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Colby, Benjamin N

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BENJAMIN N. COLBY
University of California, Irvine

Well-Being: A Theoretical Program

A theoretical program of anthropological well-being is described and a special theory linking adaptive potential to biocultural success, longevity, and physical health is tested with a multicultural sample of 133 college students born outside the United States. Those students who scored high in adaptive potential reported fewer symptoms of physical illness. The implications of the theory for a better understanding of cultural dynamics are discussed.

RECENT FINDINGS IN THE SOCIAL AND BIOLOGICAL SCIENCES HAVE PAVED THE WAY for a theoretical program in anthropology that predicts comparative levels of the chief components of well-being: physical health, satisfaction, and happiness. The predictions link culture-specific patterns of values and experience to universally optimal conditions of well-being. While the program should bring us closer to the construction and use of indicators for measuring the social climate of nations and other aggregates such as economic indicators are used today, the focus in this paper is on the immediate cultural surround and life-space of individuals.¹

Universal conditions of well-being have been discussed by anthropologists since the time of Sapir (1951) and Benedict (Benedict et al. 1970).² Alers examined well-being at Vicos (1964), and Graves and Graves considered its relation to adaptive strategies in urban migration (1974). More recently there has been anthropological interest in pro-social behavior (Bridgeman 1983; Graves and Graves 1983, 1985; Whiting 1983) and utopian experiments (Erasmus 1977). The reverse of the coin is represented by Lewis's idea of the culture of poverty (1951), the source of considerable controversy (Leacock 1971), and by numerous studies on the effects of famine and other stressors in reducing well-being (reviewed by Dirks 1980). In addition, some studies have been addressed to the cross-cultural study of specific pathologies such as child abuse and neglect (Korbin 1981), childhood rejection (Rohner 1975, 1986), adult aggression (Bolton 1973, 1976, 1984), and genocide (Kuper 1981, Colby 1983). The most interesting recent studies of well-being on a transnational and cross-cultural scale have been Heath's (1977) work on the characteristics of people locally deemed mature and Naroll's (1983) effort to measure well-being with social indicators.³

As useful as these studies are in broad terms, few of them incorporate recent findings in some of the other social science disciplines that link stress to physical and mental health.⁴ Conversely, because these outside studies of stress and health have overlooked cultural values and processes, no comprehensive cultural theory has yet emerged. However, work in medical anthropology, cross-cultural anthropology, and psychological anthropology is beginning to provide pieces that might fit into such a theory, starting with some of the early work by Fabrega (1974) and including recent studies on culture and depression (Kleinman and Good 1985), culture-related stress in a Black community of rural Alabama (Dressler 1985a, 1985b), stress and health among Polynesian migrants (Graves and Graves 1979, 1985) and Rohner's cross-cultural studies of acceptance and rejection (1986). Other pieces come from a critical examination of the ideological and political forces in society and culture that contribute to illness, such as the work by Jordan

BENJAMIN N. COLBY is Professor, Department of Anthropology, University of California, Irvine, CA 92717.

on childbirth in the United States and the Yucatan (1983) and the papers assembled by Baer, Singer, and Johnsen (1986) and Singer (1986). Still lacking, however, is a notion of well-being or cultural health of the scope of Ruth Benedict's "cultural synergy." The theoretical program described here attempts to bring these pieces together in a comprehensive account grounded in biocultural evolution that predicts testable linkages to physical health and affect.

Three Worlds of Human Concern

Malinowski described culture as arising out of several lines of development: (1) "the ability to recognize instrumental objects, the appreciation of their technical efficiency, and their value, that is, their place in the purposive sequence," (2) "the formation of social bonds," and (3) "the appearance of symbolism" (1960:136). The theory of anthropological well-being builds on these lines of development to identify three broad worlds of human concern and behavior that are presumed to be modeled and operated on through corresponding cognitive systems: (1) the *ecological*, the material world of subsistence, technology, work, and economics; (2) the *social*, the world of interpersonal relationships, anchored in social structures and guided by ethics and social conventions; and (3) the *interpretive*, the world of metathought, of symbolic systems and meta-level analysis, including metabehavior and meta-attitudes and what Habermas (1983, 1984) calls metahermeneutics. The cognitive systems representing these worlds in the mind of an individual combine in a "life-space" that includes the many roles he assumes, the interrelationships he enters into, and the assessments he makes of himself and of other people and situations.

