Does Postmodernism Mean the End of Science in the Behavioral Sciences, and Does It Matter Anyway?

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ABSTRACT. At the root of the epistemological implications of modernity and postmodernity is the question of the nature of reality. In modernity the presumption is that reality is external, fully defined, and subject to discovery through science. In the emerging epistemology of postmodernism, science itself creates reality in the course of its practice. In order to assess the relative impact of these two positions on scientific scholarship within the social and behavioral sciences, their respective epistemologies are explored. It is suggested that while the practice of the natural sciences may be little affected by postmodernism, the social sciences in general, and most especially psychology, may be deeply changed by the new epistemology.

KEY WORDS: behavioral science, postmodernism, reality, social science

Gage (1996) recently addressed what he termed the 'counsels of despair for the behavioral sciences' (p. 5). His aim was to examine critically the doubts about the scientific viability of the behavioral sciences expressed (a) by those who (in particular, Gergen, 1973, 1994) question the very basis for that knowledge and (b) by others (in particular, Cronbach, 1975, 1982, 1986) who suggest that behavioral processes are simply too complex in their interactions to permit the formulation of generalizable laws. Gage's tactic was to first consider the logical and practical character of the claims made by Gergen and Cronbach and then follow that with a discussion of the way meta-analysis procedures can illuminate complex phenomena and provide the basis for reliable scientific conclusions. Gage's process of rebuttal is impressive and his conclusion will be welcomed by many: 'These arguments, findings, and methods justify mitigating the despair and continuing the effort to build sciences of behavior' (p. 5).

Gage's success might be only partial, however. On the positive side, his appeal to meta-analysis as a technique for overcoming the challenge of

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complexity, so significant to Cronbach, is in keeping with the application of chaos theory to complex phenomena in the physical sciences. Similarly, he systematically examined and found wanting each of Gergen's historical and logical reservations to traditional practices in the behavioral sciences. On the other hand, no mention is made of Gergen's (1985, 1994) epistemological objections to the pursuit of conventional science in the social domain. Basically, Gage chose to not deal with the emergence of postmodern epistemology, which might be the most profound change facing current-day science and scholarship (Smith, 1994; Toulmin, 1990, 1995). He instead chose to restrict his territory to the science of modernity, which assumes that the scientist is engaged in the objective observation of nature in order to uncover the laws that govern all phenomena (Rorty, 1979; Rouse, 1991; Sassower, 1991). In doing so, Gage ignored Gergen's (1985) 'counsels of despair' based on postmodern epistemological grounds which suggest that knowledge is contingent upon the social uses of language (Rorty, 1989; Wittgenstein, 1953) and the socio-political context in which scientists and other scholars work (Lyotard, 1984). In this view, there is no single, necessary, final truth to be established about any phenomenon.

The goal of the present essay is a relatively modest one: to bring together some existing views in exploring the implications of postmodern notions of epistemology for the practice of science in the behavioral and social sciences. No attempt is made to offer a systematic examination of the very large and rapidly growing literature on these sciences and the impact of postmodernism, which, by its very nature, encourages variety and expansion (Boyne, 1991).[1] Instead, the discussion will briefly review the origins of modern and postmodern thought before asking what postmodernity implies for the procedures of scientists in both the natural and psychological-behavorial-social sciences.

Is Reality Discovered or Constructed? The Continental Divide in Epistemology

At the root of the epistemological implications of modernity and post-modernity is the question of the nature of reality. Does reality exist fully independent of knowers, or do knowers create reality, as the postmodernist would suggest? Phillips (1995) framed the question more succinctly: '[I]s new knowledge . . . *made* or *discovered*?' (p. 7). Although this question has enormous implications for our understanding of nature and the strategies we develop for extending our knowledge, it has not received the breadth of discussion in the social sciences that it probably warrants. In general, the currently predominant view in the wider culture, the natural sciences and the core elements of the social sciences is that reality is first discovered and then described with scientific practices taken to be the most reliable means to this

end. To be sure, it is acknowledged that scientists do construct realities when they theorize, but the wider aim is always to replace theory with what is hoped are the concrete descriptions of reality as soon as possible. The postmodernist suggestion that the reality pictured in these concrete descriptions might also be a construction[2] tends to strike the rational person educated in the tradition of modernity as lacking credibility. Still, a growing number of scholars and scientists are accepting as probable the claim that the realities we know and study are in fact human creations, the natures of which can and do change as we alter our epistemological assumptions and knowledge-gathering methods (Kuhn, 1970; Rorty, 1979, 1982, 1989; Toulmin, 1990, 1995).

