Epistemological and Methodological Bases of Naturalistic Inquiry

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How suitable is the rationalistic paradigm for research focusing on human behavior? Proposing that naturalistic inquiry better serves the social/behavioral sciences, the authors define the differences between the two paradigms and suggest criteria for ensuring the trustworthiness of naturalistic inquiry.

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It is important, at the outset, to recognize what naturalistic inquiry is and what it is not. Naturalistic inquiry is a paradigm of inquiry, that is, a pattern or model for how inquiry may be conducted. It is frequently asserted that its distinguishing features are that it is carried out in a natural setting (hence the term *naturalistic*), that it uses a case study format, and that it relies heavily on qualitative rather than quantitative methods; however, none of these features is naturalistic inquiry. All of these assertions are essentially correct, but no one of them, nor indeed all of them together, captures the full significance of the term *paradigm*. Paradigms differ from one another on matters much more fundamental than the locale in which the inquiry is conducted, the format of the inquiry report, or the nature of the methods used—namely, they differ on the basic axioms on which they rest. Paradigms are axiomatic systems characterized essentially by their differing sets of assumptions about the phenomena into which they are designed to inquire.

There are many different paradigms of inquiry. We are all intimately familiar with most of them, and we use them on virtually a daily basis. The system of jurisprudence common in the Western World, for example, is based on an *adversarial* paradigm, in which opposing parties press their cases with as much vigor as can be managed; it is believed that a jury can sift out truth from falsehood when the opposing views have been heard. Religious faiths are based on

theological paradigms, most of which hold that necessary truth is directly revealed; study of revelation can yield the answer to any question. Outcomes of many athletic contests, critiques of works of art, and peer reviews of research proposals are based on a *judgmental* paradigm, which assumes that competent persons (experts, critics) can, by virtue of training and experience, recognize truth when they see it.

Those persons concerned with *disciplined* inquiry (in the sense that that term is defined by Cronbach and Suppes, 1969) have used almost exclusively what is commonly called the *scientific* paradigm but which we will here, for a variety of reasons, term the *rationalistic* paradigm.[1] A second paradigm that is also aimed at disciplined inquiry—one we term the *naturalistic*—is currently receiving a great deal of attention, and it is that paradigm which this paper explicates. Whereas related paradigms, for example, the anthropological or ethnographic, have been in use for some time, the naturalistic paradigm has only recently emerged as a serious contender in social/behavioral inquiry.

One may well ask why anyone would contemplate using a competing paradigm when the rationalistic one has gained such widespread legitimation and achieved such conspicuous successes. After all, one need only look about to see the tangible proof of the utility of scientific inquiry; the current that powers the typewriter on which this paper was drafted, for example, not to mention more spectacular feats such as moon shots and bypass surgery, depends on the fruits of such research. How could one doubt the efficacy of the scientific mode for *all* inquiry? John Stuart Mill urged investigators in what might now be called the social science areas to shift to the scientific mode as long ago as 1843; can there by any question, a century and a half later, that his advice was well founded?

It seems to us that a variety of evidence can be cited in counterargument. First, we believe that the judgment that the rationalistic paradigm has enabled conspicuous successes in social and behavioral inquiry is mistaken, however well founded it may be in the so-called hard or life sciences. For example, it is often argued that aggregatability of data is one of the chief virtues of operating in the scientific mode; each investigator "stands on the shoulders" of his or her predecessors to make the next logical contribution. But where is this aggregatability in social and behavioral science? Where is the essential body of knowledge, systematically and patiently built up over decades of work? It is true that extensive literatures exist, but they are characterized at least as much by conflicting findings as by reinforcing ones. Even the approach known as "meta-analysis" has been found inadequate by its critics, on such grounds as failing to differentiate adequate from inadequate studies or, more importantly, focusing on "main effects" while ignoring contingencies or important side effects.

We may also cite the inability of investigators to apply the scientific model in accordance with the design principles on which it is based. Random sampling, for example, is a virtual impossibility in any real world situation, as is random assignment to treatments. Scientists often argue that such failures are more apparent than real, suggesting that if there were more social commitment to discovering "truth" and more understanding of the need to conform to design conditions to ascertain it, then application of the paradigm would indeed be possible. Scientists are quick to excoriate political figures, administrators, parents, and even the "subjects" themselves (to use their pejorative term) for their unwillingness to cooperate, obviously making the judgment that scientific values stand unassailably above political, human, or ethical values. But clearly, political figures and decision makers must take account of the variety of factors in their milieu; individuals have a right to privacy and to opt in or out of a study depending on how they view the risks to which they are to be exposed; ethics contravene the withholding of a potentially effective treatment simply for the reason of testing it experimentally. Finding a paradigm that can tolerate real world conditions surely makes more sense than manipulating those conditions to meet the arbitrary design requirements of a paradigm.

We may also note, in contrast to the claim that the scientific model has achieved such

conspicuous successes, the general lack of impact on practice of research conducted in this mode. The failure to use evaluation information, for example, verges on a national scandal. And to what practices in our schools can we point with confidence as having originated in research data? Indeed, virtually all school practice has emerged on the basis of experience. One possible explanation of this lack of impact is that users and practitioners lack the insight and creativity to see how research results can be applied. An equally compelling argument is that the research results have so little meaning that the effort to apply them is wasted.

The realization that the rationalistic model is difficult to apply and results in information that is used infrequently is not new to the research community. Educational research is often dated from the 1894 publication of Joseph Mayer Rice, who attempted to show, by relating scores on achievement tests (which he developed) to amount of time spent studying (an early version of time on task?), that schools were wasting time in teaching the three R's. Rice's first tests were found to be invalid because of the lack of field controls (the teacher taught to the tests, for example, or provided cues to "help" students); his later test (confined to spelling) provided information that apparently supported his hypothesis, but publication of results influenced virtually no one to change methods of teaching spelling. It is astonishing that the research community, faced with similar experiences for nearly a century, persists in finding fault with almost every aspect of the situation except the paradigm that guides their inquiry in its effort to explain these observations.

As the second point in our counterargument, we question the utility of the rationalistic paradigm, as we shall describe it below, on the grounds that it reflects earlier rather than emergent epistemologies of science. It is apparent that sophisticated modern-day scientists cannot accept positivism; even a casual acquaintance with the field of particle physics provides ample evidence of its inadequacies, as, for example, in the Heisenberg Uncertainty Principle (Tranel, 1981). Yet practitioners of scientific inquiry, in the hard but especially in the soft sciences, often continue to act as if the rationalist paradigm had validity, continuing to accept a position that is essentially analytic, reductionist, empiricist, associationist, reactivist, nomological, and monistic. As we shall see, this posture is inconsistent with the characteristics of much social/behavioral inquiry.

Finally, we suggest that the rationalistic paradigm, like all paradigms, rests on certain fundamental axioms or assumptions, and that the particular axioms of rationalism are but poorly fulfilled in social/behavioral inquiry. This fact can be appreciated from the preceding few paragraphs; indeed, the shortfalls of rationalistic inquiry (in the social/behavioral arena) are so pronounced that if naturalistic inquiry did not exist as an alternative, it, or something like it, would have to be invented. It is our intention to devote a major segment of this paper to a discussion of these rationalistic axioms and of their naturalistic counterparts, and to deal with the question of which set of axioms is better fulfilled in the phenomenological field customarily designated as "social/behavioral."

As we shall demonstrate, the motivation for considering naturalistic inquiry as an alternative paradigm to rationalism is not founded simply on the desire to avoid the shortfalls of that latter model. Naturalistic inquiry has many characteristics to recommend it on other grounds. For example, it offers a contextual relevance and richness unmatched by any other paradigm. It displays a sensitivity to process virtually excluded in paradigms stressing control and experimentation.[2] It is driven by theory grounded in the data; the naturalist does not search for data that fit his or her theory but develops a theory to explain the data. Finally, naturalistic approaches take full advantage of the not inconsiderable power of the human-as-instrument, providing a more than adequate trade-off for the presumably more "objective" approach that characterizes rationalistic inquiry.

