

REVIEWS

Social Science Theory and Methods in the Study of Alternative and Complementary Medicine

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INTRODUCTION

At a recent conference on alternative medicine, after several practitioners had described the logic of their treatment modalities and their system's use of "classic" (ancient) texts, a man rose from the audience and said: "This is all very nice, but what has it got to do with medical progress?" Two months later, at another conference, a speaker detailed the psychic difficulty some hands-on practitioners experienced in delivering sham care in a single-blind study. Afterwards, a woman in the audience asked if the researcher thought that contravening the practitioners' intent to heal had produced a nocebo effect.

Both questions were followed by spirited discussions. In the first instance, the alternative practitioners repeated the logic underlying their reliance on ancient sources, yet many in the audience remained both puzzled and unconvinced. In the second instance a consensus emerged that minimized the importance of the nocebo issue in favor of an argument that "everyone has to give a little, maybe even suffer a little, for the progress of science." The conference ended with a ringing pronouncement from the podium that research is not scientific if not replicable—"We must get the same answers every time we try!"

From an anthropologic point of view, these anecdotes have this in common: they are examples of paradigm conflict in action. They are also examples of research being guided more

by paradigmatic preferences than by the rules of science. Such situations are common in the current conversation about doing clinical and survey research on alternative medicine.

The problem boils down to the fact that there are actually two major ways of constructing reality in our society, and one (the reductionist) is favored by traditional bioscientists, while the other (the relational or holistic) is favored by many alternative healthcare systems. Thus, when bioscientists design research according to rules that have been developed in tandem with biomedicine, alternative practitioners complain that these approaches are narrow, unfair, that they misunderstand and misrepresent, and—in short—do not accurately describe their healthcare capabilities. Bioscientists often respond with puzzlement or defensiveness to such complaints, for they have been taught that their practices are highly accurate and the *sine qua non* of objectivity.

To ground these observations, briefly consider some specific points of discomfort. Bioscience highly honors the experiment, especially the "double-blind, randomized, controlled, clinical trial." This approach assumes that both patients and practitioners are more or less interchangeable, and tries to minimize the action of subjectivity and suggestion (placebo effect) on the interaction, so as to test the efficacy of some well-specified treatment modality, such as a pharmaceutical drug. However, holistic practitioners often view their relations to the patient as very close, indeed as an aspect of the healing

process (they try to *enhance* the placebo effect); thus to deny this relationship is to misrepresent their style of care. They also point out that users of alternatives have made active choices to locate and utilize alternatives, and so should not be treated as passive participants in their healthcare. Then there is the problem that it is difficult to blind patients and impossible to blind practitioners in hands-on practices. The reductionist response to this observation often is to propose using a single-blind design, but while this may be acceptable for patients it contravenes the practitioners' intent to heal, introducing the danger of nocebo effects or negative suggestion.

Again consider that reductionist research likes to identify single variables and minimize contingency, and so it uses standardized protocols in which care is "the same every time" as far as possible. But alternative practitioners say that life and dis-ease are in movement, and so they assess the patient's condition and may change their care every time they see the patient. They also typically tailor care to each patient even though all have "the same" complaint (at least from the biomedical point of view), arguing that the context of life affects the expression and experience of dis-ease. A protocol that demands identical care actions abrogates such a system's explanatory model.

Listening to such conversations, one has the impression that unbeknownst to the speakers, two languages are being spoken. And this is not a bad analogy: the perceptual universes of the reductionist and holistic world views are considerably different, yet few people know much about the paradigms that mold their thought and their science.

This fact, with its corollary that methodologic issues can be co-opted by paradigmatic issues, is, to me, the core of the problem facing clinical and survey research on alternative medicine today. We need to learn to identify paradigms, and account for their effects in the practice of our research science.

How can we do so? Provoked by events such as those described above, I have concluded that one answer is to use the data, theory, and methods of anthropology to gain insight into and to modify our general approach to doing research. Dealing with cross-cultural and

cross-paradigmatic issues is at the center of this unique discipline. And after over 100 years of observing human behavior on every scale and in every part of the world, anthropologists have created a huge data base, robust methodology, and useful theory that can effectively address issues of paradigm and methodologic conflict.

In this paper I provide a rationale for this claim partly by describing the characteristics of anthropology directly, and partly by arguing "like an anthropologist." I do this with some humility—clearly one person cannot speak for all of anthropology—so what I say will inevitably be an expression of my own professional and personal experiences.

The paper begins with a survey of major models and methods in anthropology. The second half applies these perspectives to understanding paradigm conflict in the study of alternative medicine. I argue that many methodologic issues in alternative medicine can be resolved by strict attention to defining research goals clearly and to meeting model fit validity criteria.

MAJOR MODELS AND METHODS IN ANTHROPOLOGY

On culture, worldview, and relativity

In the United States, anthropology embraces four major fields (linguistics, archaeology, sociocultural anthropology, biological anthropology), and numerous subspecialties including medical anthropology. All are united by an interest in examining the vast variety of human behavior. Even bioanthropologists, whose concern is with infectious or chronic disease, human growth and development, fossils, or nonhuman primates, examine these issues in the context of human culture.

Anthropologists have accrued a huge data base describing human physical and behavioral variability. These data make it abundantly clear that human beings have found many thousands of ways to answer the same life questions, and that these many answers also can be abstracted into a handful of major approaches. Each of the thousands of ways may be said to constitute a culture; the major ap-

proaches are, broadly speaking, worldviews or large-scale paradigms.

Let us begin with the concept of culture. This is surely the most famous idea to evolve out of anthropology. The word refers to the ways that groups of people arrange or design their lives; some authors refer to these as *lifeways*. Children and other newcomers learn culture through socialization, or, as anthropologists usually say, enculturation.

Culture includes both nonmaterial aspects such as attitudes, assumptions, beliefs, myths, concepts, approaches, models, laws, and bodies of accepted “facts,” as well as material aspects including housing, eating, and clothing patterns, and the design of institutions and delivery systems for goods and services like healthcare. Since every human group has culture, it is also clear that Culture (with a capital C) characterizes the human species.

Culture provides a guide for living, but each subgroup and each person interprets its “rules” for itself. One must live within a society, play with its cultural norms daily, to learn its subtleties: what must be done and what may be ignored, what rules may be broken, what sanctions will ensue. A culture is not static: it is responsive to ideas (material or nonmaterial) that arise from within or arrive from elsewhere. If, however, the new idea challenges too much of what people hold dear, it will meet with resistance.

In examining these points of stress within and between societies or institutional bodies, anthropologists recognize the workings of *explanatory models* (smaller scale) and *worldviews* (large scale; synonymous in this paper with paradigm). Both of these concepts refer to the assumptions and derived logical strings that people use to perceive, create, and interpret the things around them, that is, to “think.” Every culture and discipline is guided by such interpretive schemata, of which one or two usually dominate, to be labeled “conventional” or “normal” thinking. Some worldviews expand to characterize large numbers of peoples and to survive for hundreds of years. The reductionist (positivist) and relational (holistic) worldviews are of this expanded popular nature.

Note that this discussion has taken for

granted that there *are* “multiple realities”—this is, in fact, the burden of the anthropologic recognition of cultures. However, the idea that there are many realities challenges the assumptions of the dominant Western worldview, the reductionist paradigm. This paradigm is guided by a dualist assumption that there is a “perfect reality” somewhere, and that daily life is its imperfect reflection:

These [Greek and Judeo-Christian] thinkers sought that permanent and unchanging first principle that had overcome initial chaos to give unity, order, and design to a changing world, . . . they sought the “real” structure behind change—called variously Platonic Ideas, natural or Divine law, moral principle, God, and so on (Ames1993).

Indeed, it has been one of the intellectual battles of the 20th century to “let in” the possibility of there being many realities, or, better stated, many *valid* realities—for it is still possible to say (we hear it everyday) “Oh yes, those people think of it that way, but they are wrong.”