This division of opinion on the nature of reality has long been a part of western thought. Plato argued that the true and essential character of reality existed in the world of the Forms and that the task of philosophers was to persist in the study of pure knowledge until the Forms could be grasped directly. The majority of knowers, he argued in the metaphor of the cave, perceived only reflections of this true and independent reality, which, for Plato, was clearly to be discovered, not created.

Standing somewhat apart from Plato's conviction that essential reality was fully external to human understanding was Aristotle's argument that the Forms do not exist independently of local physical entities, but arise out of the knowers' attempts to identify the common features in these entities. As Barnes (1982) put it, whiteness, for Aristotle, existed because there exist white things, while for Plato '*whiteness* is prior to white things' (p. 46). The creative role played by Aristotle's knower was even more prominent in the matter of ethics and moral values. Here, goodness was not to be found in any external Form world but only through a consideration of the circumstances and wider context in which the moral action is taken (Flew, 1971). Sometimes an action might be judged good and at other times not; it all depended on the particulars of the situation. While he was frequently ambiguous on the point, it seems clear that Aristotle harbored significant doubt that there was a final, resolute reality to which human knowers could appeal to assess the quality of their knowledge. In most respects, the goodness of knowledge could only be established by considering the nature of the knowers, their experience, and the contexts in which they were operating.

By way of a digression, it is important to clarify what might be meant by the notion of reality, whether it be discovered or created. For the purposes of discussion, it is probably useful to distinguish between physical entities and the meanings they have for the knower.[3] When it is said that reality exists independently of the knower (and waits to be discovered), the intention is to claim that both the physical entity and the meaning it will have for the knower are determined prior to the knower's encounter with it. It is assumed that all persons who perceive reality will, if they are accurate in their perceptions, perceive the same reality (i.e. the physical entity will have the

same meaning for all knowers). Where reality is said to be created or constructed, it is understood that, while the physical entity does exist external to the knower, it has no meaning until such meaning is created by and for knowers in their interactions with the social or verbal community in which they live (Gergen, 1985; Skinner, 1974; Vygotsky, 1978; Wittgenstein, 1953). The meaning, so constructed, becomes the *lived* reality of the entity for that person. To argue that the meaning and the physical entity are both created runs the risk of ending in a hopeless solipsism where nothing exists outside of the knowing behavior or, if you will, the mind of the knower.

It is nearly impossible to say what happened to these epistemological notions about the nature of reality during the middle ages, but with the emergence of the era of rationalism during the 16th century they once again make their appearance. Writings siding with Aristotle seem to have surfaced first as scholars such as Francis Bacon began to extend their investigations beyond the purely religious, using methods of inquiry that did not depend upon the authority of religious texts. Early in the 17th century, however, an epistemology based on a commitment to a fully defined external reality came to dominate intellectual thought, thereby giving rise to what we think of as modern science and indeed rationality itself. This latter approach to knowledge and science is the essence of modernism, which found its most recent and powerful expression in some versions of logical positivism[4] with their very strong presumption of an external reality against which claims of knowledge could be tested via a correspondence theory of truth (Passmore, 1968). The current emergence of a counter-movement we have come to call postmodernism seems to be, in part, a return to a more tentative and contingent epistemology that, Toulmin (1990) suggests, would not sound strange to Aristotle. The widespread belief that reality is externally given may be giving way to the conviction that realities are human creations which are open to redefinition and reconstruction depending at least in part on our current human and social needs (Gergen, 1985, 1992).

The Nature and Origins of Modernity

Stephen Toulmin (1990) has argued that historians of science have largely erred in their account of the emergence of the Age of Reason and the development of the modern, rational approach to knowledge and science. The standard account, he claims, suggests that scholars turned to reason and rational discourse as the basis of knowledge when the church began to relinquish its hold on scholarship and became more tolerant of new ideas and scientific discoveries. This increased tolerance, the history goes, enabled Descartes and other scholars in the 17th century to base their science on

observation, mathematics and reason in order to build a better account of nature and reality.

