, *69*, 379–399.
- \*Schacter, D.L., Gilbert, D.T., & Wegner, D.M. (2009). *Psychology*. New York: Worth.
- Schaller, M., & Murray, D.R. (2008). Pathogens, personality and culture: Disease prevalence predicts worldwide variability in sociosexuality, extraversion, and openness to experience. *Journal of Personality and Social Psychology*, *95*, 212–221.
- Schmitt, D.P., Allik, J., McCrae, R.R., Benet-Martinez, V., Alcalay, L., Ault, L., et al. (2007). The geographical distribution of Big Five personality traits: Patterns and profiles of human self-description across 56 nations. *Journal of Cross-Cultural Psychology*, *38*, 173–212.
- Schmitt, E. (2001, August 6). Census data show a sharp increase in living standard. *New York Times*. Retrieved from [www.nytimes.com/2001/08/06/national/06CENS.html](http://www.nytimes.com/2001/08/06/national/06CENS.html)
- Schooler, C. (1996). Cultural and social-structural explanations of cross-national psychological differences. *Annual Review of Sociology*, *22*, 323–349.
- Schwartz, S.H. (2008). Culture matters: National value cultures, sources, and consequences. In R.S. Wyer, C.-Y. Chiu & Y.-Y. Hong (Eds.), *Understanding culture: Theory, research, and application* (pp. 127–150). New York: Psychology Press.
- Sears, D.O., Sidanius, J., & Bobo, L. (2000). *Racialized politics*. Chicago: University of Chicago Press.
- Segall, M.H., Campbell, D.T., & Herskovits, M.J. (1963). Cultural differences in the perception of geometric illusions. *Science*, *139*, 769–771.
- Sherif, M. (1954). Integrating field work and laboratory in small group research. *American Sociological Review*, *19*, 759–771.
- Shweder, R. (1991). *Thinking through cultures*. Cambridge, MA: Harvard University Press.
- \*Smith, B.D. (1998). *Psychology: Science & understanding*. New York: McGraw-Hill.
- Smith, E.R., & Conrey, F.R. (2007). Agent-based modeling: A new approach for theory building in social psychology. *Personality and Social Psychology Review*, *11*, 87–104.
- Smith, E.R., & Semin, G.R. (2004). The foundations of socially situated action: Socially situated cognition. *Advances in Experimental Social Psychology*, *36*, 53–117.
- Statistics Bureau & Statistics Center of Japan. (2001). *Jumin kihondai-you jinkoido no genjou-heisei12nen* [A report on population move based on residential certificate: Current situations with the population move—year 2000]. Retrieved from [www.stat.go.jp/data/idou/sokuhou/nen/index.htm](http://www.stat.go.jp/data/idou/sokuhou/nen/index.htm)
- Steiner, I.D. (1974). Whatever happened to the group in social psychology? *Journal of Experimental Social Psychology*, *10*, 94–108.
- Stokols, D. (1978). Environmental psychology. *Annual Review of Psychology*, *29*, 253–295.
- Stokols, D. (1995). The paradox of environmental psychology. *American Psychologist*, *50*, 821–837.
- Stokols, D. (2006). Toward a science of transdisciplinary action research. *American Journal of Community Psychology*, *38*, 63–77.
- Stokols, D., & Altman, I. (1987). *Handbook of environmental psychology*. New York: Wiley.
- Stokols, D., Misra, S., Runnerstrom, M.G., & Hipp, J.A. (2009). Psychology in an age of ecological crisis. *American Psychologist*, *64*, 181–193.
- Stone, J., Aronson, E., Crain, A.L., & Winslow, M.P. (1994). Inducing hypocrisy as a means of encouraging young adults to use condoms. *Personality and Social Psychology Bulletin*, *20*, 116–128.
- Stutchbury, B.J.M., & Morton, E.S. (2001). *Behavioral ecology of tropical birds*. San Diego, CA: Academic Press.
- Taylor, S.E. (1998). The social being in social psychology. In D.T. Gilbert, S.T. Fiske & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 1, 4th ed., pp. 58–95). Boston: McGraw-Hill.
- Taylor, S.E. (2004). Preparing for social psychology's future. *Journal of Experimental Social Psychology*, *40*, 139–141.