Even without these a priori claims for the advantages of naturalistic inquiry, it seems clear that the examination of alternative paradigms has utility, since such examinations force out otherwise hidden assumptions and meanings. If it is true that the

examined life is "better" than the unexamined, it is surely the case that the examined paradigm is better than the unexamined.

This paper, then, has two major purposes: (a) to distinguish the rationalistic and naturalistic paradigms on five basic axiom differences, and to describe six postures on which practitioners of these paradigms have traditionally differed; and (b) to suggest some methods for responding to four basic criteria for trustworthiness (analogs to the traditional rationalistic criteria of internal and external validity, reliability, and objectivity) that might be used by naturalists to counter charges of lack of discipline (sloppiness).

BASIC AXIOMS THAT DISTINGUISH THE NATURALISTIC FROM THE RATIONALISTIC INQUIRY PARADIGM

Axioms can be defined as the set of undemonstrated (and undemonstrable) propositions accepted by convention (even if only intuitively) or established by practice as the basic building blocks of some conceptual or theoretical structure or system. Before examining the axioms that underlie the two paradigms of interest here, it may be useful to clarify the nature of axiomatic systems.

Probably the best known and most widely experienced system of axioms is that undergirding Euclidean geometry, to which virtually everyone is exposed in high school. Euclid had set himself the task of formalizing everything known about geometry at his time; essentially that meant systematizing the many rules of thumb used by land surveyors, who, although using them, could not provide any proof of their validity other than experience. It was Euclid's powerful and ingenious insight that perhaps all of these rules could be "proved" by showing them to be logical derivatives from some simple and basic set of "self-evident truths." Euclid began with four such axioms (Hofstadter, 1979):

1. A straight line segment can be drawn joining any two points.
2. Any straight line segment can be extended indefinitely in a straight line.
3. Given any straight line segment, a circle can be drawn having the segment as radius and one end point as center.
4. All right angles are congruent.

With these four axioms, Euclid was able to derive the first 28 of the eventually much larger set of theorems, but the 29th proof he attempted was intractable; Euclid had instead to assume it as a fifth axiom:

5. If two lines are drawn which intersect a third in such a way that the sum of the inner angles on one side is less than two right angles, then the two lines inevitably must intersect each other on that side if extended far enough.

Another way to state this axiom is: Given a line and a point not on that line, it is possible to construct only one line through the point and parallel to the given line.

Now, compared with the first four axioms, the fifth seems strained and inelegant, and Euclid was sure that eventually he would be able to find a way of proving it in terms of the first four. But his hope was not to be realized within his lifetime, or indeed, ever; two millennia of effort by mathematicians have failed to provide a proof.

Early efforts to prove this axiom/theorem were of what mathematicians would call the direct variety, but no direct proofs could be found. Later mathematicians fell back on indirect proofs, one variant of which is to assume the direct opposite of what one wishes to prove and then to show that the opposite assumption leads to absurd conclusions (theorems). It was exactly this approach, however, that led to so-called non-Euclidean geometries; not only were the consequences of such non-Euclidean assumptions not absurd, they were in fact of great utility for many purposes. One such geometry is called Lobachevskian, after its developer, Nicholas Lobachevsky. This form of non-Euclidean geometry begins with the axiom, "Given a line and a point not on that line, it is possible to draw a bundle of lines through the point, *all of which* are parallel to the given line." Now this axiom seems absurd and certainly flies in the face of all human experience, yet it yields results of great interest, for example, to astronomers. One of the theorems "provable" from the Euclidean fifth axiom is that the sum of angles in a triangle is 180°, but the sum of angles in Lobachevskian triangles is not always 180° but approaches 180° as triangles become "small." It seems clear that earth-sized triangles are all small,

TABLE 1
Axiomatic Differences Between the Rationalistic and Naturalistic Paradigms

Subject of Axiom	*Paradigm*	
	Rationalistic	*Naturalistic*
Reality	Single, tangible, convergent, fragmentable	Multiple, intangible, divergent, holistic
Inquirer/respondent relationship	Independent	Interrelated
Nature of truth statements	Context-free generalizations—nomothetic statements—focus on similarities	Context-bound working hypotheses—idiographic statements—focus on differences
Attribution/explanation of action	"Real" causes; temporally precedent or simultaneous; manipulable; probabilistic	Attributional shapers; interactive (feedforward and feedback); nonmanipulable, plausible
Relation of values to inquiry	Value-free	Value-bound

Note. In certain of our previous writing (Guba, 1978, 1981; Guba & Lincoln, 1981) we focused on only the first three of these five axioms. However, the latter two now seem to us as equally, if not more, important.

since no such triangle has ever yielded a sum of angles less than 180°. But astronomically sized triangles are very much larger, and astronomers find that Lobachevskian geometry provides a better "fit" to the phenomena they investigate than does Euclidean.

From this digression we may deduce several crucial points:

- Axioms are arbitrary and may be assumed for any reason, even if only for "the sake of the game."
- Axioms are not self-evidently true, and they need not even appear so; indeed, some axioms may appear very bizarre at first.
- Different axiom systems will have different utilities, depending on the phenomenon to which they are applied. These utilities are not determined by the nature of the axiom system itself but by the nature of the interaction between these axioms and the characteristics of the area in which they are proposed to be applied. Thus, Euclidean geometry is fine for terrestrial spaces, but Lobachevskian geometry is better for interstellar spaces.
- A decision about which of several alternative axiom systems to use in a given case is made by testing the "fit" between each system and the case, a process analogous to (although not nearly as well understood as) testing data for fit to assumptions before deciding on which statistic to use in analyzing them.

Hence, the axioms to be described in this section should not be judged on the grounds of their self-evident truth, their common-sense qualities, or their familiarity to the inquirer, but in terms of their fit to the phenomena into which one proposes to inquire. When the rationalistic axioms fit, the rationalistic paradigm should be used; when the naturalistic axioms fit, the naturalistic paradigm should be used.

Five axioms differentiate the rationalistic and naturalistic paradigms; these five axioms are summarized in Table 1. Immediately following is a more formal statement of the five axioms in both their rationalistic and naturalistic versions. We attend to the question of which set provides a better fit to social/behavioral phenomena in a later section.

Axiom 1. The nature of reality

Rationalistic version: There is a single, tangible reality fragmentable into independent variables and processes, any of which can be studied independently of the others; inquiry can converge on this reality until, finally, it can be predicted and controlled.

Naturalistic version: There are multiple, intangible realities which can be studied only holistically (to dissociate the wholes is to alter them radically); inquiry into these multiple realities will inevitably diverge (each inquiry raises more questions than it

answers) so that prediction and control are unlikely outcomes, although some level of understanding (*verstehen*) can be achieved.

Axiom 2. The inquirer-object relationship

Rationalistic version: The inquirer is able to maintain a discrete and inviolable distance between himself/herself and the object of inquiry; when the object is a human being, special methodological safeguards may need to be taken to guard against reactivity, that is, a reaction of the object to the conditions of the inquiry that will influence the outcome in undesirable ways.

Naturalistic version: The inquirer and the object interact to influence one another; especially is this mutual interaction present when the object of inquiry is another human being (respondent). Special safeguards must be taken against both kinds of reactivity.[3]

Axiom 3. The nature of truth statements

Rationalistic version: The aim of inquiry is to develop a nomothetic body of knowledge; this knowledge is best encapsulated in generalizations (truth statements of enduring value that are context-free). The stuff of which generalizations are made is similarities among units; differences are set aside as intrinsically uninteresting.