An important point about the variety of worldviews is that whatever the anthropologists (psychologists, doctors) may think, *their users consider them valid*. This has led anthropologists to argue that the validity of worldview is best measured from the perspective of its users, not those of outsiders. For example, if you want to examine homeopathically potentized remedies, begin with the physics of the homeopaths, not of the allopaths. If you want to understand craniosacral manipulation, begin by listening to its adepts and trying to sense the craniosacral rhythm yourself. To approach things this way in cross-cultural/paradigmatic research is to meet the criterion of model fit validity. To achieve the necessary dispassion, anthropologists employ two strategies, those of relativity and reflexivity.

Relativity tells its users to take note of the variety of lifeways, and to study how they work for their users, but to remain in a comparatively neutral observer position with regard to judgement: “*knowing the values of people without adopting or rejecting them*” (Kaplan 1984). This means that anthropologists want to know what people

think or perceive, not whether it is “really true.” Nothing is “really true” when all knowledge is culturally coded; rather it is helpful to know how the belief or logic functions for users (how it is contextually true), and then factor it into response strategy. For example, if people believe that God causes cancer, it is not the anthropologist’s role to “correct” them (to make them see things our way), but rather to work with the implications of their explanatory model. One option is to direct them to practitioners who share their belief; another is to broker their use of a healthcare system that does not think cancer is caused by God (Balshem 1991; Davison 1992; Kleinman 1980; Schussler 1992; Chamberlain 1976).

Primary healthcare practitioners and outreach specialists are often less clear on this issue, suspecting that they ought to “educate” (really, *re-educate*) patients whose models do not match their own. Education is the focus of many prevention and intervention programs, and relativist scientists cannot complain as long as it is offered on a “take it or leave it” basis. But often it is not. There is a considerable literature recording expert opinion that laypeople who have not accepted or acted on such education projects are “resistant,” even “fatalistic,” as well as a literature testing the accuracy of the perception (Chamberlain 1976; Fitzpatrick 1984; Pill 1983). The “fatalism” claim is again paradigm conflict in action. Although the reductionist worldview proposes that laypeople should listen to experts (hierarchically, inferiors:superiors), laypeople generally have their own priorities and models that may not lead them to agree. Demanding that they agree is *ethnocentric*, an anthropologic term for a form of prejudice in which people consider their explanatory model superior to anyone else’s. Ethnocentrism* is the reverse of the relativist position.

Ethnocentrism also pertains when methodologists insist that their approach is more accurate or right than any other option. Normal science’s insistence upon the absolute superiority of randomized double-blind clinical trials (often pretentiously labeled the “gold stan-

dard”) is an example of methodologic ethnocentrism. Again to quote Kaplan: “*Truth and meaning are confused in the interest of defensive exclusion*” (Kaplan 1984) (see also Coulter 1991; Ney 1986).

Scientists—like everyone—do make value judgments, of course. The purpose of relativity is not to demand an impossible scientific purity, but to help scientists avoid ethnocentrism, more commonly called *bias* in the biosciences. To do this researchers need to know as much about their own valuing patterns as they do those of their study populations, and they need to make these valuations “*conscious, specific, and explicit*” (Kaplan 1984).

Relativity is easier to practice when one remembers the “insider/outsider” contrast, sometimes called by the jargon terms *emic/etic*. Insiders are experts with regard to a particular form of knowledge; others are outsiders. Thus, nutritionists are insiders to knowledge about nutrients and their importance in designing diet . . . but often outsiders to lay motivations about designing diet. Community members are insiders to information about their community’s habits, language, preferences, and fears, although they may be outsiders to biomedical explanations of the causes of, for example, cancer. It would be nice to think that outsiders would enjoy becoming insiders, but often they do not. The inside information offered may seem incomprehensible or irrelevant, or the person may consider his or her existing information to be superior to any that may be offered.

Lest these points sound trivial, note that forgetting, ignoring, or misinterpreting the insider/outsider distinction is a significant problem in healthcare outreach and research on alternative medicine. It constitutes a model fit validity error. Consider one example (Graham 1987) of what can happen when fitting an outreach design to insider knowledge patterns is not done. In this case, low-income mothers of toddlers were “targeted” for education and motivational programs to help them stop smoking. They were offered the rationale that stopping smoking would lower their cancer

*Compare terms formed in parallel: Eurocentrism, androcentrism; and related terms about prejudice: racism, sexism, ageism.

risk. However, few women stopped smoking. The specialists wondered: didn't the women understand that smoking causes cancer? Graham, an anthropologist asked to explore the situation, found during interviews that "non-responders" had learned everything taught, but did not consider it relevant. They were poor, they explained. They did not have money for much fun, and the kids were a constant hassle. Smoking was cheap entertainment. Conclusion: their current need to relax and have a little fun far outweighed their concern for a possible cancer 30 years down the road.

Notice that the outreach specialists could have gathered this data ahead of time, and used it to modify their outreach program (thus meeting one validity demand of model fit). That they did not do so illustrates a common snag in applying the reductionist paradigm to social outreach: outreach specialists may not gather data on the context of their "targets" lives because they may not consider that "targets" have contingencies that could outweigh "expert" concerns. The specialists see themselves as the "insiders," which they indeed are with regard to their expert knowledge of cancer. But they are "outsiders" compared to community members. This situation could have been rescued at the outset had the researchers visualized the community as "inside" and worked with them to identify relevant health-care messages.

Applying the attitude of *reflexivity* (sometimes called the Heisenberg principle) can help researchers to avoid such errors. This word refers to the awareness that, having been enculturated, one can never be wholly "objective" in one's observations: the observer is a part of whatever she or he observes. Rather than treat this as a barrier, anthropologists use the insight to guide and enhance research, by paying close attention to issues of context, and by noting their own reactions to others' models and behaviors. *Context* means everything within which a particular behavior is embedded. In the example above, smoking was not

an independent behavior ("independent variable"), but tied to larger issues of poverty, isolation, fatigue, and worldview-guided decision-making patterns. Using the concept of culture, anthropologists argue that *no* behavior exists as a particularity, hence no behavior can really be studied "all by itself": context always matters. Again, reflexivity means that anthropologists (and others) can use their own reaction to a word, story, technology, or situation as a guide to degree of enculturation. When a person has little reaction (when the word or machine seems conventional or unexceptionable), it probably fits the observer's paradigm. Things that startle, embarrass, frustrate, or anger signal conflicts. Either response requires attention, warning the reflexive thinker of the need to gather information carefully, to pay close attention to issues of model fit.

Anthropologic models relevant to alternative medicine

Anthropologists gather data by talking to people, by analyzing their texts (writings, artworks, cityscapes, hospital designs, educational systems, garbage heaps . . .), and by observing their behaviors under different circumstances. The goal is to understand how people's behaviors function for them, what underlying cognitive structures explain them, and how biology, environment, and culture interact. Sometimes original descriptive data are assembled into *ethnographies* (detailed descriptions of the lifeways or healthcare system of a group of people, or of a more bounded situation like a hospital, clinic or medical school (Kleinman 1980; Ashley 1987; Estroff 1981; Farquhar 1994; Lock 1980, Snow 1993; Duden 1993; Sordas 1994; Martin 1987). Because ethnographies are extremely labor-intensive, much ethnographic work is summarized in shorter works similar to case histories, often in edited volumes (the references cited here describe a range of medical practices emphasizing biomedicine and its interactions with other systems).^{*} Very often, anthropolo-

^{*}(Leslie 1976; Helman 1978; Spicer 1979; Cassidy 1982; Chrisman and Marezki 1982; Romanucci-Ross, Moerman and Tancredi 1983; Baer 1987; Helman 1987; Scheper-Hughes 1987; Gordon 1988; Kirmayer 1988; Kleinman 1988; Lock and Gordon 1988; Young 1988; Davis and Guarnaccia 1989; Harris 1989; Stein 1990; Cassidy 1991; Curren and Stacey 1991; Estroff, Lachiocotte, Illingworth and Johnston 1991; DiGiacomo 1992; Kirkland, Mathews, Sullivan and Baldwin 1992; Leslie and Young 1992; Finkler 1994; Moerman 1983).

gists do comparative research, looking for structures that seem to explain behaviors on a wider scale. This section reviews several such models that are particularly useful to research on alternative medicine (for more discussion see the references cited) (Kleinman 1980; Fabrega 1974; Eisenberg 1977; Foster and Anderson 1978; Murdock 1980; Young 1982; Hahn and Kleinman 1983; Helman 1990; Kleinman 1991).