From an evolutionary perspective, well-being in these three worlds should predict biocultural success. The biological component of biocultural success, sometimes called reproductive success, can be measured by the number of descendants of a species, group, or individual over some span of time, usually in reference to some genetic composition. The cultural component of biocultural success is indicated by the number of cultural patterns passed on by individuals to others in the group or from an individual to his contacts and descendants over some defined span of time. The complexity of the interrelations of these two components belie simplistic notions of either biological or cultural determinism. Genetic and other biological systems are linked to immune-response capabilities and countless other factors in physical survival, and these in turn are reduced or increased by cultural mechanisms as the individual copes with external events. The end result does not readily allow a disentangling of the two effects. Even a process that might appear to be purely cultural, such as the evolution of the alphabet, has been shaped by physiological elements (Watt 1986). Thus, unless there is a need to distinguish the two, the term "biocultural success" will be used to cover both components.

Adaptive Potential

What conditions of behavioral adaptive potential are most likely to maximize biocultural success? Presumably, any such conditions must be defined in terms of a sociocultural milieu; the individual's success is more likely if the conditions are optimal for the other people in his group or (depending upon one's theoretical purpose) for the significant others that figure in his life. Beginning with the ecological world and following biological evolutionary theory, the first condition on which selective forces operate is a general *adaptivity* in the physical or material environment: efficacy or control in an ecological niche and diversity of cultural patterns.

The inclusion of adaptivity in the theory is justified by its central place in theories of biological evolution, but adaptation as an evolutionary process has been the subject of confused debate sometimes involving teleological arguments, notions of homeostasis, and a failure to differentiate degrees or success of adaptation in behavioristic stimulus-response models of human action (Bargatzky 1984). Giddens sees no harm in a precise use

of “adaptation” in biology or even in social science if mistakes like these are avoided: “‘Adaptation’ can perhaps be formulated in a cogent way in social science if it is taken as a general label referring to the gamut of processes whereby human beings respond to and modify features of their physical environment” (1984:233–234). Giddens objects, however, to a broader and vacuous extension of the term to any major social process of social maintenance (1984:235); this can be avoided by designating an ecological area of which the material environment and problems of subsistence and livelihood are the defining characteristics and in which the major defining components of adaptivity—efficacy and diversity—are linked to specific situations and assessed or measured through individual actions over some period of time.

Adaptivity, then, and its component conditions, efficacy and diversity, constitute a basic condition of ecological survival. In biological evolution, natural selection works to make a species or breeding population more efficacious in its activities—that is, better adapted to an ecological niche. But survival despite changes in the ecology of the niche requires diversity, or variation, in the gene pool; insufficient variation may mean that a highly adapted or niche-specialized species will die out in the face of environmental change. Similarly, in cultural evolution, efficacy in the actions of a group must be accompanied by a diverse repertoire of cultural patterns (and the cognitive schemas to produce them—the diversity not to be confused with diversity of community trophic structures or complexity of natural communities, see Goodman 1975). Efficacy and diversity are basic survival conditions. Success in the ecological world leads to an affect state that might be best described as comfort.

In the social world, increasingly of theoretical interest to anthropologists,⁵ the condition for biocultural success is altruism. This assumption is predicated on the observation that humans are social beings and that a great part of their success has come not simply from their ability to cooperate and help each other but from their willingness to do so at the risk of some foreseen cost to themselves. In considering this condition, it is important to note that affection at the expense of autonomy is not altruism. It is rather a dependency relationship. Altruism requires both positive social affect and autonomy.

Contrary to the strange definition of altruism implied in sociobiological writings, awareness of the possible negative consequences for oneself of some socially beneficial act is necessary for it to be seen as altruistic. If the element of sentience is included, positive social affect and autonomy can be observed to increase as one moves up the phyletic scale. Nurturance of offspring increases in duration to culminate in the many years devoted to this activity by man. Further, the need for affection is not simply a sentimental value among humans but a fact established by research findings, from neurophysiology to primate studies; its lack, or its opposite, rejection or aggression, has been examined cross-culturally by Rohner (1975, 1986). Autonomy for individuals in their adult form also increases as we ascend the evolutionary ladder from animals like the bryozoans—colonies with a complex structure of individual zooids or compartments, each a complete animal—through the social insects to the social mammals including, finally, man (Wilson 1975).

The primary definition of autonomy has to be based on some measure of the autonomy of everyone in the group. That autonomy is a necessary component of altruism can be better understood if a distinction is made between its prosocial and antisocial forms. Prosocial autonomy, as Benedict pointed out, involves tolerance. Antisocial autonomy, on the other hand, would be a condition that increases autonomy for the self at the expense of autonomy for others. If acts that promote autonomy and freedom for another person include positive affect toward that person, they are likely to be altruistic. Some forms of altruism may involve dependencies, but these are usually only temporary in nature.⁶ The two values, positive social affect and prosocial autonomy, link to an ethic of caring (Gilligan 1982) and one of justice (Kohlberg 1981a, 1981b, 1984), respectively. The affect states associated with these conditions are a sense of conviviality and a sense of fairness.