According to Toulmin (1990), a closer look at the events of the time reveals a rather different historical development. In his revised account, Toulmin suggested that rationality began to supplant religious authorities in the early part of the 16th century. In this picturing, the 1500s saw a tolerance in the church for new and radical thinking. Throughout the century there was an expansion of wealth and a sustained period of positive economic growth; in short, the times were good. Copernicus was encouraged by Pope Clement VII to publish his theories on astronomy in 1543. In 1580, Michel Montaigne published the results of his wide-ranging and curiosity-driven investigations into culture and the physical sciences. During the later part of the 1500s Francis Bacon developed his open-minded approach to the collection of facts without any recourse to prior theory to define their meaning. By focusing on particulars as he found them in their natural contexts, he hoped to build gradually an account of nature and its workings. Whether or not these scholars understood reality as created or discovered is not clearly known, but they certainly pursued knowledge in an open-ended and personal way that will seem familiar to the postmodernist.

The freedom of inquiry that characterized scholarship in the 1500s did not survive long in the 17th century. The tolerant attitude that prevailed in Europe in the early years of that century was symbolized by the Edict of Nantes, signed in 1598 by Henry IV of France, giving Protestants the right to pursue their religious beliefs. After Henry's assassination in 1610, Europe rapidly slid into war as religious intolerance merged with the territorial ambitions of the rulers of feudal fiefdoms then in gradual decline. There was a general disintegration of the social order where isolated villages were brutally and repeatedly sacked by various armies that would sweep through the land. Along with a near complete rending of the social fabric was a virtual collapse of the economy; poverty, starvation and disease dominated the lives of whole populations. The destruction continued until the end of the Thirty Years War in 1648. Toulmin (1990) has argued that it was during this period of social disorder that it became essential for scholars to find rational and secure ways to build a stable society. The search for *certainty* became paramount.

In the middle of the Thirty Years War, Descartes began his explorations in philosophy, mathematics and physics; his intellectual quest was for something about which he could be certain. He, of course, was familiar with the works of Montaigne and Bacon, but he also likely recognized that their highly independent, curiosity-driven scholarship was not easily pursued in the more conservative religious context of the 1630s. Witness the fate of Galileo for his continued exploration of the same ideas Copernicus had developed with the encouragement of church authorities 100 years earlier. In this context, Descartes turned to an epistemology of an external and stable

reality reminiscent of Plato's and to a method of investigation that was considerably more disciplined and logically managed than either Bacon or Montaigne would have tolerated.

Descartes's tactic was to affirm the certainty of his own existence by recognizing the clarity of his own thought processes. This step, in turn, enabled him to conclude with confidence that God exists, and, further, that God's existence warrants the certain knowledge of an external reality (Stumpf, 1993). God had created reality and, in doing so, had determined what is True, Good and Beautiful. The task for the scientist became one of discovering the nature of God's creation through the use of sound analytical methods.[5] Eventually, and as others worked to develop Descartes's method, it became clear that the cosmos (physical reality) and the *polis* (social reality) would come under a single set of epistemological rules. This became what Toulmin (1990) has called the 'hidden agenda' of modernity, and it was to dominate intellectual discourse in the western world for the next 300 years.

What, then, were and are the epistemological items on the agenda for modernity? At the top of the list was the aforementioned commitment to a belief in an external, defined reality that can be uncovered and described. In addition to this essential element, there was a turning away from some of the forms of sensory-based knowledge so valued by 16th-century scholars such as Bacon and Montaigne. First among these was a shift from an emphasis on oral discourse to a reliance on written propositions because of the stronger sense of stability and reliability the latter conveyed. As Toulmin (1990) put it, 'formal logic was in, rhetoric was out' (p. 31).

Also on Toulmin's list was the move from a focus on the particular in the here and now to the search for knowledge that was universal, general and timeless. Essentially, if true knowledge was concerned with an independently existing reality, then that knowledge had to apply to all people at all times and in all situations. Particular events were interesting only as illustrations; local characteristics were significant only as demonstrating the range of situations in which reality could be identified; and the now was important only because reality expressed itself on specific occasions. The particular event in the here and now was useful only for what information it carried about the true and sustaining state of nature.

While Rorty (1979) and Toulmin (1990), among others, have made the case that the epistemological structure of modernity had been seriously weakened by the early years of the current century, the fact remains that the rise of logical positivism in the 1920s and 1930s represented a high-water mark for the advocates of modernity and its form of science. Buttressed by Wittgenstein's early work on the logic of propositions, philosophers in the Vienna Circle framed the positivist approach to knowledge creation that, between the world wars, was able to deflect critiques by pragmatists such as John Dewey and by continental phenomenologists such as Heidegger who

were the inheritors of Hegel's vision of humans as meaning makers. Since the end of the Second World War, however, modernists as positivists have been in general retreat in the face of a spreading postmodernism (Guba, 1990; Kvale, 1992).