Naturalistic version: The aim of inquiry is to develop an idiographic body of knowledge. This knowledge is best encapsulated in a series of "working hypotheses" that describe the individual case. Generalizations are impossible since phenomena are neither time- nor context-free (although some transferability of these hypotheses may be possible from situation to situation, depending on the degree of temporal and contextual similarity—an empirical matter); differences are as inherently interesting as (and at times more interesting than) similarities.

Axiom 4. Attribution/explanation of action

Rationalistic version: Every action can be explained as the result (effect) of a real cause or causes that precede the effect temporally (or are at least simultaneous with it); inquirers can, using suitable methods, establish cause-effect relationships unequivocally in functional form, that is, $y = (ax_1 + bx_2 \ldots rx_n)$, or at least probabilistically. The best method for establishing cause-effect relationships is the experiment that demonstrates via manipulation that introducing the cause(s) produces the effect.

Naturalistic version: An action may be explainable in terms of multiple interacting factors, events, and processes that shape it and are part of it; inquirers can, at best, establish plausible inferences about the patterns and webs of such shaping in any given case. The best method for assessing these patterns and webs is the field study that deals with them holistically and in their natural contexts.

Axiom 5. The role of values in inquiry

Rationalistic version: Inquiry is value-free and can be guaranteed to be so by virtue of the objective methodology employed. These methods guarantee inquirer neutrality and inquiry rigor and produce data that "speak for themselves."

Naturalistic version: Inquiry is always value-bound. It is value-bound in at least four ways, captured in the corollaries that follow.

Corollary 1: Inquiries are influenced by inquirer values, especially as those values are expressed in the choice of a problem and the framing, bounding, and focusing of that problem.

Corollary 2: Inquiry is value-influenced by the paradigm selected which guides the investigation into the problem.

Corollary 3: Inquiry is value-influenced by the choice of substantive theory and methods used to guide the collection and analysis of data relevant to the problem selected and in the interpretation of findings.

Corollary 4: Inquiry is influenced by the values inherent in the context. Those values are not those that characterize individuals, but those that specifically characterize sociobehavioral, human, organizational phenomena.

Corollary 5: With respect to corollaries 1, 2, and 3, inquiry may be said to be either *resonant* (reinforcing or congruent) or *dissonant* (conflicting) with the nature of the problem to be studied. For instance, an inquirer could determine a problem to be studied, choose a paradigm, and/or choose methods that have the possibility of being

either value-resonant or value-dissonant with the context into which he or she will take the inquiry. Problem, paradigm, method(s), and context must be congruent (value-resonant) with each other to produce meaningful findings.

The decision about which paradigm to use in a given case depends, we again assert, on an assessment of the area to be studied to determine the degree of "fit" between the axioms of each considered paradigm and the area. If we limit ourselves to a consideration solely of the area commonly designated as social/behavioral inquiry,[4] we make the following observations about fit.

Axiom 1. The Nature of Reality. In the hard or life sciences, there can be little doubt that there exists a tangible reality which is the focus of inquiry: actual events, objects, and processes found in nature that can be observed and often measured. The utility of breaking this physical world into variables is well demonstrated by such terms from physics as time, mass, velocity, acceleration, distance, charge, and the like. Such variables can be studied independently and related to one another in expressions of the form $y = f(ax_1 + bx_2 + \ldots rx_n)$. Of course, even in the hard sciences, recent work runs afoul of these assumptions; for example, many of the particles studied by physicists (e.g., mesons) cannot exist (to do so would violate the law of conservation of mass/energy), yet they do. Physicists get around this difficulty by referring to them as "virtual" particles (Zukav, 1980). Nevertheless, for all practical purposes, and certainly at macro levels, the rationalistic axioms serve the hard and life sciences well.

In the social/behavioral sciences, however, the class of phenomena typically addressed in inquiry has no reality in the physical sense. The phenomena we deal with cannot be touched, seen, tasted, smelled, or heard. That is not to say that tangible objects, events, and processes do not enter into human behavior, for example, to shape it. However, it is not these tangibles that we care about, but the meaning and interpretation people ascribe to or make of them, for it is these constructions that mediate their behavior. These constructions do not have reality but exist only in the minds of people. As Filstead (1979) suggests, "There are multiple realities. . . . Individuals are conceptualized as active agents in constructing and making sense of the realities they encounter" (p. 36). There are as many constructions as there are people to make them.

These constructions are also not equivalent to perceptions which, although certainly influenced by factors inhering in the perceiver, are mainly determined, as the *Dictionary of Psychological and Psychoanalytical Terms* phrases it, by the "excitation of sensory receptors." We are not belaboring here the well-known fable of the blind men and the elephant. If that fable were to provide a useful metaphor, it would only do so were there no elephant. We mean to suggest precisely that there is no tangible reality that can be touched as the blind men touched the elephant. There we dealt with their perceptions of the elephant; here we deal with constructions that are developed from whole cloth in the mind of the constructor.

Since these constructions reside wholly in the minds of people, where they are substantially inaccessible, they must be dealt with in a holistic fashion. They cannot be divided into parts or variables, however appealing that prospect may be; nor can they be understood as the mere sum of parts. An understanding of the quality of shirtness, by way of analogy, requires more than an analysis of cut-up sleeves, cuffs, collars, and so forth.

Finally, since the realities are multiple (as many constructions as there are people), it is futile to expect inquiry to converge. One cannot converge on a "common" or "typical" reality since each is idiosyncratic. The more individuals one explores, the more realities one encounters; inquiry diverges as a result. Knowledge cannot be represented as a "map" of territory to be explored and finally to be fully understood; knowledge is rather like a sphere in space, which represents the unknown. As the sphere is enlarged (i.e., more knowledge is gained), one simultaneously comes in contact with new unknowns that were not appreciated before. Every inquiry finally raises more questions than it answers.

Axiom 2. The Inquirer-Object Relationship. In

the hard and life sciences, it is not unreasonable to posit the ability of the inquirer to maintain a discrete distance from the phenomenon under study. Balls rolling down inclined planes, chemicals interacting in a test tube, or cells subdividing under a microscope are unlikely to be influenced by the fact that someone is watching; nor is the watcher likely to be influenced (in any way adverse to the investigatory outcome) by what he or she observes. Of course, when the phenomena being studied are at the level of subatomic particle, the so-called Heisenberg Uncertainty Effect (Tranel, 1981) comes into play; the act of determining one characteristic of such a particle—for example, the mass—makes it impossible to determine other characteristics such as the velocity. So even in a realm indisputably well served by the rationalistic paradigm, grave doubts emerge about the independence of observer and observed.

In the social/behavioral sciences, a good deal of attention has been paid to reactivity of subjects (Campbell & Stanley, 1963; Webb et al., 1966). It is commonly recognized that objects of inquiry, when they are human, may react to inquirers or to their inquiry methods.[5] Less appreciated is the fact that the inquirer is also subject to interaction. Just as the inquirer may shape the respondent's behavior, so may the respondent shape the inquirer's behavior. Anyone who has done research involving humans is well aware that one cannot abandon one's own humanness in the interest of "objective" inquiry; it is both impossible and ethically undesirable to do so.

It should also not be supposed that the interpolation of a layer of "objective" instrumentation between the inquirer and the respondent(s) is sufficient to overcome or offset this interaction. Images of what the respondent may be like or how he or she might respond (very often these images are formalized in the theory that guides the inquiry—itself a construction) guide the inquirer in devising instruments. Images of what the inquirer wants, or what he or she will do with the responses, guide the respondent in dealing with the instruments. Images of what the respondent meant or intended guide the inquirer in coding, interpreting, and even in accepting the respondent's return. And so on.