In the third world of human concern, the interpretive, thought and action often involve a disengagement from the immediate situation, a shift to creative playfulness (Bateson 1972; Bekoff 1972; Fagan 1974). The derivation from evolutionary theory is directly from the production of new material—in biological evolution the mutation of genes, the recombination of chromosomes and more recently discovered processes of change in the genetic material (Gilbert 1985), and in cultural evolution the creation of new cultural patterns. Because heterogeneity in the pool of cultural patterns available to a group is increased substantially by high creativity within that group, the condition of biocultural success in the interpretive world is creativity, with its component conditions imagination and metaknowledge. At the peak of phyletic and developmental progress, metaknowledge and imagination become important as the sources of invention of new technology and political organization (though technology and political organization themselves are part of the ecological and social worlds, respectively).

Invention builds on knowledge and requires imagination. Without the capacity for abstraction, analogic variation, prediction, and contextual shift, all of which involve departures from the literal and immediately perceived reality of the moment, humans could not utilize language. Obviously, in order to plan and anticipate or predict future events it is necessary to imagine what is not yet true and to have the knowledge to distinguish between the likely and unlikely and the capacity to react appropriately to stimuli not immediately present. The metaknowledge component is concerned with all these and with various kinds of rationality and validity assessments. While the immediate goal state of metaknowledge is awareness, it joins the imagination component to embrace a higher-level enthusiasm for creative challenge and the satisfaction of successful invention and successful prediction. It also is involved in still higher-level processes of integration and the overall orchestration of goals.

A Formal Structure

A formal representation of this theory⁷ begins with the core structure, an axiom. Below this is the level of special theories linking the concepts of the higher level to those of the lower; these links are stated as postulates. There is also a second axiom linking middle level concepts. The lower level consists of concepts linked to the middle one by transformational statements and a theorem linking concepts to each other on the same level. The theory includes bindings, or contextual constraints, which locate events in time and sociocultural situation. The general theory gains credence only as it receives support from special theories that it can suggest and that lead to testable theorems. The theories of this program may differ in perspective (either that of evolution or that of cultural transmission), units of analysis (individuals, groups, or cultural patterns), region of application, and types of measure. Since the focus of current tests is the special theory that relates the conditions of adaptive potential to physical health, it is the structure of that theory that appears as Figure 1.

Axiom 1. If the adaptive potential of actor (individual or group) x is greater than the adaptive potential of actor y , then the (biocultural) success of x is greater than the (biocultural) success of y . Or, more simply put, the greater the adaptive potential of x , the greater the biocultural success of x .

Postulate 1. Adaptive potential is a combination of three conditions: adaptivity, altruism, and creativity.

Postulate 2. Biocultural success is represented by its best predictor, longevity.

Postulate 3. Longevity is a function of physical health.

Axiom 2. The greater for x of the three conditions of adaptive potential—adaptivity, altruism, and creativity—the greater the physical health for x .

Transformational Statement 1. The three conditions of adaptive potential—adaptivity, altruism, and creativity—are measured by the Adaptive Potential Questionnaire.

Transformational Statement 2. Physical health is measured by the Inventory of Physical Symptoms (Cohen and Hoberman 1983).