Healthcare Systems. A cultural healthcare system is a large-scale concept that encompasses a cohering body of knowledge and behavior comprising not only many techniques but also delivery styles and locales, practitioner training styles and locales, a body of theory (explanatory model), professional support groups, technology, production and distribution subsystems, and social and legal mandates for practice.

Consider acupuncture as a system of healthcare. In this case there is a body of theory and practice, including texts, reaching back at least 2000 years; a history of use and expansion into many parts of the world; teachers, schools, and apprenticeships to train new practitioners; hospitals, clinics, and offices where acupuncturists perform diagnosis and treatment; treatment modalities including needle insertion, herbs, massage, diet, and bodywork; production and delivery systems by which needles, herbs, books, and other equipment are grown, refined, made, packaged, stored, advertised, sold, and delivered to pharmacies and service locales; professional organizations that license, promote, and offer development opportunities to practitioners; patients and patient networks; public opinion about the practice and its utility and corresponding legal mandates controlling practice; and (finally) researchers specialized in its study.

Smaller-scale concepts include the *approach* and the *technique* (Figure 1). Within systems are subsystems, disciplines, or approaches, which are specialized ways to apply the explanatory model. For example, within biomedicine there are many specialties and subspecialties (pediatrics [neurologic pediatrics], internal medicine [cardiology] . . .); chiropractic recognizes mixers and straights; acupuncture comprises

several styles (traditional Chinese medicine, five element acupuncture, Korean, Japanese, French . . .), and a variety of subspecialties (e.g., ear acupuncture, detox acupuncture).

At the smallest scale the *technique* is a relatively well-bounded easily-specified behavior: such as giving penicillin with a hollow needle syringe, crystal-gazing, taking garlic capsules, or grinding eyeglass lenses.

The *system* is altogether a more difficult research subject to access than the *technique*, for the former's contextual complexity is infinitely greater. However, many researchers confuse these three scalars: system, approach, and technique. The confusion seems to arise partly because of the habit of tossing every practice that is not biomedicine into the enormous bag labeled "alternative medicine," partly because, apparently, social science concepts have not made much headway in bioscience environments. However, it behooves all researchers to learn the distinctions and to apply them when designing research. Thus the technique is well bounded and can therefore be relatively easily studied using reductionist methods, but the approach and the system are not well bounded and demand qualitative research. Failure to differentiate these concepts and scalars can lead to some serious errors, up to and including claiming that an entire system is "probably ineffective" because it has been inappropriately lumped with techniques and studied as if it were as relatively simple as a technique (cf. ref. 49, comparing acupuncture with garlic supplementation).

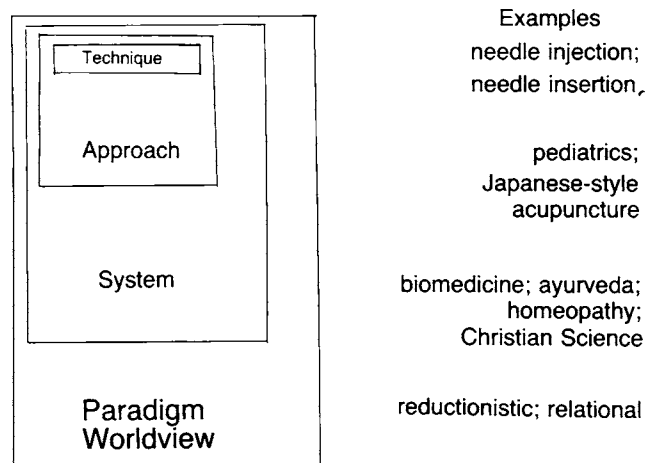


FIG. 1. Scalars in research on alternative medicine.

The Causes of Malfunction. All humans recognize *illness* (the experience of ill-health including its social parameters), but how they deal with it varies enormously. The healthcare system noted above provides structures for care based on the underlying explanatory model.

One major line of differentiation concerns whether people think ill-health comes primarily from the outside or represents inner perturbation. Those who prefer outer causation explanations usually name various well-bounded and specifiable entities that cause *disease*—such as micro-organisms, spirits, or genes (genes are “outside” in the sense that they are not accessible to daily perception). When disease is outside, people try to keep it there, creating barriers to its entrance, or working to remove it once it gets inside. It is seen as being separate from the person; care involves removing or incapacitating it, and *cure* can be both abrupt and complete.

If illness is thought to indicate inner malfunction, usually people speak of *perturbation* or imbalance, and attribute it to ineffective action of a nonmaterial essence such as vital spirit or energy. This essential substance pervades the body and continuously responds to the inner (diet, mood) and outer (weather, occupation, cleanliness) environment. The practitioner cannot, therefore, treat the body as a barrier; instead he or she must learn to follow the energy, understand feedback between inner and outer conditions, and manipulate the essence. Care provides *support* or *healing*, not *cure*, since as long as life is present, there will be perturbations of the essential flow.

Note that the structure associated with “outside” explanations of malfunction is of an “is there/is not there” or state-dependent nature, but the “inside” explanations of malfunction are of a “continual flowing” or processual nature. The biomedical model prefers the “outside” argument, and quantitative research depends upon it, preferring to deal with well-bounded “disease entities” and often measuring effectiveness in terms of cure. Can this model retool to deal with processual issues?

Another line of differentiation is between healthcare systems that categorize cause as

naturalistic or as *personalistic* (Foster, Anderson 1978). In naturalistic systems, illness is thought to be a “natural” event in the sense that no one intended it. Causes may include wind, cold, energy imbalance, bacteria, or accident (i.e., both “inner” and “outer” causes), but in no case is a sentient entity thought to be causing the malfunction. In personalistic systems, a sentient entity—God, a demon or ghost, a witch, an irritated neighbor—is the “real” cause of the illness. In the personalistic model a person’s wishes have agency, and thus can make one sick (or well). Although spirit-as-cause is no longer very popular among scientists in the West, the idea that “thoughts cause illness” is.

Naturalistic explanatory models are preferred by healthcare systems such as biomedicine, chiropractic, homeopathy, osteopathy, ayurveda, acupuncture, and the like. Personalistic models are typical of shamanic systems, as well as being important in the biomedical specialties of psychology and psychiatry. They are present, although downplayed, in other major healthcare systems as well. They remain popular among laypeople, who often want to know “why me” or “why now” when they are ill or have had an accident, and take comfort in personalistic explanations.

For researchers, knowing more about the context of the care they wish to study is helpful. Here, it might be valuable to track perceptions of cause simultaneously with the test of a treatment modality: people with different explanatory models might well respond differently to the test treatment.

Treatment Styles. Recent literature on biomedical outcomes discusses treatment styles in terms of the power relations of the patient and practitioner (Levenstein et al., 1989; Roter and Hall 1987; Street 1991). *Practitioner-centered* styles are hierarchic and authoritarian, while *patient-centered* styles are more egalitarian and horizontal. The distinction is important to research because reductionist approaches to clinical research, such as designs demanding randomization and blinding, are based on an assumption that there will be little closeness between patient and practitioners, and that both are more or less interchangeable because

the subject is really disease and its treatment. However, those involved in close relationships would not agree, insisting that the relationship itself affects the health outcome and should be factored into research designs.