Finally, far from deploring inquirer-respondent interactivity, the naturalist exploits it. If interactivity could be eliminated by some magical process, the naturalist would not think the tradeoff worthwhile, because it is precisely the presence of interactivity that makes it possible for the inquirer to be a "smart" instrument, honing in on relevant facts and ideas by virtue of his or her sensitivity, responsiveness, and adaptability. This will be discussed more later.

Axiom 3. The Nature of Truth Statements. The development of generalizations is said by many to be the ultimate purpose and aim of inquiry. If generalizations cannot be derived, one can deal only with the unique event. Why would anyone want to invest time and effort in a study that can yield nothing more than the single occurrence has to offer? Context-free statements of enduring truth value clearly are highly prized. The question that confronts us is whether they are achievable.

In the hard and life sciences that question must be answered with a resounding "Yes." Statements like $F = ma$ and $e = mc^2$ are derivable in physics, for example, and they hold "true" whether tested in the 18th or 20th centuries, on Earth, Mars, the moon, or anywhere else in the universe. Such statements form the cornerstones of most disciplines; indeed, the phrase "nomothetic science" implies exactly the development of law-like generalizations which can be depended on to provide bases for prediction and control.

Even in the hard sciences, however, there is a real question of whether generalizations can be made that will be true "forever." Cronbach (1975) uses an interesting metaphor, that of the decay of radioactive materials, to make the counterpoint. Generalizations, he asserts, like radioactive substances, decay and have half-lives. He gives numerous examples from both the hard and the social/behavioral sciences to make his point—for example, the failure of DDT to control pests as genetic transformations make them resistant to the insecticide, the shifting of stars in their courses so as to render star maps obsolete, Ghiselli's sug-

gestion that the superiority of distributed practice over massed practice may not remain valid from one generation to another, and Bronfenbrenner's conclusion that class differences in parenting observed in the 1950s were just the reverse of those observed in 1930. One is reminded of the longing of the king in "Anna and the King of Siam" for a return to his childhood when "what was so was so and what was not was not." Things absolutely known to be true at some point in time turn out not to be true at some other time, or in some other cultural or social context.

What seems to be the case even in the hard sciences is undoubtedly much more the case in the social/behavioral sciences. It is doubtful whether generalizations can be made about human behavior with impunity. Time is an enormously important factor, and who can offer an example of human behavior that is context free?

Now none of this line of argument should be interpreted to mean that there can *never* be any transfer (to resurrect an old familiar term) from one situation to another. What we mean to say is that statements cannot be made about human phenomena that are likely to be true for even substantial numbers of years (not to mention forever) or for any substantial number of contexts (not to mention any and all contexts). Conditionals, contingencies, and disjunctions must all be taken into account (Wiles, 1981). Moreover, differences in times or contexts are as important to know about in making the judgment of transferability as are similarities; it is as important to know the ways in which fit does not occur as to know the ways in which fit does occur. The naturalist, then, is concerned first with developing an adequate idiographic statement about the situation he or she is studying, accompanied by sufficient "thick description" to make judgments about transferability possible, should anyone care to ask that question.

Axiom 4. Attribution/Explanation of Action. The search for causality is the mainspring that drives conventional research. Even such authors as Cook and Campbell (1979) who recognize that causality is a slippery concept nevertheless define designs as serving "to probe causal hypotheses" (p. ix), see causal connections as "real but imperfectly perceived" (p. ix), and address their book to those "who have already decided that they want a causal question answered" (p. 2). For them the question is not whether to entertain a concept of causality but which concept to accept.

The meaning to be imputed to the term *causality* has been discussed for centuries, despite which, as Cook and Campbell (1979) note, "the epistemology of causation . . . is at present in a productive state of near chaos" (p. 10). Causality originally was conceived in a common-sense way in "if-then" terms, probably because of the tendency of early scientists to view the world as one huge machine whose linkages produced and drove all observable phenomena. In the early 18th century David Hume noted that causality was never directly observed but merely imputed by the observer when two events were contiguous and temporally followed one another. Hume espoused a "regularity" or "constant conjunction" theory of causality that denied the need for the concept of causality at all. Later, an "essentialist" view emerged based on the idea of necessary and sufficient conditions; essentialists sought functional laws expressing inevitable cause-effect relationships (Weir, 1980). An activity theory of causation placing heavy emphasis on manipulation as the test for inferring cause-effect relationships now has wide currency, lending legitimation to the notion that the best test for cause-effect relationships is the experiment (Cook & Campbell, 1979). Cook and Campbell opt for the "critical-realist" position:

> The perspective is realist because it assumes that causal relationships exist *outside of the human mind,* and it is critical-realist because it assumes that these valid causal relationships cannot be perceived with total accuracy by our imperfect sensory and intellective capacities. (pp. 28–29) [emphasis added]

Formulations such as any of those above have meaning (to some degree) within the rationalist paradigm insofar as it is applied to the hard and life sciences. There seems to be little question about the propriety of seeking cause-effect relationships when one is talking about gas laws, electric circuits, or

an impact that mashes the fender of an automobile. But these ideas are highly suspect when applied to the arena of social/behavioral inquiry. The realities that we are dealing with are constructed and exist only in the minds of people; if the realities are constructed, why not the attributions or explanations of causality? And if that is reasonable, emergent attributional and/or semantic theories of causation (if that is now the proper term) are more likely to be meaningful than any of the formulations that have developed in relation to the other inquiry areas. In these views, causality is not merely empirical or contingent, but depends heavily on meaning. Such questions as, Is the treatment applied via a particular instructional program effective in increasing student learning?, imply a cause-effect relation between "treatment" and "student learning," but the nature of that relationship surely depends on what is meant by treatment and student learning and what criteria of effectiveness are taken to be. In other words, causality is a construction less traceable by empirical linkages than by plausible semantic/attributional linkages. The concepts of constructed reality and constructed causality are congenial to and supportive of one another.

Thus, the naturalist argues, there can be no certain way of determining a cause-effect relationship; indeed, the very concept of causality seems to have outlived its usefulness. Positivists such as Hume believed the concept of causation to be unnecessary; naturalists believe it to be archaic. Instead, the naturalist prefers to think of multiple factors and conditions, all of which interact, with feedback *and* feedforward, to shape one another (note that causes and effects are inextricably intertwined). Action can be understood not as having been caused but as having emerged from the constant interplay of its shapers, all of which are themselves part of the action, indistinguishable from it, and shaping and being shaped simultaneously. Whereas rationalists seem to have given up certainty in specifying functional/causal relationship and have fallen back on probabilistic statements, the naturalist is satisfied to tease out plausible connections between phenomena.

A useful metaphor for the naturalist is the pattern of neural connections in the brain. All neurons are interconnected and can stimulate one another; an arm moves, a memory emerges, a creative insight is experienced, but how could one say what the cause-effect connections were that produced those actions? They seem not to be isolatable to particular neurons or chains of neurons, and virtually any set of neurons can perform the functions "normally" produced by other sets. Which neuron stimulated which in producing the action? Actions emerge, and there is no doubt that they emerge in conjunction with activity in the brain, but the concept of causality seems to provide little insight in understanding what is happening. Simultaneous shaping rather than temporally contingent causation seems a more useful concept under such circumstances.

Axiom 5. The Role of Values in Inquiry. The customary presupposition of rationalists is that inquiry is value-free, that is, that the outcomes of the inquiry are guaranteed by the methodology employed by rationalists to be purely empirical. The data, it is often said, "speak for themselves," that is, they transcend the values of both inquirers and respondents. Naturalists, on the other hand, presuppose that inquiry is inevitably grounded in the value systems that characterize the inquirer, the respondent, the paradigm chosen, the methods selected, and the social and conceptual contexts. Values cannot be set aside, methodologically controlled, or eliminated. It is more reasonable, they assert, to acknowledge and take account of values, insofar as one can, than to delude oneself about their importance or to hope that methodological hedges (guards against threats to internal validity, for example) will compensate for their intrusion.