- Thibaut, J.W., & Kelley, H.H. (1959). *The social psychology of groups*. New York: Wiley.
- Thornhill, R., & Gangestad, S.W. (1999). The scent of symmetry: A human pheromone that signals fitness? *Evolution and Human Behavior*, *20*, 175–201.
- Tolman, E.C. (1952). A theoretical analysis of the relations between sociology and psychology. *Journal of Abnormal and Social Psychology*, *47*, 291–298.
- Tolman, E.C., & Brunswik, E. (1935). The organism and the causal texture of the environment. *Psychological Review*, *42*, 43–77.
- Tooby, J., & Cosmides, L. (1992). Psychological foundations of culture. In J. Barkow, L. Cosmides & J. Tooby (Eds.), *The adapted mind* (pp. 19–136). New York: Oxford University Press.
- Tooby, J., & Cosmides, L. (2005). Conceptual foundations of evolutionary psychology. In D.M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 5–67). Hoboken, NJ: Wiley.
- Triandis, H.C. (1989). The self and social behavior in differing cultural contexts. *Psychological Review*, *96*, 506–520.
- Trickett, E.J. (2009). Community psychology: Individuals and interventions in community context. *Annual Review of Psychology*, *60*, 395–419.
- Trivers, R.L. (1971). The evolution of reciprocal altruism. *Quarterly Review of Biology*, *46*, 35–57.
- Tsai, J.L., Louie, J., Chen, E.E., & Uchida, Y. (2007). Learning what feelings to desire: Socialization of ideal affect through children's storybooks. *Personality and Social Psychology Bulletin*, *33*, 17–30.
- Uskul, A.K., Kitayama, S., & Nisbett, R.E. (2008). Ecocultural basis of cognition: Farmers and fishermen are more holistic than herders. *The Proceedings of the National Academy of Science*, *105*, 8552–8556.
- Vandello, J.A., & Cohen, D. (1999). Patterns of individualism and collectivism across the United States. *Journal of Personality and Social Psychology*, *77*, 279–292.

- Watson, J.B. (1913). Psychology as the behaviourist views it. *Psychological Review*, 20, 158–177.
- \*Westen, D. (1999). *Psychology: Mind, brain, & culture* (2nd ed.). New York: Wiley.
- \*Wheeler, L., Goodale, R.A., & Deese, J. (1975). *General psychology*. Boston: Allyn & Bacon.
- Wheeler, L., & Nezlek, J. (1977). Sex differences in social participation. *Journal of Personality and Social Psychology*, 35, 742–754.
- Willingham, D.B. (2007). *Cognition: The thinking animal* (3rd ed.). New York: Prentice Hall.
- Wood, W., & Eagly, A.H. (2002). A cross-cultural analysis of the behavior of women and men: Implications for the origin of sex differences. *Psychological Bulletin*, 128, 699–727.
- \*Worchel, S., & Shebilske, W. (1992). *Psychology: Principles and applications*. New York: Prentice Hall.
- Yamagishi, T. (1998). *The structure of trust: The evolutionary games of mind and society*. Tokyo: Tokyo University Press.
- Yamagishi, T., Hashimoto, H., & Schug, J. (2008). Preferences versus strategies for culture-specific behavior. *Psychological Science*, 19, 579–584.
- Young, M.A., Meaden, P.M., Fogg, L.F., Cherin, E.A., & Eastman, C.I. (1997). Which environmental variables are related to the onset of seasonal affective disorder? *Journal of Abnormal Psychology*, 106, 554–562.
- Zak, P.J., & Knack, S. (2001). Trust and growth. *The Economic Journal*, 111, 295–321.
- Zatorre, R.J., Chen, J.L., & Penhune, V.B. (2007). When the brain plays music: Auditory-motor interactions in music perception and performance. *Nature Reviews Neuroscience*, 8, 547–558.
- \*Zimbardo, P.G., & Gerrig, R.J. (1999). *Psychology and life* (15th ed.). New York: Longman.
- \*Zimbardo, P.G., & Ruch, F.L. (1977). *Psychology and life* (9th ed.). Glenview, IL: Scott, Foresman.
- \*Zimbardo, P.G., & Weber, A.L. (1994). *Psychology*. New York: Harper Collins College Publishing.