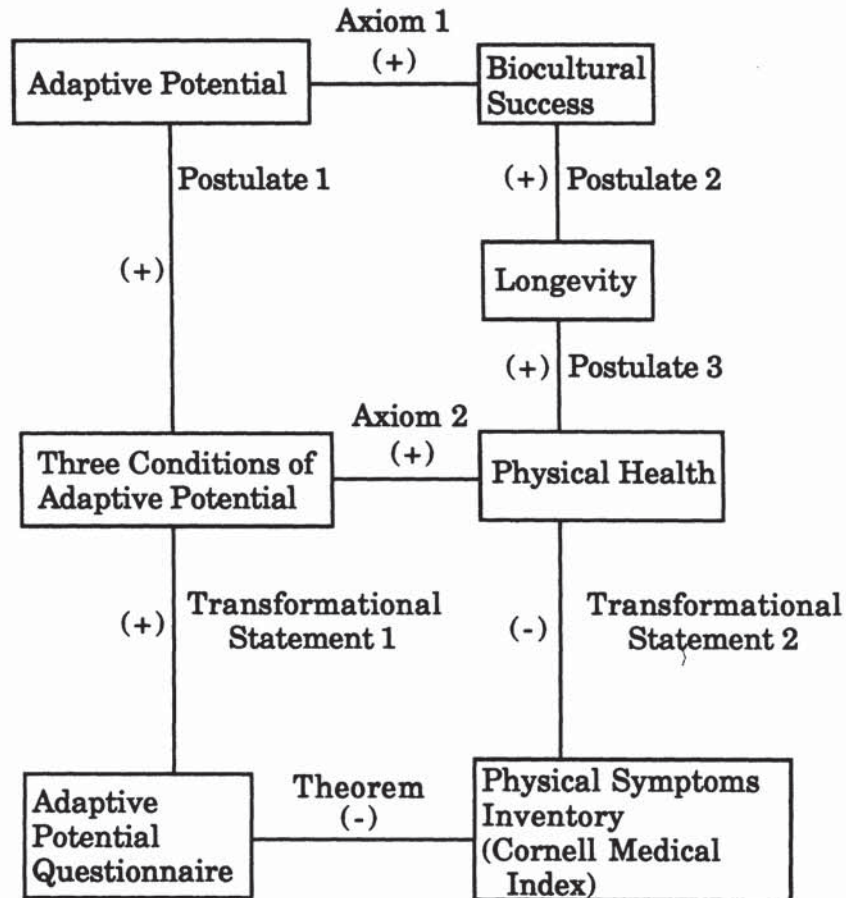


Figure 1
The structure of a special theory of adaptive potential.

Theorem. For all individuals in sociocultural situation A (a defined population), the higher the score on the Adaptive Potential Questionnaire at time T-1, the lower the score on the Physical Symptoms Inventory (Cohen and Hoberman 1983) at time T-2.

A Dynamic Model

Malinowski's studies of function as seen through human processes in context emphasize the importance of the situation for the understanding of cultural dynamics. The work of scholars such as Benedict and Kluckhohn has emphasized values and rules. Clearly, both are important. In their study of disputes among the Tswana, Comaroff and Roberts (1981) look at the dialectical relationship between the two, speaking of the "lived-in (experienced) universe," on the one hand, and the "constitutive order" of value opposition and structural elements, on the other. A duality that figures in a different theoretical approach keeps experience or situation as one of the variables but replaces values with personality characteristics. Graves and Graves (1985), for example, found that a model that combines situational stressors with personality (as Type A behavior) was a good predictor of symptoms of poor health among Cook Islanders, Samoans, and White New Zealanders. Because the dynamic between situation and values is not fully explained without a

concept of human agency such as personality, a third element, the actors, has to be added to the Comaroff and Roberts approach. From the Graves and Graves scheme, values may be extracted from the personality variable and given full status in a values-actor-situation relationship.

Among the advantages of this approach is its flexibility. The element of human agency determines the unit of analysis, and the actor need not always be a single, unified entity; it may be the self, the family, the state, the corporation, or some other unit. When it is *the self*, measurements involve self-description, indicators of self-image, beliefs about how others view the self, and related matters. *The situation* is the current (or near-historical) moment in all its complexity: the social structures in which the unit is embedded, the resources available, and relevant conceptions of the history of relationships and behaviors up to that moment. *Values* are conceptions of desirable states, behaviors, and principles that guide and explain human actions and thoughts, particularly as they relate to problems that require attention in order to attain or maintain well-being. Values determine the use of different types of rationality in different contexts (see Habermas 1984). They are often instantiated or embodied in culture models, symbols, or metaphoric predications, or they can be elicited through discourse and interview.

This dynamic values-actor-situation triad, the three worlds of human concern, and the cognitive systems that represent the three worlds are the main parts of a systemic theory of culture that focuses on practice and culture change and that can be validated through tests of biocultural selection (longevity and health) and well-being (health, satisfaction, and happiness). Values motivate the behavior of the actor, and situations change values. These are all mediated and guided by the cognitive systems that deal with the three worlds of human concern. Thus the components of the values-actor-situation triad are in dynamic interaction to produce new situations, arrangements, expectations, and understandings.⁸ While the distinction between independent and dependent variables may be made in validation tests, any correlations found between them must be examined for linkage due to shifting perspective, multiple causality, or interaction effects as well as for primary causal linkages. Though it is indeed the quest for causal models that sustains and advances a theoretical program, a systemic framework for such studies helps one to avoid the simple dualities and neglect of context that are often so limiting in causal theories.