The Nature and Origins of Postmodernity

While the modernist agenda effectively dominated most of the intellectual discourse through the 17th, 18th and 19th centuries, this hegemony was not without its detractors. As early as the first decade of the 19th century, Hegel, chiefly in his *Phenomenology of Spirit*, which appeared in 1807, claimed that all knowledge and indeed the essence of meaningful lived reality was created by Mind as it engaged the physical world; nature and physical existence took on their definition from human action. Although aspects of Hegel's conceptions later found expression in European existentialism and phenomenology, much of the critical thrust of Hegel's work in English language philosophy in the 1800s was misdirected when it was assimilated into a British form of idealism. Philosophers such as G.E. Moore, Bertrand Russell and the early Wittgenstein, who felt that idealism was mistaken in its metaphysics, attempted a rescue by rejecting this extreme idealism and opting instead for a modernist, positivistic empiricism.

In the early part of the 20th century, pragmatic philosophy, drawing on the pioneering work of C.S. Peirce but substantially developed by William James, John Dewey and G.H. Mead, offered a serious challenge to the tenets of modernity. Pragmatists argued that any attempt to establish truth by showing degrees of correspondence between human knowledge and reality could not succeed. How, they asked, could there ever be a defined standard that could be accepted as final evidence attesting to accurate correspondence? The truth-testing device of employing inter-observer agreement (Stevens, 1935a, 1935b), as proposed by some positivists, was seen as mostly beside the point and not directly aimed at the problem of establishing correspondence (Boring, 1950; Kaplan, 1964). Agreement could not possibly provide direct evidence about correspondence because, obviously, different observers could all agree on the content of an observation and yet all could be mistaken. At bottom, this technique for testing correspondence assumed the conclusion it was supposed to prove because it began with the assumption that a defined reality existed independently of the observers. From the pragmatists' point of view, a much more useful approach to determining truth lay in relying on knowledge that helps in making the knower a more effective problem solver (Pepper, 1942/1970). They advocated a 'successful-working' theory of truth as a replacement for the modernists' correspondence theory.

Standing behind the pragmatists' readiness to assess truth in a new way was a growing conviction that the modernist notion of the primacy and knowableness of an external reality was seriously flawed. Reality, for the pragmatist, was whatever exists for knowers, who all live in unique circumstances defined by time and place. But even time and place were given a character of elasticity in the notion of the 'specious present', which permitted the knower to define a reality that included, most certainly, the here and now but also, simultaneously, the there and then (Pepper, 1942/1970). Clearly, there was room in this epistemology for some of Aristotle's contingently acquired knowledge. In the event, however, this rather radical message from the pragmatists was largely overwhelmed by the arguments of the positivists, whose ideas were firmly rooted in the still powerful scientific traditions of modernity. In the years between the two world wars the pragmatists' voices went mostly unheeded.

Within the English-speaking academic world, most of the credit for weakening the epistemological structure of modernity is generally given to Ludwig Wittgenstein (Rorty, 1989). By the late 1920s, Wittgenstein, partly because of provocative questions from Frank Ramsey, a young mathematician then at Cambridge, and partly due to his encounters with members of the Vienna Circle (Monk, 1990), began to appreciate that his *Tractatus* had not, in fact, resolved all significant questions in philosophy. After his return to Cambridge in 1929, he developed a radically different approach to philosophy that, in effect, imported some of the methods of anthropology. Where Wittgenstein's early philosophy appeared to be founded, in part and in the opinion of many of his readers, on the notion that meaningful reality (in the form of Russell's atomic facts) existed independently of knowers and that the task of investigators was to describe that reality in the most rigorously logical way possible, his later philosophy unambiguously concluded that meaningful realities are human creations with no formal prior constraints on what the nature of these creations might be (Monk, 1990; Passmore, 1968). The particular realities any knower created depended on the knower's participation in social processes of experience which effectively comprise one or more 'language games'. These language games essentially determine the reality experienced by the knowers. In Wittgenstein's terms, to ask what is the true nature of reality is to ask a useless question, one without any possible answer; descriptions of realities are only true within a given language game. Even before Wittgenstein's ideas were published, posthumously, in his *Philosophical Investigations* (1953), they had an enormous impact on epistemological theory and they represented a deeply serious attack on the foundations of modernity.