Other aspects of treatment style also affect the research situation. For example, most research is based on the assumption that there is a *one-on-one relationship* of patient and practitioner; in some cases, however, the normative style is *one practitioner on many* recipients. This is true, for example, when a style of care focuses on one person but also includes his family and friends, as in Navajo Sings. Again, most research assumes that care will be delivered in *set-aside locales*, such as offices, clinics, or pharmacies. This is desirable for the researcher since it puts clear boundaries on the research space. However, much care is actually delivered in other settings, such as in homes, churches, temporary structures (e.g., teepees) or during conversations and over the telephone.

These points of practice style lead to the issue of how extended the care is: Can it be fairly well specified and localized? Is it delivered in a fairly limited time frame? Is the care itself bounded, by having shape and number (e.g., pills), or number (e.g., 30 treatments). Or is it framed as a continuing process, a relationship in flux, a relationship with a shape dependent upon the weather and shared with other participants? These differences present different challenges, and demand different research design strategies.

Most of all, of course, the researcher needs to know about these things before he or she begins. Knowing how health care can vary—as summarized by models like these—is a first step. The next step is to gather data directly from the people one wants to understand. How anthropologists go about doing this is discussed in the next section.

Anthropologic methods

Anthropologists, especially ethnographers, emphasize qualitative methods or a mix of the qualitative and quantitative, and view research as an interactive process. They prefer to

Immerse themselves in the daily lives of respondents

Treat the knowledge of respondents as data
Analyze “natural” as vs. laboratory or controlled experiments

These points pertain even to bioanthropologists who depend on quantitative methods, yet complement these with qualitative approaches that help to situate the biodata in terms of cultural constructs (Haas, Harrison 1977; Inhorn and Brown 1990).

Major ethnographic data collection techniques can be conveniently summarized in six categories (Bernard 1993a; Bernard 1993b; Bernard et al. 1993; Brink and Wood 1988; Denzin and Lincoln 1993; Lincoln and Guba 1985; Miles and Huberman 1994; Morgan 1993; Pelto and Pelto 1978; Trotter 1991; Williams 1984). Often two or more of these approaches are used simultaneously. All of these methods are also used by researchers other than anthropologists. All are qualitative to the extent that they emphasize the respondent’s point of view, although some permit quantitative analysis.

Examination of Existing Records. Besides, or before, involving themselves directly with respondents, anthropologists study the records people leave of their passage, such as birth and death records, native texts, court proceedings, hospital charts, photographs, and so on. On an expanded level, anthropologists also assess the environments in which people live, such as the design of public and private spaces, artwork, healthcare settings, and the like. The logic is that since what people do is guided by culture, these records can be mined to reveal cultural norms and assumptions. For example, the language chosen to refer to patients in hospital charts is not culture-free, but reveals aspects of how healthcare practitioners value and interpret patients.

Participant Observation. This technique, developed within anthropology and often considered to typify our methodology, consists in living or working with the people one wants to understand, and becoming enculturated to their way of life (Spradley 1980). In this process the researcher remains aware of the enculturation process, detailing how people live, how they make decisions, how they break rules, as well as tracking his or her own responses to these behaviors. The latter process helps to flag

the deep, often hidden, patterns of both the observer and the actors, which the researcher can then explore directly through interviews with persons (*key informants*) who are either identified as expert carriers of cultural norms or are unusually willing to explore issues of cultural communication with the anthropologist. Although many think of participant observation as occurring mostly in faraway places, it is widely used by, for example, medical anthropologists as they go about performing their daily tasks in hospitals, clinics, classrooms, and conference halls.

Interviewing. There are many ways of interviewing, from the informal chat to survey interviews in which the questions are predetermined. Anthropologists favor open-ended and semi-open-ended formats, with individuals or with groups (McCracken 1988). In the first, the researcher sets the topic, and then lets the respondent(s) lead; in the second, the researcher sets the topic and also asks a limited number of guiding questions, but again gives the respondent(s) leeway in choosing where to go with answers. The reasoning behind giving leeway is that interviews permit people to reveal themselves, and they can do so best if allowed, encouraged, to use their own logic and their own language. This means that the researcher must not impose structure (such as questioning from an "expert's" point of view [e.g., the biomedical model]), but allow respondents to reveal the structures that matter to them. The researcher's questions, then, may guide and clarify, but must not lead, force, or corner the respondent. Because they impose a structure from the outside, anthropologists generally do not like to use predetermined questions of the kind commonly found in survey interviews (Suchman and Jordan 1990). This is especially true when the goal is to design an outreach or intervention program. In this case interviews must be designed to provide access to the respondents' perceptual worlds and motivations, for one must work with these when one wants to introduce a new behavior or change an old one.

Projective Instruments. These instruments resemble pictures, games, maps, and the like; or a respondent may be asked to draw a picture of the model she or he is attempting to describe in

words. These instruments are designed to help people reveal cultural information that is out of their awareness: information they cannot easily talk about. Projective instruments often form part of the interview process, or groups may be asked to play a specially designed game and then discuss their experience with the game. During the playing and subsequent discussion, the researcher observes and tracks behaviors and verbal expressions of underlying patterns and logical strings. The accuracy of what the researcher interprets can subsequently be discussed with respondents in interviews.

Unobtrusive Observation. In this method the anthropologist gathers information by observing events without participating or discussing them with the actors. This method can provide useful information on, for example, the frequencies and characteristics of successful and unsuccessful interactions in public places such as hospitals or clinics: perhaps in intake behaviors, or in dealing with visitors. In some cases video cameras have been rigged to observe interactions over long periods; in one famous case, people's diets and their nutritional values were accessed by analyzing their garbage.

Survey Questionnaires. Anthropologists often use survey questionnaires that closely resemble those used by other researchers. The difference is that usually anthropologists structure the questionnaires according to the preferences, and using the language, of the people they want to learn from. This process—the "tiered" or "respondent-driven" technique—demands that one begin with an interview step, then construct the questionnaire in situ, and ask a sample of the eventual survey population to critique it (Cassidy 1994a; Cassidy 1994b; Cassidy 1994c; Friedenberget al., 1993).

Rarely are these methods applied alone; usually two or more are used simultaneously or in sequence. This helps to improve accuracy by helping the researcher fulfill the goals of holistic research: to gather sufficient data to understand context, to know enough to deal with change and to differentiate "normative" from "nonnormative," and to know what local be-

haviors are likely to require brokering skills in other settings. For example, while working in a hospital on brokering communications between patients and practitioners, an anthropologist might also keep detailed notes on practitioner language, style, and worldview comments, and do a participant observation of physicians. Later on, the same anthropologist might survey a range of physicians in the hospital, asking questions to test some of the conclusions she has drawn from the observation phase. Finally she might apply an analytic technique such as *consensus analysis* to find out what constituted modal thinking in that hospital about a range of issues (Romney et al., 1986; Weller 1983).

An anthropologist might also interrupt an interview to run a projective test with the respondent. The projective test allows the respondent to reveal unconscious knowledge, which the anthropologist can explore when resuming the interview.

The "tiered" method mentioned above links an interview phase with a survey phase, and involves respondents in testing and critiquing the emerging questionnaire. The active participation of a sample of the study population in the development of the project helps to ensure the accuracy (meets model fit criteria) of eventual outcome data because it allows researchers to use the language of the target population, as well as to assess the match of specialist knowledge with participant knowledge.