A systemic framework also facilitates the linking of macro-level to micro-level phenomena. Life and culture develop to a large extent through the way in which people engage the ecological world through production and other economic activities. These shape and are shaped by the modalities of political systems and the modalities of ethnic, class, and gender relations in the social world.⁹ The modalities, in turn, are readily linked to the last of the three worlds through an ideological interpretive system. This systemic view is compatible with Wolf's (1982), except that he emphasizes how interrelations stem from different macro levels rather than from different systems. These macro-level social and historical linkages will not be developed here, except for one aspect of macro-micro ideological relationships that is relevant to the derivation of the theory. Because the program was developed through evolutionary theory, it is important to distinguish the theory of adaptive potential from Social Darwinism. The chief components of the authoritarian personality, which motivate political support for Social Darwinism, are close to being diametric opposites of adaptive potential: (1) seeking to dominate others (or submitting to dominant others in authority) is the opposite of prosocial autonomy, (2) aggression is, in an important sense, the opposite of positive social affect, and (3) conventionalism opposes adaptivity and creativity. This suggests that one way to validate measures of adaptive potential would be to find negative correlations with authoritarianism. In the test described here, this process is limited to the values component, since the only measure of authoritarianism satisfying modern standards is Altemeyer's scale (1981), which measures values and attitudes rather than situations or self-descriptions.

Testing the Theory

Prior to the study reported here there had been two tests of the special theory. In a study of 49 residents in a small Arkansas town (Colby, Binam, and Moore 1983), symptoms of psychological and physical illness on the Cornell Medical Index were correlated with an early measure of adaptive potential (Pearson $r = .26$). In a test with a sample of 308 residents of a retirement community in southern California (Colby et al. 1985), individuals who scored high on all three Adaptive Potential scales, when responses were controlled for age and stressor level, reported significantly fewer physical symptoms, less negative affect, and more positive affect than those who scored low on those scales.

Variant life styles and values are more likely to be revealing of biocultural dynamics among the elderly than in other age-groups because variations in situation, self-image, and values have had more time to result in observable consequences for physical health. There was therefore some question whether these relationships would be sufficiently salient for a college population to be captured with a self-reported questionnaire. Also, a sample of multicultural background had yet to be used, and the multicultural application of the theory was important to test the claim for universality of the categories. Consequently, the study reported here is based on a multicultural college-age sample.¹⁰

Sample Characteristics

The sample consisted of 133 foreign-born college students at the University of California, Irvine. The term "multicultural" rather than "cross-cultural" is used to describe the sample because its members, though coming from different ethnic backgrounds and speaking different native languages, were tested at a single site and in a single language, English, in which all had sufficient competence to be students at the university.¹¹ Of the 133 students, 98 were from East Asian countries (40 from Korea, 27 from Vietnam, 9 each from Hong Kong and Taiwan, and the remainder from, in descending order, the Philippines, Japan, Laos, Thailand, and the People's Republic of China). Only 23 were from Europe or the Western Hemisphere, and of these only 7 were from English-speaking countries. Since these students had come to the United States at different points in their precollege years, some just on entering college, they had differing degrees of acquaintance with the dominant United States and Californian culture. There were nearly twice as many female (87) as male (44) students, and 78% of the students were in the first or second year of college. The mean age was 19.5 years, while 84% were 20 or younger. Of these students, 33% were biology or bioscience majors and 24% were social ecology, psychology, or social science majors.¹²

Measures

The measures were the Adaptive Potential Scales, the Right-Wing Authoritarianism Scale (Altemeyer 1981), a Stress Domain Scale which measures the amount of perceived stress in different domains of life, the Cohen-Hoberman Inventory of Physical Symptoms (Cohen and Hoberman 1983), and a set of demographic questions.

The Adaptive Potential Scales consisted of 141 questions to measure the three major conditions—adaptivity, altruism, and creativity—and their components. Each item was also classified as representing either (1) a cultural (or personal) value or attitude, (2) self-description, or (3) the current situation in which the respondent was located. Respondents indicated to what extent they agreed or disagreed with each item in a self-reported statement on a five-point Likert scale. The following examples are from the 141 items used:

"A person who works with a great variety of ideas will be hindered in finishing the job at hand."
[reversed measure of diversity stated as a value]

"The people I am in contact with most of the time tend to be selfish." [reversed measure of altruism stated as a situation]

"I often find that what I learn or do in some areas of my life connects well with other areas."
[measure of metaknowledge stated as self-description]

The *Right-Wing Authoritarian Scale* was used as a validation of the values component of the Adaptive Potential Questionnaire. This scale avoids the well-known drawbacks of the F-scale and others designed to measure authoritarian personality (e.g., response set, casual construction, methodological deficiencies in usage), and is the definitive work in this area.

The *Stress Domain Scale* asked how much stress (from "none" through "a little," "some," and "quite a bit" to "overwhelming") the respondent felt with regard to school, work, family, boyfriend/girlfriend/spouse relationship, and friends.

The *Cohen-Hoberman Inventory of Physical Symptoms*, chosen for its simplicity and comparative brevity, consisted of 36 items (reduced from 39 by eliminating 3 items specific to females) for which respondents were asked to report how much they were bothered in the last three months: "not at all," "a little bit," "moderately," "quite a bit," and "extremely."