When the arguments advanced by Dewey and Mead, as pragmatists, are combined with those of Wittgenstein and other analytical philosophers and then further fused with the ideas originating on the European continent from thinkers such as Derrida, Foucault and Lyotard, one can see the essential

elements of postmodernism begin to emerge. In a sense, the essence of postmodernism is a reversal of the form of epistemology that originally came to define modernism. At bottom is the conviction that reality is created or constructed, that the only meaningful knowledge is restricted to the particular, is time-limited, and pertains only to specific circumstances. Any attempt to locate or define the universal, the timeless and the general, regardless of specific knowers, will end in failure.

The Practice of Scholarship in the Sciences and the Humanities in Modernity and in Postmodernity

Among the many differences between the sciences and the humanities, one of special importance is the commitment by scientists to the ideal of knowledge accumulation. While scientists may pursue knowledge using a wide variety of strategies and methods, one overall objective is central: to advance knowledge and understanding. Advancement is always interpreted as movement toward a better understanding either through a superior theory and/or through an increase in the sheer volume of knowledge. The physicist of the 1990s is thought to have a better account of physics than the physicist of the 1890s; the former's grasp of physics is not only different, but it is also superior to the latter's understanding. Knowledge, in the sciences, is assumed to build upon more or less stable foundations, and the progression is from good ideas to superior ideas. To be sure, from time to time, as Kuhn argued in the *Structure of Scientific Revolutions* (1970), there are dramatic changes in the way knowledge is organized and even accepted, but the trend line of change is regarded as positive. Moreover, while scientific accounts of reality might change, reality itself is assumed, within the rules of modernity, to be stable and not capricious.

In the humanities, changes in knowledge, for the most part, have had a different meaning. Where the sciences insist that useful changes in knowledge signify improvements, the humanities tend to accept the new knowledge as simply different. The Shakespearean scholar of the 1990s will probably have an insight with respect to the meaning of *King Lear* that is different from the scholar of the 1890s, but will be unlikely to say that the scholar of 100 years ago was mistaken in his or her understanding. In the mid-1950s, for example, it would have been perfectly acceptable to regard *King Lear* as a play about a man who is at once a king and a father and who undergoes a loss of power and respect. By the mid-1970s, when the rhetoric of the radical left had become more prominent in intellectual discourse, the play could be taken as an account of the collapse of the oppressive ruling classes. By the mid-1990s, the play, in the context of current-day gender politics, might be seen as a comment on the disintegration of the patriarchy. All of these interpretations of the play must be regarded as intellectually acceptable

because they speak to the interests and values of the culture of the time and the changing background experiences of the readers or the audience. What was 'true' about *King Lear* in the 1950s might well be different from the 'truth' in the play in the 1990s. Essentially, the humanities have been more ready to accept an epistemology and a method of scholarship that is fundamentally postmodern, where reality is whatever the knowing community says it is, and where the meaning of that reality can be communicated in a clear, consistent and useful way to others.

This is not to say that the humanities have always been free of the effects of modernity. There have been movements in many humanist fields to discover the 'real' meaning of a novel, of a painting, or a poem. In the field of history, many scholars have tried to show what 'really' happened in the past. Literary critics might seek to uncover the 'true' intent of an author. Such efforts are fraught with difficulties, but they are very much in keeping with the conviction that there is indeed a defined reality out there to be discovered and grasped.

Within modernity, the task of the natural scientist is quite straightforward: by the most efficient means possible, to expand our view and understanding of the workings of natural reality. Over the centuries since Descartes first set the track, progress has been remarkable. Advances in knowledge have been rapid, and this has been largely due to a rigorous adherence to a relatively narrow band of data-gathering methods and a sharply restrained vocabulary for talking about reality. The rules of the scientific culture have been exceedingly strong. When a new aspect of reality is identified, it is named, the methods involved in its uncovering are publicly stated, and others are invited to follow this same path to the same reality. Where further research replicates the results, these new 'facts' are added to our knowledge inventory. Where replication is not possible, it is concluded that this putative new part of reality, like the recently 'discovered' cold fusion, probably does not exist. Under these traditions, the process of knowledge accumulation occurs quite naturally; everyone plays by the rules and everyone knows what they must do to reveal the hidden character of nature.