To give a concrete example. Some years ago my colleague Jeffrey Sobal and I wished to measure public awareness of food fiber (Cassidy 1994b; Sobal and Cassidy 1993). Concerned that we did not know "the size of our problem," or what sorts of questions to put on a mail survey questionnaire, we began by doing intercept (2–3 minute) interviews. These warned us that a majority of laypeople limited use of the phrase "food fiber" to cereal grains, and used a completely different word, "roughage," to refer to all other foods that nutritionists would say contained food fiber. In short, the lay and expert models *sounded* similar but *differed* on essential points. We subsequently gathered detail on these issues in a series of 30–60 minute interviews, and finally con-

structed a brief mail survey that we could be sure had high model fit.

Extended Example: Analysis of Language Used at Methodology Conferences on Alternative Medicine

Anthropology is highly sensitive to language issues, since language molds and guides the ways people can express their thinking. It reveals paradigm, power relationships, history, gender, education, preference, cultural awareness, and many other details of being and occupation. Not surprisingly, language issues loom large in all discussions of alternative medicine. This is certainly partly because researchers come from many different backgrounds and favor their own discipline's jargon. It is also because holistic medical practices posit processes and effects that do not easily fit the language or expectations of reductionist science. One of the tasks of those concerned with studying alternative medicine is to find and develop a shared language.

In the next few paragraphs I will examine the multiple meanings and implications of a handful of words that resurface as problematic at all methodology conferences on alternative medicine. I have gathered these data through "participant observation," and reached my conclusions through the application of anthropologic theory.

A logical place to start is with the opening *anecdotes* that began this paper. *Anecdote* has a positive connotation in anthropology. Anthropologists feel that the informality of these life vignettes provides a useful window on minds at work, which is a good place to begin the research process. As the story is told, as the event unfolds, people unself-consciously reveal something of their values, their opinions, their knowledge base, and their assumptive patterns. These are data.

Bioscientists, however, often use the term to derogate information conveyed in story form: "anecdotal" data are not "hard," measurable, "objective" or (therefore) worthy. Caught between a rock (the fact that they must hear patient's stories) and a hard place (the fact that they consider themselves bioscientists in search of "objectivity"), biomedical practitioners have formalized the anecdote as "case history," and more recently, as the "N-of-1" research technique.

The difference in valuing the anecdote boils down to a preference for quantitative or qualitative methods, which in turn often signals a preference for reductionist or relational (holistic) explanatory models. Thus the differential use of a single important term can be used as a string to enter into the logic of an explanatory model. Anthropologists use this technique frequently.

For example, analyzing the particular anecdotes that start this paper, we see that both put high value on the concept of “progress”—this is a construct typical of the reductionist worldview and American thinking in general (Casidy 1994a; Arensberg and Niehoff 1975; Spindler and Spindler 1983). This paradigm argues that we can and should mold the future (“activism”) because humans are constantly improving (“teleology”) and the future will be better than the present (“positivism”). Hence one admires the “modern,” suspects the ancient. The truth of this perception is so great for many Americans that they cannot understand or accept a nonpositivist argument that suggests that, in its human essentials, the future is likely to be much like the present. For nonpositivist thinkers, like many holistic practitioners, paying attention to the accumulated wisdom of the elders makes a lot of sense, and these thinkers are likely to question new knowledge as being possibly insufficiently tested. Hence, paradigm conflict.

Because much of paradigm is out-of-awareness for users, patterns of assumption can easily bias the practice of science—as happened in the second anecdote.

Next, consider the term *biomedicine*. This word, which became popular starting some 20 years ago, names the dominant medical system in the United States (Hahn and Kleinman 1983). It emphasizes one characteristic of the system, that it is dependent upon knowledge arising from other disciplines, especially biology or the life sciences. There are many other names for this practice. *Allopathy* was coined by *homeopaths* almost 200 years ago to differentiate their internal model of cause from the external one characteristic of “heroic” (bio) medicine, their major European competitor. Other names emphasize the extension or political dominance of the system, such as *regular*,

conventional, *mainstream*, *orthodox*, and *cosmopolitan* medicine.

Because (in the United States) this particular practice is so overwhelmingly dominant, many people think of it simply as “medicine,” and this brings us to the second word, “alternative.” The word “alternative” is currently most often used as an umbrella term for the many thousands of forms of medical care that are not biomedicine. In this atmosphere, anthropologists see that giving the dominant system a name—*biomedicine*—that puts it in parallel with other systems is a political act that makes it possible to map this system as simply one more alternative. The process also has other effects. First, it helps us to situate the methodologic discussion: we are not trying to discover special techniques that will apply only to the study of “alternative medicine,” but to extend the general methodologic discussion and consider new challenges to validity. Second, it opens us to a better perception of the possibility that the many systems can *complement* each other in the design and building of a consciously *plural healthcare system*. The issue of building towards active complementarity is a rich one for research.

Related to the issue of biomedical dominance is that of what practitioners shall call themselves. The goal is to find a single term that can appropriately refer to practitioners of any healthcare system. *Practitioner* is, of course, such a term. But what about “doctor”? The word originated as a word for teacher (Doctor of Philosophy). It is used in a wide variety of medical professions—(bio)Medical Doctor, Doctor of Chiropractic, Doctor of Oriental Medicine, Doctor of Osteopathy—and it carries welcome connotations of power and erudition. However, reflecting the dominance of biomedicine, only biomedical doctors are popularly called “doctors;” the others are usually referred to as chiropractors, acupuncturists, and osteopaths. Try, then, the term “clinician”—it ought to work since most of the alternative practitioners share the biomedical propensity to work in clinics and offices. But it too is strongly linked to just one practice, biomedicine, as I was shown recently when a conversation went off the track because I used the word inclusively and my listener heard it

exclusively. Similar problems limit use of the word "physician." Of all the terms, practitioner is the most neutral and inclusive.

A currently popular word is *paradigm*, which means pattern, especially an abstract pattern of thinking. In methodologic discussions the word creates confusion because it is used at two quite different levels of scale. Anthropologists and other social philosophers usually use it to refer to a very large abstracted scale, the *worldview* or *cultural gestalt* of a whole society or time period (Ames 1993; Cassidy 1994a; Eisler 1987; French 1985; McFague 1987). Others, especially bioscientists, use the term to refer to a much smaller scale: models that differ among disciplines (Kuhn 1970; Foss 1994). The latter is what anthropologists call an *explanatory model*. The difference is important not only because the two usages differ in scale but also because the content of explanatory models is conscious and can be talked/taught about directly, whereas a great deal of what constitutes worldview is out-of-awareness: assumptions that people do not recognize as assumptions but as "just the way things are."

Problems of scale haunt methodologic discussions, and matter, for it is, of course, hazardous to confuse issues of scale: to compare samples of 4000 with samples of 4, to compare delivering healthcare to one person with delivering healthcare to a city, to compare penicillin with the whole pharmacopoeia of biomedicine. As noted earlier, another locus of language and scalar confusion is when researchers fail to differentiate the different degrees of contextual complexity of healthcare *systems, approaches, and techniques*.

To end this discussion, consider one more issue of scale, this time having to do with who the ultimate consumers of the knowledge will be. Easily the most popular question asked about alternative medicine is "Does it work?" But what does "work" mean? Should this be measured in terms of popularity ("willingness to use"), in terms of knowledge of underlying mechanisms, or in terms of the coherence of practice? Lack of clarity about these distinc-

tions often leads to confusion, for the scalar differences also imply different methodologic needs. The following four questions summarize the tasks of alternative medicine research, and identify which audiences will want what information.* *How popular is it?* This is a demographic and epidemiologic question of greatest interest to policy makers, patients, and practitioners. *Is it effective and safe?* This is a clinical question that especially concerns patients and policy makers. It does not centrally concern practitioners because they begin from an assumption that their practice is generally safe and effective. *How does it achieve its effectiveness?* This question is about the links between explanatory model and mechanism, and is of most concern to basic bio- and social science researchers. *Does effectiveness vary with style of practice?* This question is about details of practice and is of most importance to practitioners themselves.