Demographic questions queried gender, ethnic identity, household composition, parental income, and religious and political characteristics.

Results

Reliability measures were taken for all components of the three main adaptive potential scales (i.e., the items were divided into the components for each scale: two subscales and an additional general scale for the overall concept—nine component scales altogether). This was done in a run combining two samples, the 133 foreign-born student sample reported here and the 355 American-born student sample reported in Colby et al. 1987. Items with poor reliability were removed from the scales until no further improvement in Cronbach's alpha obtained. For the sample analyzed here, the components were combined into the three main categories: adaptivity (alpha = .69), altruism (alpha = .73), and creativity (alpha = .72). They were also combined for an overall APTOTAL measure (Cronbach's alpha = .87).

The test of the special theory is done with a product-term regression analysis using the Physical Symptoms Inventory scores for the dependent variable. Adaptive potential becomes particularly important when difficulties, problems, and unfortunate life events act as stressors on individuals. One would therefore expect an interaction to occur between adaptive potential and stress. The best approach for examining the main effects when there is an interaction is to use the average-effect approach described by Finney et al. (1984). A conservative estimate of interaction is made by deviating scores on the independent variables from their means and taking the product of these deviation scores as the interaction term. This procedure yields a multiple R of .550, and an R^2 of .302 adjusted to .286 ($F = 18.6, p = .0000$). The average effects in this deviation-score product term regression analysis were $b_1 = 1.979$ ($T = 4.97, p = .0000$) for STRSDOMN (the Stress Domain Scale), $b_2 = -.087$ ($T = -2.4, p = .018$) for APTOTAL (the total adaptive potential scale), and $b_3 = -.018$ ($T = 2.05, p = .042$) for AXS (the interaction term).

Correlations of the three world/system components of APTOTAL with the Physical Symptoms Inventory were for adaptivity, $r = -.372, p = .00001$; altruism, $r = -.303, p = .0002$; and creativity, $r = -.247, p = .002$.

As a partial validation of the general concept of adaptive potential, each item from these scales was used in a set of crosscutting dynamic triad measures that distinguished values (APVALUES) from situation and actor. These were run against the Right-Wing Authoritarian Scale. Of the three components, only APVALUES was significant ($r = -.307, p = .0002$), but since the scale measured values rather than self-descriptions or situations this was consistent with expectations and with the often-reported finding that authoritarian values are a poor predictor of immediate individual behavior though better for aggregate political behavior (Altemeyer 1981; Milgram 1974).

In an exploratory look at the demographic items, year in school correlated with APTOTAL at $r = .16$, $p = .037$. This unpredicted relationship, if not due to chance, may reflect an initial lower level of adjustment among freshmen (the questionnaire was administered during the first quarter of the year), who were still unfamiliar with their new physical and social surroundings; or alternatively it may reflect a change in values or self-image that occurs in the first year of college. Pearson correlations of the three dynamic categories to year in school showed the highest to be APVALUES ($r = .18$, $p = .020$). This runs against the first explanation (which would require the situation component, APSIT, to be highest) and supports the second alternative, that the college experience at UC-Irvine for foreign-born students involves a personal growth that raises their adaptive potential quite substantially by the beginning of the second year. This example shows the analytical potential that the dynamic categories can have when they crosscut the three systems—ecological, social, and interpretive—in generating new understandings and hypotheses to test in future studies.

Discussion

Consistent with the theory of adaptive potential described here, reduced reports of health symptoms correlated with high scores on the adaptive potential scale together with stress and the interactive term based on the adaptive potential scale and stress.

In measuring the effect of adaptive potential it must be recognized, as Finney et al. (1984) and others have pointed out, that product-term regression assumes monotonic and uniform changes across all levels of the moderator variable. In studies where social support is a moderator variable, the data suggest that monotonicity does not hold (Brown and Harris 1978). Adaptive potential is a complex composite that includes, among other things, various kinds of perceived social support in the altruism component. If other non-monotonic relationships underlie some of its components, one might at first assume that they would not very likely be biased all in the same direction; but there may well be such a bias in the form of a synergistic effect at both ends of the continuum affecting all components of the measure. This is a subject for examination in the continuing research program currently under way and in planned longitudinal studies at a future time.¹³

While these correlational studies support the special theory, the usual cautions regarding a study like this need to be made, particularly concerning direction of causality, validity, and reliability of the scales, problems with self-report measures, and sampling in a student population. Unlike many studies of stress, coping, and illness, however, the approach is not ad hoc or limited to the findings in the psychological literature. The theory is a much broader, anthropological one derived from principles of biological and cultural evolution. Further, the use of questionnaires is only one phase of the theory-testing program. Other studies involving the analysis of folk tales, autobiographies, Thematic Apperception Tests, interview protocols, and direct field observations can be used for a methodological triangulation on tests of the theory.