Values, naturalists insist, may enter into and influence the course of inquiry in five ways, all of which are by definition excluded in the rationalists' construction.

1. Values influence decisions about what to study, how to study it, and what interpretations to make of the resulting data. The evidence for such influences is overwhelming (Bahm, 1971; Homans, 1978;

Kelman, 1969; Krathwohl, 1980; Scriven, 1971), and most rationalists are willing to concede at least this point. Both rationalists and naturalists could agree, too, that values also enter into decisions on the part of respondents about such matters as what interpretations to make of requests for information and what responses to give (for example, whether open or guarded).

2. Inquiry is also influenced by the paradigm selected to guide the investigation into the problem. The rationalist, for instance, who believes that reality is singular and convergent, will impose that construction on the findings, even when he or she hears respondents in a context saying again and again that their constructions of the problem, or their lives, are at variance with those of other respondents. Thus the rationalist proceeds much as does a court of law, "constructing" and reconstructing into singular reality that which represents the "truth" to him or her.

3. Inquiry is value-bound, too, by the choice of substantive theory and the methods chosen to collect and analyze data relevant to the problem selected, and in the interpretation of findings. The values undergirding the substantive theory selected to guide the inquiry may be resonant or dissonant with the values undergirding the methodological (paradigmatic) theory. Both the substantive theory and the methodological paradigm are constructions (in the sense that we have used that term) and therefore have roots in assumptions and value position. If those assumptions and values happen to be resonant, that is, congenial to and reinforcing of one another, well and good; if they happen to be dissonant, the research findings may be quite invalid.

As an example, consider the study of organizations. If organizations are conceived as bureaucracies (in the Weberian sense), conventional methodological approaches serve quite well, since they, like bureaucratic theory, are very systems-oriented. But if organizations are defined in emergent terms such as "loosely coupled," methodologies based on systemic formulations are likely to be dissonant, resulting in curious findings and probably loading the dice against the "loosely coupled" theory (increasing the odds for falsification) (Perrow, 1981).

4. Inquiry is also influenced by the multiple value and belief systems that inhere in the context into which the inquiry is taken. Those values are comprised of the sets of values that belong to individuals and those that specifically belong to social/behavioral, human, and organizational phenomena. Thus, the values held by an inquirer may be reinforcing to the sets of values he or she encounters in a context or they may be conflicting. Of course such incongruences (or conflicts) may occur only when the objects of inquiry are human beings. Inquirers in the hard and life sciences virtually never experience such resonances or dissonances because the objects of their inquiries (e.g., atoms or genes) patently do not hold values, but social/behavioral inquirers confront this phenomenon constantly. It is not surprising, for example, that many subjects of research characterize inquiry as dehumanizing or that ethical principles are frequently found to contravene what scientifically oriented researchers would like to do.

5. Finally, inquiry can be characterized as being either value-resonant (reinforcing or congruent) or value-dissonant (conflicting) with the nature of the problem to be studied. So, for instance, an inquirer could bound a problem to be studied, choose the paradigm within which to operate, choose methods and substantive theory to guide the inquiry, and still have to determine whether the inquiry is value-resonant or value-dissonant with the context of the inquiry. When making this decision, problem, paradigm, method(s), and context must exhibit internal coherence, value fit, and congruence (value resonance) for the inquiry to be deemed appropriate and fitting and to produce meaningful findings.

The naturalist admits the role that values play in shaping an inquiry and appreciates the possibility of difficulties arising if there is value dissonance either between inquirer and subject or context or between theories of substance and method. Although naturalists cannot eliminate value effects (any more than can rationalists), they endeavor to set up safeguards, to expose and explicate the values whenever possible, and to

test insofar as possible for value resonance. In this latter regard we may note that the naturalist's propensity for grounding the inquiry (see next section) provides a virtual guarantee of value resonance, since the subjects' constructions and the substantive theory are both extracted from the data rather than laid on them.[6]

SOME CHARACTERISTIC POSTURES

Whereas the axioms represent basic distinctions in premises between the rationalistic and naturalistic paradigms, certain postures typically assumed by practitioners following these two orientations also provide important insights into the differences between them. These postures are not compelled by the axioms, in the sense that they are necessary, logical derivatives (like the theorems of a geometry), yet they are congenial or reinforcing to the practice of the paradigms and probably would be insisted on by each paradigm's followers.

Six of the most common postures are described below. It should be noted that, unlike the case of axioms, where "either-or" decisions must be made, postures can often be compromised. Yet compromises are infrequently found. The reason for this apparent intransigence cannot be laid to the obduracy of the proponents, however; rather it stems from the fact that the collectivity of postures support and reinforce one another in extremely synergistic ways. Each is, in a sense, a raison d'etre for the others, and to compromise on any of them is to considerably weaken the collective power of all.

Preferred Methods. We have already noted that the rationalistic and naturalistic paradigms are often treated as though the major differentiating characteristic is their relative preference for quantitative or qualitative methods. It is likely that, among the six postures that will be briefly described here, the quantitative-qualitative distinction is the one that can be most easily and sensibly compromised. Cook and Reichardt (1979) have referred to the distinction as "unhelpful," and have called for more widespread utilization of both types of methods, a call with which we can in the main agree. Each approach has advantages (over and above the fact that they will handle different types of data): the quantitative methods have greater precision and are mathematically manipulable, whereas qualitative methods are richer and can deal with phenomena not easily translatable into numbers (or cases in which the isomorphism implied by the translation is suspect). For the naturalist, the propensity toward the use of qualitative methods is less reinforced by these advantages, however, than by the fact that qualitative methods are the methods normally preferred by humans using themselves as prime data collection instruments. Techniques such as interview, observation, use of nonverbal cues and unobtrusive measures, and documentary and records analysis seem more appropriate and (if the reader will forgive what is not intended as a pun) natural in that case.

Source of Theory. Rationalists prefer a priori theory; indeed, they are likely to insist that inquiry without a priori theory is impossible. Theories always exist, they say, even if only at the implicit level. It is better to make them explicit than to be uncertain about what is guiding one's inquiry. Naturalists suggest that it is not theory but the inquiry problem that guides and bounds an inquiry. A priori theory, they are likely to assert, constrains the inquiry and introduces biases (believing is seeing). In all events, theory is more powerful when it arises from the data rather than being imposed on them. It is better to find a theory to explain the facts than to look for facts that accord with a theory. Again, there is something to be said for each point of view. Surely rationalists would not wish to devise theory that was never shown to have any relation to facts, nor would naturalists insist that each inquiry had to establish its own theory de novo. Yet naturalists, using themselves as instruments, building on their tacit as well as propositional knowledge and unrolling the inquiry design as the study proceeds, would find a priori theory uncongenial, preferring to develop the theory as the collection of facts grew and insights into their possible meanings matured.