PROBLEMS OF RESEARCH ON ALTERNATIVE MEDICINE

On doing science in a world of paradigm

Experimentalism and naturalism are two strategic approaches within the scientific method (Bernard 1993).

No inquiry is free of supposition. Nature answers the scientist's questions in the language spoken by the scientist. . . . the danger is that problems will be formulated to suit these means, rather than means adapted to the demands of the problem (Kaplan 1984).

Where do concepts such as the popular contrast of "hard" and "soft" methods, or the ideal of "blinded" research come from? Why are they so persuasive? How could it have happened that a single healthcare system, biomedicine, wound up compared in a scalar misfit with all of "alternative" medicine? What does it mean to say (in the Introduction) that "These are examples of research being guided more by

*I am indebted to Carlo Calabrese, naturopath researcher at Bastyr University, for the first insights that led to this list of four.

paradigmatic preferences than by the rules of science”?

To understand why scientists must meet and argue over “how to do appropriate research on alternative medicine,” we must examine science as it functions in the midst of paradigm.

Science. Science is an approach to knowledge that can be contrasted with, for example, precedence (law) and revelation or authority (theology). Emerging in the West over the last 400 or so years, what we today call “scientific method” follows some general rules:

The focus is on this-world issues, which are to be examined systematically in ways that others find convincing and/or can replicate; there are criteria of soundness to assess the quality of the observations and tests.

Hypotheses are tested; generalizations are sought; theories are generated and again tested.

Researchers are enjoined to be skeptical and relativist, to seek evidence rather than “truth,” to phrase findings in terms of probability, to recognize hypotheses and models as approximations, and to be ready to reject models in the face of convincing new evidence.

Researchers are also enjoined to practice reflexivity, to be aware of how their own beliefs can bias their research, and to take steps to minimize the effects of such bias.

Research can address four issues: exploration, description, explanation, and prediction; research, especially on new subjects, should follow a stepwise sequence from exploration through description, comparison, and correlation, to more formal quasi and full experiments (Table 1).

Note from this list that although science demands that research be *systematic*, it does not require “objectivity” as formulated by the reductionist paradigm. Thus there is no requirement for reliance on technology, the application of statistics, numerical measurements, or limitation to the study of material phenomena. There is no requirement for experimentation, either, for experimentation is properly the *end*

TABLE 1. USING QUALITATIVE AND QUANTITATIVE TECHNIQUES

<i>Type of research</i>	<i>Preferred techniques</i>
Exploratory	Qualitative
Descriptive	Qualitative
Correlative	Qualitative, quantitative
Comparative	Qualitative, quantitative
Quasiexperimental	Qualitative, quantitative
Experimental	Quantitative

(not the “top”) of a long sequence of data gathering and testing (Brink and Wood 1988). But because the reductionist paradigm is dominant, many people (including scientists) do think science is limited to these approaches. More serious for our purposes is the fact that the perspectives of the reductionist paradigm make it difficult to adhere to some of the rules of scientific method, especially those concerning relativity and reflexivity. These rules are easier to follow if one is working from a holistic framework.

There are, then, two major versions of science-as-practiced: one reductionist, one holistic. This is almost startling, because it also suggests that, somehow, science in its fundamental character wants to escape the strictures of worldview and attempts to be ultra- or supraparadigmatic. Therein, rather than exclusively in its “data,” lies its potential power, especially for the study of alternative medicine.

It will be revolutionary, and a true “paradigm shift” (not from one paradigm to another, but into a wider partnership perspective) if alternative medicine research fosters the successful application of the supraparadigmatic capabilities of scientific method. In this imagined future, the two paradigms will recognize and appreciate each other’s differing analytic skills, and researchers will select paradigmatic perspectives with the same care and attention to their implications that are now lavished on the selection of mere techniques.

The reductionistic paradigm.

We can call the world view that by the time of Plato and Aristotle had come to dominate classical Greek thinking a “two-world” theory. Later, with the melding of of Greek philosophy

and the Judaeo-Christian tradition, this "dualistic" mode of thinking became firmly entrenched in Western civilization as its dominant underlying paradigm. In fact, this way of thinking is so second nature to us . . . that we do not have to be professional philosophers to recognize ourselves reflected in its outline (Ames 1993).

The reductionist worldview is, as noted, dominant in the Western world, and guides the version of science called (variously) reductionist, positivist, and "normal."

The "two worlds" noted by Ames (1993) are the "real" world of constancy and perfection, and the daily unreal world of change. In this paradigm people learn to regret the daily world and change, and to seek the stable underlying rules and laws that represent the perfection of a reality that is somehow "out there," tempting eternally like the carrot to the donkey.

Characteristic thought patterns that derive from the "two-world" perception include judgmental oppositional duality, linear cause-and-effect thinking, efforts to control (guide or minimize) change and subjectivity, and a focus on the future when things will be closer to perfection (positivism). A fundamental question for this worldview is, "What is the One behind the many?"—the person or concept that makes everything cohere, that finally explains the apparency of variety and change. To answer this question, some users of the paradigm look outward to a guiding Cause (such as God), while others, especially scientists, look inward at ever-smaller parts, seeking the ultimate Mover (such as the search for a unified field in physics); this is reductionism.

The dualist habit of this worldview compares a more desirable form with a less desir-

able one, judging every duality: orthodox/unorthodox medicine, objective/subjective, reason/experience, cognitive/affective, experts (with knowledge)/laypeople (with opinions), providers/recipients, experimenters/subjects, helpers/targets. Typically, the desirable form is superior, has power, and moves things, while the other is passive, the one who is moved: doctor/patient. Daily world concerns and appearances, such as the stories people tell, are shadows, insubstantial, contingent, incapable of pointing the way to knowledge in the same way an objective search can.

The biomedical science that emerges from the application of this worldview is familiar to us. It is concerned with, for example,

- Seeking the underlying "laws" of life and disease
- Controlling "subjectivity" or "bias" while achieving "objectivity" in research by:
 - Masking perception and opinion (randomization, blinding)
 - Taking large samples and performing statistical analyses while often denying the value of small sample research
 - Measuring with technology and in terms of expert models rather than with observation or in terms of lay models
- Applying expert knowledge to "fix" or "solve" daily "problems."

It is also underlined in conventional language habits (Table 2). People who are ill are "victims," too passive (patient) to have affected the onset of their disease. People who are enrolled in research projects are "subjects" purposefully denied their individuality since it might bias the research. Those slated to receive help are "targets"—passive, faceless, preferably obedient. Indeed, it is puzzling in this

TABLE 2. SOME CONTRASTING HEALTH-RELATED LABELS IN THE TWO MAJOR PARADIGMS

	<i>Reductionist terms</i>	<i>Relational terms</i>
Those who seek healthcare	Patients	Patients/clients/persons
Those in research projects	Subjects	Participants, respondents
Those in outreach projects	Targets	Participants
Illness is a . . .	Problem	Challenge
To be . . .	Fixed	Approached
By a healthcare practitioner who is	An expert	A partner

system if laypeople resist or reject expert knowledge; the paradigm says they ought not to do so. The emphasis on laws and first causes also leads many to speak narrowly of science as “proving” things (as in the oft-repeated remark “We’ve got to prove that alternative medicine works”), whereas, when free of this paradigm, science does not work with proof but with descriptive evidence, tests, and approximations. Finally, reductionism seeks “facts”: small specifiable bits of data that are supposed to be unchanging or “true.” That sets of facts frequently have to be jettisoned in favor of new ones is perceived in this paradigm as the action of “progress.”

Thus reductionist science is a particular—not “the”—way to go about doing science, and, as with all particularities, has its limitations. These limitations are problematic for much of alternative medicine, because many of the world’s healthcare systems utilize the holistic, rather than the reductionist, paradigm. To explore the meaning of this remark, consider holistic parallels to the language examples given above.