There are some epistemological implications of this approach. Predictive studies of illness-culture linkages (e.g., Bolton 1973, 1984; Dressler 1985a; and Graves and Graves 1979) point to an epistemological basis for anthropology that goes beyond the dichotomous alternative of emic-etic studies. The validation of an emic study depends upon the demonstration that the patterns featured in an analysis have cognitive reality from the native point of view, a demonstration that usually requires some form of distributional analysis as in linguistic studies, eidochronic analysis (Colby 1973; Colby and Colby 1981), some type of carefully controlled questioning (Metzger and Williams 1963a, 1963b), or the validation of schemas in the manner described by Agar (1986). Interpretive studies rarely employ any of these validation methods and often claim emic status by fiat. Without distributional studies and sample controls the emic analogy in such studies is so loose as to be meaningless, hence the abjuring of scientific claims and the emergence of anti-empirical biases in so many interpretive studies today. In the model used here, however, relativistic controls are necessary only at the level of local translation of

discourse and the presuppositions in which discourse is embedded. This involves a measurement problem to be addressed in cross-cultural studies. The existence of local variation in the translation process in no way (beyond the immediate practicalities of measurement, i.e., at the level of the transformational statements and theorem, see Figure 1) vitiates the claim to universality for the theory of adaptive potential at the higher level. The problem at the higher level is simply one of connection. At the level of the general theory there is no test. Testing occurs only at the level of special theories that necessarily include transformational statements. It is precisely at this transformational, or theorem, level, though, that the most interesting aspect of this epistemology will emerge. Observations of how similar events and situations in one cultural system can have different somatic consequences for the individual than they do for another cultural system, can bring the study of cultural dynamics to a new level of scientific achievement. It is this somatic level, that of health outcomes, in which the epistemology is anchored because both relevance and category validation are achieved through correlations with health outcomes.

Conclusion

Adaptive potential includes adaptivity, altruism, and creativity as primary values, behavioral modes, and situational characteristics. These have been shown to predict illness and health in a dynamic model of cultural change which is part of a theoretical program concerning anthropological well-being. The need for a theory of well-being, an interest dating to Benedict, Sapir, and other early anthropologists, is being expressed with increasing urgency. Erasmus talks of man as entering a phase of participatory evolution in which progress is shifted from an invisible hand to a directing hand (1977:332). Clearly, an anthropology is required that can inform such direction. Much of the growing interest in social theory is motivated by similar concerns. Tambiah sees the development of such ideas as requiring anthropology in its fullest and broadest formulation. "The times are appropriate to reiterate and demonstrate that the pursuit of social sanity and prosperity requires the broadening of the frontiers of knowledge . . ." (1985:355). He goes on to suggest the need for anthropological applications that use the strengths of the discipline in development programs, behavioral medicine, and elsewhere: "the social construction of the person, the dynamics of social or interpersonal relations, social structures, exchanges, political relations and how all these interrelate in a 'totalizing perspective' " (1985:357-358). Such a perspective requires a systemic approach. At the micro level discussed in this paper, the three conditions of adaptive potential relate to three systems: the ecological, the social, and the interpretive. They can be used in research on human growth and development and on learning processes, as well as on stress, coping, and health in children, among the elderly, among different ethnic groups, and among individuals categorized in other ways. Since the concept of adaptive potential is linked to the three worlds of human concern and to the cognitive systems representing them, research on the associated three conditions may help to bring symbolist and materialist approaches together in a broader perspective, resolving seeming contradictions by demonstrating that different systems are simultaneously involved in most behavioral sequences just as they are in language (Halliday 1985).

Notes

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¹The concept of "life space" as defined later in this paper has similarities to Kurt Lewin's concept of the same name (Lewin 1966) and, to a lesser degree, Husserl's life world (1973), and Bourdieu's (1984) social space and its deeper level habitus.

²Though infrequently mentioned, Benedict's earlier work was a major stimulus for the Harvard Values Study Project in the American Southwest, which, though not explicitly oriented toward well-being, concerned related issues at the transformational level (see the Discussion section) (Aberle 1950; Kluckhohn 1958; Vogt 1955; Vogt and Roberts 1956).

³Studies of well-being outside anthropology or from a cross-cultural perspective include Neugarten et al. 1961; Wilson 1967; Bradburn 1969; Andrews and Withey 1976; Campbell, Converse, and Rodgers 1976; Furnham and Bochner 1986; George and Bearon 1980; and Bellah et al. 1985.