Knowledge Types Used. Rationalists confine

the types of knowledge admissible in any inquiry to propositional knowledge (Polanyi, 1966), that is, knowledge that can be cast into language forms (i.e., sentences). In view of their insistence on a priori theory and their interest in shaping inquiry preordinately around certain questions and hypotheses derived from the theory, such a tendency is not surprising. The naturalist, intent upon the use of the human as the prime data collection instrument and wishing to utilize the capabilities of that instrument to the fullest, also admits and builds upon tacit knowledge—intuitions, apprehensions, "vibes"—which, although not expressible at any given moment, nevertheless occur to inquirers by virtue of their training and, especially, their experience.[7] Of course naturalists seek to recast their tacit knowledge into propositional form as soon as possible, since, without so doing, they cannot communicate with others, and probably not even with themselves, about their findings. Yet to confine the inquiry itself only to those things that can be stated propositionally before the fact is unduly and insensibly limiting from the naturalist's viewpoint, since it eliminates to a large extent the predominant characteristic warranting the use of the human-as-instrument.[8]

Instruments. The rationalist prefers nonhuman devices as data collection instruments for reasons such as they appear to be more cost efficient, they have a patina of objectivity, and they produce information that can be systematically aggregated. The naturalist prefers humans-as-instruments for reasons such as their greater insightfulness, their flexibility, their responsiveness, the holistic emphasis they can provide, their ability to utilize tacit knowledge, and their ability to process and ascribe meaning to data simultaneously with their acquisition. Just as a "smart" bomb need not be dropped accurately on target to find its way unerringly to it, just so the "smart" human instrument need not begin with a precise problem statement, theory, hypothesis, or method to find its way unerringly to what is most salient in a situation. As Hofstadter (1979) pointed out, there is a precise tradeoff between perfection and adaptability; the more perfect an instrument is for some use, the less adaptable it is to others. The human instrument, although admittedly imperfect, is nevertheless exquisitely adaptable. For naturalists, with their propensity for grounded theory and emerging design, the human instrument is the ideal choice.

Design. The rationalist insists on a preordinate design; indeed, it is sometimes asserted that a good design specifies in "dummy" form the very tables that will ultimately be found in the report, so well explicated can the hypotheses and the procedures be. Naturalists, entering the field largely without a priori theory or hypotheses, literally are unable to specify a design (except in the broadest process sense) in advance. Instead, they anticipate that the design will emerge as the inquiry proceeds, with each day's work being heavily dependent on what has gone before. Given their other postures, naturalists have no choice but to opt for an emergent (rolling, cascading, unfolding) design. Of course there is no reason why naturalists should not be as specific as they can, without constraining their options.

Setting. Finally, the rationalist prefers to conduct studies under laboratory (i.e., contrived, controlled, manipulable) conditions to exclude from the inquiry any influences other than those at which the inquiry is aimed (that is, to exclude all confounding variables). The naturalist, on the other hand, prefers natural settings, arguing that only in such settings can the naturalist arrive at reasonable formulations and interpretations. If theory is to be properly grounded, the naturalist must observe the facts as they normally occur, not as they are contrived in an artificial context; without meeting those conditions, the resulting theory would be suspect indeed. In all events the findings would be transferable only to another contrived, artificial context.

We hope it is now clear why we asserted, at the beginning of this section, that the postures described above constitute a synergistic set. Compromises are of course possible on each posture: one can use both quantitative and qualitative methods; one

can use theory grounded in one study in a priori fashion for another study; one can build on tacit knowledge but translate it into propositional knowledge as quickly as possible; one can use both human and nonhuman instruments depending on the purpose of the inquiry and where one stands with respect to grounding and design emergence; one can keep design options open but make design decisions as expeditiously and completely as circumstances allow; one can use both natural and contrived settings depending upon the questions to be asked. But each posture supports the others; we could not argue for the naturalist's preferences on any one posture without invoking preferences on other postures as well. It is difficult to imagine a naturalist at work who could be content with a "mix-and-match" strategy, however desirable that might be from the point of view of achieving a rapprochement.

THE TRUSTWORTHINESS OF NATURALISTIC INQUIRY

Naturalistic inquiry is, as we have tried to demonstrate, very different in form and intent from rationalistic inquiry. At present, after some two centuries of experience with rationalistic inquiry, several criteria of importance have been identified for judging the trustworthiness of findings that emerge from it. It is not unreasonable to ask whether naturalistic inquiry can also meet those criteria or, in the event that the criteria are deemed inappropriate, meet some new criteria that are more appropriate and of approximately equal power in differentiating good from bad, inadequate, or untrustworthy research. Clearly such criteria have importance for designing, monitoring, and judging an inquiry, whether from the perspective of the inquirer, a monitor (for example, a sponsor, an administrator, or a dissertation committee), or an editor who might be asked to publish the results of such research.

Guba and Lincoln (1981) have summarized the four major traditional criteria into four questions, as follows, to which they suggest the naturalist has an equal obligation to attend:

1. *Truth value.* How can one establish confidence in the "truth" of the findings of a particular inquiry for the respondents with which and the context in which the inquiry was carried out?

2. *Applicability.* How can one determine the degree to which the findings of a particular inquiry may have applicability in other contexts or with other respondents?

3. *Consistency.* How can one determine whether the findings of an inquiry would be consistently repeated if the inquiry were replicated with the same (or similar) respondents in the same (or a similar) context?

4. *Neutrality.* How can one establish the degree to which the findings of an inquiry are a function solely of respondents and of the conditions of the inquiry and not of the biases, motivations, interests, perspectives, and so on, of the inquirer?

The terms typically utilized within the rationalistic paradigm in relation to the four questions are, respectively, *internal validity, external validity, reliability,* and *objectivity.* Guba (1981) and Guba and Lincoln (1981) propose four analogous terms within the naturalistic paradigm to supplant these rationalistic terms: *credibility, transferability, dependability,* and *confirmability.*

The "translation" of the conventional terms into these four naturalistic terms requires some justification. As provided by Guba (1981) and Guba and Lincoln (1981), the justification is as follows:

1. *Credibility.* Internal validity is best demonstrated through an isomorphism or verisimilitude between the data of an inquiry and the phenomena those data represent. Although such isomorphism cannot be directly represented in either paradigm, naturalists do have at least indirect access to the multiple realities they deal with: since these realities are in the minds of people (as idiosyncratic constructions that vary from individual to individual), naturalists can ask those people whether their realities have been represented appropriately. Thus, the crucial question for the naturalist becomes, "Do the data sources (most often humans) find the inquirer's analysis, formulation, and interpretations to be credible (believable)?"

2. *Transferability.* In the rationalistic paradigm, generalizability (external validity) is demonstrated by showing that the

data have been collected from a sample that is in some way (randomized, stratified, etc.) representative of the population to which generalization is sought. The naturalist, discounting generalizability (see Axiom 3) and the assumption of context-free laws which have enduring truth value (especially as they might relate to human and sociobehavioral phenomena), nevertheless believes that some degree of transferability is possible under certain circumstances. Those circumstances exist if enough "thick description" is available about both "sending" and "receiving" contexts to make a reasoned judgment about the degree of transferability possible.

3. *Dependability.* In the rationalist paradigm, reliability is a matter of replicability; a study ought to be repeatable under the same circumstances in another place and time. If there are discrepancies or deviations between two repetitions of the same study, the difference is charged off to unreliability (error). The naturalist cannot be so cavalier, however; first, designs are emergent so that changes are built in with conscious intent, and second, emergent design prevents an exact replication of a study in any event (since a second inquirer might choose a different path from the same data). The naturalist defines the concept of *dependability* to mean *stability* after discounting such conscious and unpredictable (but rational and logical) changes.

4. *Confirmability.* As Scriven (1971) has noted, the rationalistic concept of objectivity is based on a quantitative notion of intersubjective agreement. But clearly, 50 million French people can be and have been wrong; what is important is not that there be quantitative agreement but qualitative confirmability. The onus of objectivity ought, therefore, to be removed from the inquirer and placed on data; it is not the inquirer's certifiability we are interested in but the confirmability of the data.[9] The naturalist finds this a powerful formulation.