The Holistic Paradigm. Holistic thinkers tend to prefer flexible expandible “metaphors” to categorizing “facts.” Although the term “patient” is still often used, “client” is also popular—this word implies a more egalitarian relationship. People enrolled in research or intervention projects are “participants” or “respondents”; and illness is not so much a problem as a “challenge.” Note that in each of these cases the burden of responsibility is at least partially shifted to the shoulders of the layperson, who is perceived as being actively involved in creating his or her life including both its successes and contretemps. The relationship of specialist to layperson is reconstructed from “expert” in hierarchy to something more egalitarian and parallel. They must be “partners” or “coexplorers” in the healthcare task because the patient has life expertise that the practitioner must have access to in order to deliver specialist expertise successfully.

To summarize the logic characteristics of the relational or holistic paradigm, consider another quotation from Ames, who approaches this paradigm as it is reflected in classical Chinese thought:

. . . we begin not from a “two-world” theory, but from the assumption that there is only the one continuous concrete world that is the source and locus of all of our experience. Order within the classical Chinese world view is “immanent”—indwelling in things themselves. . . . The classical Chinese believed that the power of creativity resides in the world itself, and that the order and regularity this world evidences is not derived from or imposed upon it by some independent, activating power, but inheres in the world. Change and continuity are equally “real.” . . . The path is not a “given,” but is made in the treading of it. Thus, one’s own actions are always a significant factor in the shaping of one’s world” (1993).

In holism there is no external reality, but only the reality of “now” and of be-ing. Life—the person, the body, the disorder—is continuously in flux, not aimed at a goal (no teleology), not externally controlled, not easy to pigeonhole, but emergent. Those who wish to impose order, such as treat ill health, must do so by dealing with what presents itself at the moment, modifying the pace or direction of change but not the fact that it happens, because they cannot stop it. They must also pay close attention to context and the relationships among events, since the smallest event can affect many others in a ripple effect. All things, in this model, are related, interrelated, correlated. The practitioner, and the observer too, are part of this whole.

In medical care, practitioners see the patient (or client) as having some part in creating their condition, as well as in containing or redirecting their condition (patient responsibility). Since rather little is “given” there is great scope for improvement and for hope. The client has knowledge—perceptions, opinions, experiences—that matters. To communicate effectively, to know how to intervene in the flux to enhance health, the practitioner must enter into relationship with the expert patient.

Like reductionism, the holistic paradigm is dualist, but in quite a different way. This dualism is called *complementary dualism*, wherein categories emerge and disappear in constant movement. Thus each pair is seen as the halves of a whole, each half emergent in the other half; the Chinese summarize it as yin and yang.

Objectivity contains subjectivity (reflexivity; Heisenberg principle), and subjectivities can be systematically ("objectively") studied. A practitioner cannot practice in the absence of a client; a researcher cannot do clinical research without relating to both clients and practitioners.

This worldview/paradigm is extremely popular outside the Western world, and continues to guide the thoughts of a subsection of Westerners including science as practiced by many social scientists. In this science, researchers consider relationships more than objects, track whole rivers of information, are skeptical of simplification by subtraction, and find that efforts to abstract from the whole can never be more than approximations or models. Linear logic gives way to a search for patterns; there is no simple cause and effect. As a result researchers:

Do not seek "laws" but study processes, patterns, assume that boundaries are in flux, express observations with metaphor or probability.

Assume that all data are subjective, and bias arises primarily from failing to understand the research setting or people sufficiently; thus:

Assume that people's knowledge matters; collect stories and anecdotes

Detail perception and opinion

Offer choice

Trust detailed small sample data

Design large-sample research on the basis of preliminary small-sample research

Emphasize observation

Avoid technology or find means to humanize it

Integrate lay models into the research design

Combine recipient and expert knowledge to "approach challenges" (i.e., not "fix" things).

Criteria of soundness

All the sciences demand that data be gathered systematically and that it be accurate: that the right questions be asked and appropriately answered, and that the resultant analysis cor-

rectly describe and interpret the people, practices, and events that have been studied. To achieve these ends, quantitative research tries to ensure reliability and validity.

Qualitative research demands the same things, but measures them somewhat differently. Instead of reliability, qualitative researchers sometimes refer to *transferability*. Although aware of the goals of internal and external validity, qualitative researchers are even more concerned with achieving *model fit validity* or *credibility*.

Reliability is a measure of whether the same procedure receives much the same answers every time it is tried: Does a machine measure within a narrow range whenever tested on the same person or similar people? Does a questionnaire receive within-probability answers whenever used on similar samples of people? Lincoln and Guba (1985) argue that one should not apply the criterion of reliability to qualitative research because in the complexity and changeability of natural/cultural settings, one cannot assume that things will ever occur the same twice. On the other hand, if one knows enough about the setting, one can modify the approach or weight responses to say fairly "These answers are the same given all that differs." For the latter approximative approach they prefer the term *transferability*, which I shall adopt.

There are two scales of transferability. A smaller one measures if the researcher can extend his or her findings on a sample to the whole population, and a larger scale asks if the research approach or findings can be expanded to another population. One might ask, for example, are the answers these jailed women gave about the success of their detoxification program sufficiently similar to those given by other samples of women in the same program in the same jail that we can say the instrument is reliable? What if we applied the same instrument in a sample of jailed women in another state? Of women in detoxification but not jailed? Just how transferable is this instrument?

Validity is a measure of whether the test procedure measures what it is intended to measure. Have researchers asked the questions they really meant to ask? Were they

understood by respondents as the researchers wanted them to be understood? Did they describe the people or their beliefs and behaviors accurately enough that if asked about the researchers' conclusions, respondents would say, "Yes, this makes sense, this seems right"? If the goal is to measure how often people experience depression, does the survey instrument actually measure that? If the goal is to compare symptom relief with "real" and "sham" acupuncture points, is the sham point actually inactive?

Model fit (credibility in Lincoln and Guba's [1985] terms) is the distinctive holistic/qualitative approach to validity. Basically, model fit demands that research design and techniques *fit the explanatory model(s) of the study population(s)*; the researcher is expected to be flexible. Flexibility is ensured by the stances of relativity and reflexivity, as well as by using qualitative data collection techniques that emphasize the primacy of the respondent, context, relationships, and the changeability of daily life.

When the model fit criterion is not met, results may be uninterpretable, or observers may not find them credible. Consider a model fit issue in acupuncture. Researchers, adopting a design style from pharmaceutical research, often try to assess clinical effectiveness by comparing results using "real" and "sham" (inactive or "placebo") acupuncture points. Although no one was sure how to identify sham points (the responsiveness of the body is perceived differently in the different subtypes of acupuncture practice), the convention was adopted that since the points are "small," sham needling could occur 1–3 mm from the known point. Using such criteria, studies tended to find rather little difference between the effectiveness of real-point and sham-point care. One interpretation of such findings could be, "needling has a general healing effect; the acupuncture theory that specifies points is mistaken." But this is not credible to practitioners or patients. Another possibility is that the sham point is not inactive as intended. Recent research (Margolin 1994) to test this possibility compared blinded within-patient responsiveness of four points (real for this condition, sham, real for another condition, and "place

not recorded in any classic or modern texts as active") and showed that, as usually defined, sham points indeed tend to be active. Model fit criteria were not met in earlier sham studies because the uncertainty that practitioners had about how big a point might be, or how responsive the body is to needling, were not factored into the research design. Those who wish to use the "sham point" approach in future will need to pay more attention to model fit validity.

Some qualitative techniques that help ensure model fit include the following:

Preliminarily immersing oneself in the study population, gathering as much information as possible on their beliefs, behaviors, and explanatory models, by participant observation, interviewing, observing, reading, and creating "thick" description. As Marshall and Rossman comment, "an in-depth description showing the complexities of variables and interactions will be so embedded with data derived from the setting that it cannot help but be valid . . . within the parameters of that setting" (Marshall and Rossman 1989).