⁴Among the more noteworthy studies in other social science disciplines are Antonovsky 1987; Brown and Harris 1978; Dohrenwend and Dohrenwend 1978; Holmes and Rahe 1967; Kobasa, Maddi, and Kahn 1982; Lazarus and Folkman 1984; and Pearlin et al. 1981. An edited volume of papers by Monat and Lazarus (1985) is also useful, as are numerous reviews such as Gottschalk 1983; Kiecolt-Glaser and Glaser 1987; and Thoits 1984.

⁵In Ortner's view (1984), American symbolic anthropology and cultural ecology (including evolutionary and materialist approaches) have left out this central aspect of anthropology, which ties conceptions of the self to social interaction.

This has not been the case, however, in other areas of American anthropology (see DeVos 1980; Edgerton 1971, 1985; Munroe and Munroe 1984; Whiting and Whiting 1960; Whiting 1963). More recently, there has been a broadening of interest in psychological anthropology and the concept of self (Shweder and Bourne 1982; Marsella, DeVos, and Hsu 1985; White and Kirkpatrick 1985), not to mention the focus on individuals or idiocultures represented by Roberts's theory of expressive culture (Roberts 1971; Roberts and Sutton-Smith 1962; Roberts and Kundrat 1978) and his studies of person-centered and small-group cultures (Roberts, Morita, and Brown 1986), and by Romney, Weller, and Batchelder's (1986) studies of cultural domains in individuals. We are in a stage now where a microscopic analysis of cultural dynamics within and between individuals is likely to bring important advances. In this regard the epidemiological approach by Sperber (1985) is noteworthy.

⁶Dependence in the social world should be distinguished from the increasing ecological (economic) dependence that arises out of craft and other kinds of specialization in an advanced civilization. This latter concerns autonomy in the ecological area, where autonomy of the individual is not the essential condition for adaptive potential that it is in the social world.

⁷This formal method largely follows Gibbs (1972, 1982) in its details. (For an earlier description of the theory, see Colby 1981.)

⁸Not treated here but integral to the theoretical program are the elements of motivation that relate to needs for innovation and coherence. This goes back to an early paper on innovation and redundancy involving values (Colby 1958). Recently coherence has come to have considerable importance as developed by (1) Fernandez, with respect to religious constructions and metaphoric predication (1982), and (2) Antonovsky, who has constructed a questionnaire to measure what he calls "sense of coherence" in terms of a sense of purpose, order, and predictability (Antonovsky 1987). Though arrived at independently, Antonovsky's questionnaire covers ideas close to Kluckhohn's determinate-indeterminate and unitary-pluralistic value categories (Kluckhohn 1958). Kluckhohn, however, never linked particular values on these dimensions with physical and psychological health as Antonovsky does. Antonovsky sees his sense of coherence more as a result of what he calls generalized resistance resources which correspond to what is meant here by adaptive potential. Kobasa's Hardiness Scale (Kobasa, Maddi, and Kahn 1982) shows some components of Antonovsky's Sense of Coherence scale, but the Hardiness Scale (which is now a commercial product) has not been found to correlate with physical illness in samples of women (Schmied and Lawler 1986), nor has it been successfully used for student populations. See Colby (1987) for a discussion of coherence at different levels of the interpretive system.

⁹Modalities are defined by valence on the altruism components. A modality of paternalism is low on autonomy but has a positive valence on affection; a modality of egalitarianism is positive on both affection and autonomy; and a competitive modality is negative on affection and positive on autonomy. See Colby and van den Berghe (1969) for a description of some of these in the context of ethnic relations in Guatemala.

¹⁰Ideally the physical-symptoms measure is lagged in a longitudinal study, though the question of how much the lag should be—in a few days, three to six months, or one year or more—is a complex one because of the many different neurophysiological mechanisms and immune systems involved. In the test described here T-1 coincides with T-2 in a single cross-sectional study that covers a retrospective three-month time span. This requires the assumption that, while adaptive potential leads physical health and changes over time, it usually changes sufficiently slowly to allow cross-sectional measures.

¹¹No foreign student can study at UC-Irvine without passing an English proficiency test (TOE-FLE).

¹²This second group reflected a sample selection bias: students answered the questionnaire to gain extra credit in social ecology or psychology courses.

¹³Without analysis of blood samples or other means of assessing immune system functioning, there is no direct test of the immediate mechanisms in the adaptive-physical health link. There is, however, a growing literature in psychoneuroimmunology outlining the physiological pathways of these linkages. The production of corticosteroids and other substances occurs when affect is strongly negative, and these in turn have a depressive effect on immune-system response that is manifested in physical illness. Since the theory is derived from the concept of natural selection rather than from direct immunological findings, it does not, at the moment, cover the biochemical mechanisms. However, these mechanisms will be explored in research currently planned.

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