It is premature to expect that adherents of the naturalistic paradigm would have evolved as sophisticated a methodology for dealing with rigor and trustworthiness questions as have their rationalistic counterparts, especially since the latter have had literally centuries to work on refinements. However, Guba (1981) has attempted what he himself characterized as a primitive effort. His formulations will be summarized here by way of illustration of the proposition that methods of dealing with the trustworthiness of naturalistic inquiries are forthcoming and can be expected to be expanded on in the near future (Lincoln & Guba, in preparation).

With respect to *credibility,* Guba suggests the following as means either to safeguard against loss of credibility or to continually test for it:

1. *Prolonged engagement* at a site, to overcome distortions introduced by the inquirer's presence, to test for ethnocentrism (Lincoln & Guba, 1981), to test biases and perceptions of both inquirer and respondents, and to provide time to identify salient characteristics of both the context and the problem.

2. *Persistent observation,* to gain a high degree of acquaintance with and understanding of "pervasive" qualities and salient characteristics as well as to appreciate atypical but critical characteristics and to eliminate those that are irrelevant.

3. *Peer debriefing,* to keep inquirers "honest," to provide them with the opportunity to test their growing insights against those of uninvolved peers, to receive advice about important methodological steps in the emergent design, to leave an audit trail (see below), and to discharge personal feelings, anxieties and stresses that otherwise might affect the inquiry adversely.

4. *Triangulation,* whereby a variety of data sources, different perspectives or theories, and/or different methods are pitted against one another to cross-check data and interpretation (Denzin, 1978).

5. *Referential adequacy materials,* that is, documents, films, videotapes, audio recordings, pictures, and other "raw" or slice-of-life materials are collected during the study and archived without analysis; these materials can later be utilized by the inquirer or others (especially an auditor; see below) to test interpretations made from other analyzed data.

6. *Member checks,* whereby data and interpretations are continually checked with members of various groups from which data are solicited; done on a continuous

basis throughout the study and again at the end when the full report is assembled, using either (or both) the same members from whom the data were originally collected or other surrogates from the same groups.

With respect to *transferability*, Guba has suggested that the inquirer engage in or provide the following:

1. *Theoretical/purposive sampling*, that is, sampling intended to maximize the range of information collected and to provide most stringent conditions for theory grounding.
2. *Thick description*, by which is meant providing enough information about a context, first, to impart a vicarious experience of it, and, second, to facilitate judgments about the extent to which working hypotheses from that context might be transferable to a second and similar context.

With respect to *dependability*, Guba has suggested the following:

1. *Use of overlap methods*, one kind of triangulation process, which, although usually advocated in support of validity, also undergirds claims of reliability to the extent that they produce complementary results.
2. *Stepwise replication*, a kind of "split-halves" approach to which inquirers and data sources are split into two roughly equal halves to be investigated independently, provided, however, that there is frequent exchange between the two teams to allow for the proper development and unfolding of an emergent design.
3. The *dependability audit*, modeled on the fiscal audit, but limited to that part of the auditor's role which deals with process. In a fiscal audit, the first concern of an auditor is whether the accounts were kept in one of the several modes that constitute "good," or acceptable, professional practice; to reach that judgment the auditor must of course be supplied with an "audit trail" which delineates all methodological steps and decision points and which provides access to all data in their several raw and process stages.

With respect to *confirmability*, Guba has proffered the following:

1. *Triangulation*, as described above.
2. *Practicing reflexivity*, that is, attempting to uncover one's underlying epistemological assumptions, reasons for formulating the study in a particular way, and implicit assumptions, biases, or prejudices about the context or problem; the most appropriate means for this exploration and presentation takes the form of a reflexive journal, kept in the field.
3. The *confirmability audit*, a counterpart to the dependability audit, in which the auditor takes the additional step of verifying (or warranting) that each finding can be appropriately traced back through analysis steps to original data, and that interpretations of data clusters are reasonable and meaningful, in much the same way that a fiscal auditor would verify at least a sample of entries in a bookkeeping journal to be certain that each represented a "real" transaction and that the "bottom line" accurately represented the actual financial situation.

The criteria we have posed, although not theoretically elegant formulations, do have utility at several stages of the inquiry process, as Guba (1981) has pointed out. They aid and abet in making a priori judgments about the quality of proposed research, as in the case of peer reviews of proposals or committee review of proposed dissertation research. A naturalistic design ought at least to propose what the inquirer will do to satisfy each of the above criteria and provide for trustworthiness. The criteria aid inquirers in monitoring themselves and in guiding activities in the field, as a way of determining whether or not various stages in the research are meeting standards for quality and rigor. Finally, the same criteria may be used to render ex post facto judgments on the products of research, including reports, case studies, or proposed publications. The final reports ought at the very least to include, as do rationalistic paradigm reports, statements about what the inquirer actually did to satisfy each of the four sets of criteria, and reports from dependability and confirmability auditors concerning their verification of the inquirer's processes and conclusions.

Guba has made the point that to carry out even all of these steps (usually not logistically or fiscally possible in an actual inquiry) will not guarantee the trustworthiness of a naturalistic study. These criteria, unlike those of the rationalistic paradigm, do not

provide an unassailable defense against accusations of nonrigorousness, but they will contribute greatly toward persuading a reader and consumer of their meaningfulness. He has noted too the special risks that are posed for the naturalistic practitioner who operates within a rationalistic culture. Funding sources, sponsors, and dissertation committee members who are asked to make judgments about the utility of such inquiry do not have at their disposal a complete design about which they may feel great certainty. Because of the open-ended, emergent nature of the design, they may feel the inquirer is asking them to extend approval to an unknown quantity, and may therefore not wish to put a stamp of legitimacy on what might turn out to be sloppy research. The barriers and constraints to carrying out such research are, therefore, many, but it is hoped that the criteria set forth may stimulate those who have not considered carrying out or sponsoring such research to take a chance.

Finally, we would like to warn against the adoption of these procedures as another orthodoxy. The suffocating grip which the rationalistic paradigm and experimental methods have exerted on the social and behavioral sciences for so many years should serve as warning that no one set of procedures may be taken as gospel or represent prescriptions for how inquiry must be done. Rather, any group of procedures represents merely a set of guidelines that may facilitate the development of this new mode of inquiry.

SUMMARY

We have tried to argue here that we are in the midst of a paradigmatic revolution (Kuhn, 1962). That revolution centers about the growing concern that the paradigm which we have typically utilized for scientific (hard and life sciences) inquiry has ill-served us when applied to the social and behavioral sciences, and, further, that attention to rigor within this paradigm has meant increasingly that results of social studies are less and less applicable and less and less "life-like" as time has passed. It is now time for a new paradigm, one which takes account of the nature of social experience. We believe that paradigm to be the naturalistic.

The naturalistic paradigm has emerged, in part, out of concern that research and evaluation studies reflect what is, rather than what some researcher thinks ought to be, and, in part, from intense scrutiny of the assumptions and epistemological axioms which undergird rationalistic inquiry. It is to those concerns about which the preceding arguments have been addressed, and, therefore, we have tried to make explicit the nature of the epistemological assumptions which undergird the two paradigms, rationalistic and naturalistic, and have addressed persistent criticism that the latter is "soft," "nonrigorous," and attentive to relevance over rigor.

Although it is true that rationalistic inquirers do not accept the axioms we have imputed to them here without reservation, we have tried to deal with them in their purest form, as they can be traced through the philosophy of science and scientific writers. By doing so, we believe, the reader is able to see the sharpest of contrasts and to understand better why it is maintained that there can be no compromise on axiomatic assumptions, although there may be compromise on various "postures" which are typically ascribed to the two paradigms.