Involving the study population (patients and/or practitioners) in the design and evaluation of the research. This helps ensure that the research is properly phrased (in locally understandable metaphor, vocabulary, explanatory models) and that it addresses subjects that matter to participants. In turn, this increases the likelihood that people can tell their own truth, rather than trying to respond to the researchers' truth. It increases accuracy, both by empowering people so that they are willing to explain themselves, and by producing interpretable data. The tiered method described above is one example of involving the study population.

Gathering data by several different methods, and then comparing and correlating outcomes by the several methods; this is often called *triangulation*. For example, in a study of drug addicted patients receiving detoxacupuncture, one might use a tiered method to develop a questionnaire, then apply it in a pretest/posttest design to

measure patients' perceptions of the effectiveness of acupuncture care. Because of how it was designed, this questionnaire already has, presumably, high model fit. But since patients' reports are usually not well trusted by quantitative researchers, the alternative researcher would be wise to add some physiological measures of the success of detoxification, as well as, perhaps, further social measures, and then compare the outcomes of the several measures (triangulate). If all point in the same direction, validity is high; in this case the priorities of the dominant paradigm have also been met, which is politically wise.

Creating a win:win research situation

We ride the front of a wave: where will it lead? This paper has suggested that by using anthropologic insights, methodologic stances and techniques, researchers on alternative medicine can make their job easier and their data better. To summarize, here are some recommendations.

Use the Methodologic Stances of Relativity and Reflexivity. Know that the differences abstracted under the rubrics of worldview/paradigm are deep-running and significant. The reductionist and relational paradigms are different ways of perceiving and constructing reality. Healthcare systems that arise out of these paradigms differ not as a matter of window-dressing, but fundamentally. In short, human health and healthcare behavior are situated: How best can the researcher respond? Reflexivity helps researchers examine their own habits of mind as they guide and bias their work. This should help researchers question ideals and designs that are "taken for granted," and to take a second look to see if they are appropriate. Relativity allows researchers to freely use the guidance of one paradigm and then the next, both qualitative and quantitative techniques, as best fits the situation.

Take Time to Ask the Right Question(s). It will be easier if you know the population, know their explanatory models, know your own, and have done the background research. Also

ask yourself: Who is my audience? What will they find credible? Beware of issues of scale.

Apply Model Fit Validity Criteria to Survey Designs. Get involved with the study population and know the groups you want to research. Check your interpretations with patients and practitioners to see if your "outsider" perceptions make sense to "insiders." Make sure your research design fits well with their explanatory model(s).

Apply Model Fit Validity Criteria to Clinical Research Designs. Randomization and blinding are characteristics of a particular scalar of quantitative design (the experiment): they are not necessary for credible clinical research and may be inappropriate. Question them especially if the patient and practitioner are in close relationship, or if the practitioner delivers hands-on care instead of a pharmaceutical.

The double-blind design is most appropriate to single pharmaceuticals. Some researchers substitute single-blind designs (only the patient is "blind") in hands-on situations, but this puts the practitioner in the position of going against his or her desire, or "intent" to heal. When intent to heal is abrogated, model fit validity cannot be met. Nocebo effects may very well occur. A better option is the single-blind design in which the data assessor is "blind," while both patient and practitioner maintain their usual relationship.

Both randomization and blinding are intended to prevent patient variability and subjectivity ("placebo effect") from interfering with measurement of the "true" effectiveness of the procedure. However, "real life" includes variability and subjectivity, and real people make choices and decisions. A design that ignores context may not have model fit validity.

Quantitative research usually demands that a standard protocol be developed and applied the same way throughout the research period. This demand conflicts with many holistic healthcare system characteristics, especially the ideas that each person is an individual and that his or her complaints are both distinctive and in flux. In this situation, to demand that the same care be delivered to every person is to

demand what is effectively malpractice; model fit cannot be high.

There are options for addressing each of these issues, about which a great deal more detail is given in textbooks on methodology. Here, the following suggestions suffice to point out some useful directions for methodologic expansion (Table 3):

Focus on naturalistic clinical effectiveness studies: those emphasizing standard care, those factoring in choice.

Instead of a predetermined "standard protocol," use the "standard care" criterion, which allows the practitioner to do what she or he usually does. This avoids paradigm conflicts because those who practice reductionistically and those who practice holistically do not need to modify their approaches. Instead the *outcomes* of their care are compared.

Emphasize "comparative outcomes research" designs (Hammerschlag 1994) over blinding when possible. In this approach, groups of patients receiving conventional care for a condition are compared with groups of patients receiving the "test" care for the condition. Practitioners deliver care in their usual ways, avoiding the problem of stressing the practitioners' intent to heal. Data assessors are preferably "blind."

Pay attention to (factor in) the effects of suggestion. For example, even if patients are preliminarily assigned randomly, afterwards offer choice of care (Cassidy 1994a). For example, one could assign some patients randomly to conventional standard care or to test standard care, and offer the choice of conventional or test care to another group of patients. Responsiveness in the four groups would then be compared, with the hypothesis that those who chose their care would experience a greater placebo response than those who were assigned to their care.

RESOURCES ON ANTHROPOLOGY

As noted, anthropology has gathered a huge data base encompassing description, analysis, models, and theory on alternative medicine as practiced in every part of the world. Only a very small sample of this material is mentioned in this paper. Other material is accessible through quality libraries using a variety of computerized keyword searches. Review articles are published annually in *Reviews in Anthropology*; also see the indices of peer-reviewed journals that specialize in medical anthropology. A partial list includes *Medical Anthropology*; *Medical Anthropology Quarterly*; *Social Science and Medicine*; and *Culture, Medicine and Psychiatry*. Less specialized but often having relevant articles are *Human Organization**; *Current Anthropology*; *American Anthropologist*; *American Journal of Physical Anthropology*; *Human Biology*; *Human Biology Quarterly*. Anthropologists publish in a wide variety of other journals as well. Two recent publications are of interest for those seeking training: *Training Manual in Applied Medical Anthropology* (Hill 1991) and *Graduate Programs in Medical Anthropology* (Society for Medical Anthropology 1994).

Several professional organizations focus on issues of interest to medicine, such as the *Society for Medical Anthropology*, the *Society for the Anthropology of Consciousness*, and the *Council for Nutritional Anthropology*. The Society for Medical Anthropology has some 1600 members, and many subgroups concerned with nursing, infectious disease research, AIDS research, and many other topics. Reach these organizations through the American Anthropological Association (Arlington, Virginia).

Applied anthropologists, many of whom are consulting medical anthropologists, can be reached through the *Society for Applied Anthropology*, and the *National Association of Practicing Anthropologists*. The latter organization has branches in most major American and Canadian cities.

*The journal of the Society for Applied Anthropology, with a Health Care section initiated by the editor of the present Journal.

TABLE 3. CHOOSING CLINICAL EFFECTIVENESS RESEARCH TECHNIQUES WITH MODEL FIT CRITERIA IN MIND

<i>Research issue</i>	<i>Some appropriate techniques</i>
If pharmaceutical intervention	Double-blind ^a placebo trial
Hands-on care	Comparative standard care
If practitioner-centered care	Randomization
Patient-centered care	Choice

^aAvoid single-blind designs that abrogate practitioners' intent to heal; substitute blind-assessor designs.

SUMMARY

Anthropology is a holistic science with theory, data, and methods that can be of great service to researchers on alternative medicine. In this paper useful models and methodologic stances were identified that can help researchers to deal creatively with the stresses imposed on science by worldview preferences that differ among both scientists and healthcare systems. I have argued that rather than prefer one paradigm over another, researchers should select techniques based on a rationale featuring deep knowledge of the context of the healthcare issue they want to study. This will not only produce the most accurate and useful data, but should also help free science of its current strictures and allow expansion into a wider conversation about human and medical realities.

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