Thus, we have accounted for five major differences between the two paradigms: the nature of reality, the nature of the inquirer-object (or respondent) relationship, the nature of truth statements, assumptions about causal relationships, and the role of values within disciplined inquiry. We have asserted, for instance, the following: (a) reality, as it is lived by the subjects of research, is not fragmentable into variables and processes, but is rather experienced holistically and mediated heavily by values, attitudes, beliefs, and the meanings which persons ascribe to their experiences, and as a result, inquirers must approach human subjects and human phenomena holistically rather than in piecemeal fashion; (b) inquirer and subject invariably interact; it is not possible to maintain a discrete and inviolable distance between the inquirer and the subjects of the research; and the appropriate response of inquirers to this natural and unavoidable

interactivity is to both "track" it and exploit the insights it lends by becoming "smarter" instruments themselves; (c) truth statements expressed as generalizations—enduring, context-free laws, particularly about human behavior—are not possible except in the hard sciences, and human behavior, bounded as it is by time and context, is best described by means of "working hypotheses," temporary assertions about context-specific situations; (d) the search for direct, highly "tied" and systematic cause-effect relationships in human affairs is of little utility when human beings are caught up in interactive webs and patterns of factors, events, processes, and ascribed meanings, so that it is more important to search for factor patternings than for "if-then" causal chains; and, finally, (e) inquiry is always value bound and is never in the social sciences (and rarely in the physical sciences) value free; rather the choice of a problem, a paradigm to guide the investigation of the problem, a substantive theory and procedures to guide collection and analysis of the data, and the context in which to conduct the research are all arenas where values enter into empirical inquiry. Along those assumptions, we have argued, there can be no compromise between paradigms. The inquirer must choose one set of assumptions (axioms) or another to undergird his or her inquiry.

Along certain other dimensions called postures, however, compromise may be possible, although we would argue that, like dominoes, one choice may impel the inquirer to come to make other choices that traditionally have characterized naturalistic inquiry. That set of associational decisions has probably inadvertently given rise to the current "unhelpful distinction" between rationalistic versus naturalistic paradigms as they are confused with quantitative versus qualitative methods. Nevertheless, the decision to utilize the human-as-instrument, for example, probably militates heavily in favor of using largely qualitative methods, since those are the methods at which the human is most skilled. Qualitative methods, in turn, allow the instrument of choice to utilize both propositional and tacit knowledge, building on and testing "hunches," intuitions, and insights, long before the person can express them in verbal (or propositional) form. The possibility of utilizing both types of knowledge, in turn, abrogates the necessity of specification of design early on, or prior to the research, so that designs can now be considered emergent; that is, they can unfold as the human instrument discovers new knowledge and reshapes inquiry to fit with the context. Thus, although naturalists are not compelled to adopt one posture or another, initial choices about theory and instruments may lead them to other decisions that appear to be choices but are almost compelled by the nature of the problem, the paradigm, and the context of the inquiry.

Finally, we have argued that although several centuries of rationalistic inquiry have allowed the development of rather strict and inviolable canons of rigor, the naturalistic school is only beginning to develop an arsenal of weapons against the charge of nonrigor or untrustworthiness. We have demonstrated that it is possible to consider the questions of internal validity, external validity, reliability, and objectivity within the framework of naturalism, to reject those labels as inappropriate, to argue for concepts that are more germane, i.e., credibility, transferability, dependability, and confirmability, and to propose criteria by which external reviewers of naturalistic research might judge the trustworthiness of those studies. Although those criteria do not as yet provide unassailable defenses against charges of untrustworthiness, they nevertheless assure the consumer of such research that any and all appropriate steps have been taken to assure that data from human sources and contexts are meaningful, trackable, verifiable, and grounded in the real-life situations from which they were derived.

NOTES

1. In previous writing (Guba, 1978, 1979; Guba & Lincoln, 1981) we referred to what we here call the *rationalistic* paradigm as the *scientistic* or the *scientific* paradigm. The use of even the less pejorative of these latter two terms now seems to us inappropriate on two counts. First, readers have tended to view the naturalistic paradigm as *less* scientific (or even as nonscientific) and have, therefore, denigrated it as less valid, probably

because of the enormous legitimation accorded to anything scientific in our culture. Second, several critics have accused us of setting up a straw man, on the grounds that vanguard scientific thinkers have moved beyond the nineteenth century logical positivism of which our descriptions are at times reminiscent. It is undoubtedly true that many scientists now think differently, but that change does *not* characterize, in our opinion, the large majority of "scientists" who engage in inquiries in either the hard or soft sciences. There, the old culture still dominates. It is to that level of practice that our criticisms are directed, and it is of that moribund culture that our descriptions are apt. However, to avoid the unintended meanings that some readers have drawn from our work, we have shifted to the term *rationalistic* to describe the paradigm that guides so much conventional inquiry.

2. The propensity of the rationalistic model to avoid process considerations is not based upon a lack of interest in process but an essential inability to deal with it. In the early decades of this century, for example, physicists were obsessed with modeling the atom, and a variety of models were proposed, ranging from the quaint "plum-pudding" model to Bohr's sophisticated orbiting electron model. But all of these models proved unsatisfactory. Moreover, means were not (nor are) available to "see" inside the atom in any event. Atoms came to be regarded as "black boxes" which could be manipulated from the outside and which would produce reactions, but the process by which the stimuli were reacted to (inside the black box) remained a mystery. The inability of physicists to deal with process and the invention of the "black box" idea came to be viewed, in an interesting reversal, as the *proper way to do research*—stimulate, wait for reaction, observe reaction, and never mind how stimulus came to be translated into reaction. The familiar pretest-treatment-posttest design was of course admirably suited to this posture, and came to be viewed as the methodological alternative of choice. But what physicist would forego looking inside the atom if able to do so? And if, in other areas, process can be examined, even if only introspectively, why persist in the use of a model that ignores that possibility?

3. However, the naturalist would not wish to eliminate interactivity with a respondent even if possible. See the discussion of this axiom in the following section.

4. An appreciation of the constraints which this limitation places on the subsequent discussion is crucial to an understanding of the point we will make. We are not dealing with tangible objects, events, or processes as would the physicist, chemist, or biologist. Nor do we mean to include those aspects of human studies that can be labeled as genetically or developmentally mediated. Study of such matters is undoubtedly better guided by the rationalistic paradigm than by the naturalistic. We are dealing, however, with the large majority of studies that could be undertaken by psychologists, sociologists, anthropologists, educational researchers, and evaluators, including evaluations of other social process fields such as social work, law enforcement, or health services delivery.

5. We find the use of the term *object* of inquiry when applied to a human pejorative; we prefer the term *respondent*, which carries the connotations of interaction and equality.

6. It is ironic that the naturalist does permit the data to "speak for themselves" in the sense of grounding theory in them, a use never contemplated by the rationalists fond of using that phrase as an assertion of their "objectivity."

7. The distinction made here is similar to that between a connoisseur and a critic of art. The connoisseur need only "feel" a painting to appreciate it; the critic must cast feeling into language to convey a critique. Connoisseurship is a private art, but criticism is a public art (Eisner, 1979).

8. It seems quite clear that the rationalist depends on intuition as much as does the naturalist; however, the reconstructed logic (Kaplan, 1964) of rationalism militates against making such dependency public. The rationalist's unforgivable sin is to own up to humanness.

9. Once again, we would point out that although the rationalists say that "the data speak for themselves," in fact the assertion is, more to the point, that the methods speak for themselves, since the methods, if they conform to standard and accepted practice, serve to insulate rationalists from the subjects of inquiry and to provide for isomorphism and generalizability. Naturalists, however, recognize that when dealing with human beings as data sources, they cannot, and probably should not, be "isolated" from them. Rather, the data can and must surely speak for themselves; although both inquirer and methods must be publicly inspectable, ultimately it is the data which must stand or fall on rigorous audit.

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