Given that postmodernism requires the acceptance of the belief that realities can only be created and not discovered, does it also imply that science conducted according to the procedures of modernity is impossible? Is there to be no discipline in the evaluation of evidence and the conclusions drawn from it? Unless there is a generally accepted set of rules to guide data definition, collection and interpretation, it is highly unlikely that knowledge can be said to accumulate. Can there be science without the possibility of knowledge accumulation? Probably not, but postmodernism need not mean there can be no knowledge accumulation. What is required, within postmodernity, is a scientific language game that scientists can generally accept and use. While he probably should not be classed as postmodernist, this, essentially, is Habermas's (1971) position.

One way of dealing with the problem could be to call what amounts to a constituent assembly of scientists and write a constitution for science which would spell out the ground rules for the scientific language game. This has, in fact, been done in some areas. The American Psychiatric Association created the 'Diagnostic and Statistical Manuals' partly in this fashion by involving a very large number of medical researchers and practitioners in the definition of psychiatric conditions (American Psychiatric Association, 1994). In a more limited way, the American Psychological Association, becoming anxious about the drift in the meaning of the term 'intelligence', appointed a committee to 'fix' the meaning of the term. Their report has been recently issued (Neisser et al., 1996).

Any such general effort is unlikely to succeed, however; there are simply too many contending visions of science, and it would be impossible for any one version to gain the dominant position required. In any case, the postmodern agenda, in its heart, could not tolerate the hegemony of any particular point of view created through a social covenant. If anything could form the basis for a common language game for scientists, it would have to be experienced as 'natural' by the scientific community and not be the result of any sort of putative common social agreement.

There is indeed such a possibility. Postmodernists do not generally deny the existence of physical phenomena; they know about the dangers associated with the extreme form of subjective idealism and are not about to fall into that trap. When knowers encounter a physical entity, a meaning of that object for the knowers is created, and it is this meaning that the postmodernist wants to call reality, but the meaning (the postmodernist's reality) should not be confused with the physical entity itself. It would also be a mistake to think that the meaning that results from the knowers' contact with the physical object is *solely* the result of the collective social actions of the knowers. The object itself has its own characteristics which it brings to the encounter, and it is out of the interaction of the community of knowers *with respect to* the object that meaning is created. Because physical objects are usually relatively stable, they tend to bring repeatedly the same characteristics to each and every encounter with a knower. As a result, the meanings arising out of these encounters have a remarkable consistency between knowers. Virtually everyone ends up being wet when rain falls on them, bleeding is nearly a universal consequence of wiping one's thumb along the sharpened edge of a metal blade, bright lights invariably cause pupils to constrict, and so on. It is this reliability in the way meanings are created when knowers and physical objects interact that could support a useful scientific language game within postmodernity. In fact, its characteristics would have a very strong resemblance to the equivalent game within modernity. While postmodern physical scientists might have a very different epistemology from the scientists of modernity, their ways of doing science

could be remarkably similar. In this sense, postmodernism is not necessarily a significant threat to the physical sciences.

The Epistemological Challenge for the Behavioral and Social Sciences in Postmodernity

Not long ago, M. Brewster Smith (1994) drew attention to the implications for the science of psychology of an encroaching postmodernism which 'as a movement is spreading from the humanities to the social sciences. It has no foothold in the natural sciences, which nevertheless are beginning to take note of it as a cloud on their horizon' (p. 409). Smith was articulating a warning to psychologists that postmodernism, in what appears to be an anti-science guise, might be bringing an end to science as we have known it in psychology and, by extension, in other social science disciplines. In subtitling his paper 'Postmodern Perils and the Perils of Postmodernism', he attempted to draw attention to the very real possibility that this new movement, with its denial of a stable external reality against which to test the adequacy of psychological knowledge, 'leaves us bereft of anchors to stabilize a view of self and world' (p. 408). The situation, in Smith's view, is becoming serious.

For his commentary on Smith's (1994) paper, Kenneth Gergen chose the title 'Exploring the Postmodern: Perils or Potentials' (1994). In doing so, he signaled, in the best traditions of postmodern thought, that he saw very different meanings in the same events that so troubled Smith. For Gergen, postmodernity brings new and exciting possibilities for the creation of knowledge where countless new visions will be given permission to appear and from which we can select those that offer useful meanings and solutions to the ever-changing array of problems confronting us. Where Smith is pessimistic, Gergen is optimistic. Where Smith discerns difficulties in garnering the commonness of view that permits scientific understanding to accumulate, Gergen rejoices in the wider freedom to select the most useful views for particular circumstances. Gergen seems to sense no threat to science in postmodernity; instead, he senses liberation.

And yet, one is left with the possibility that Smith has a right to be concerned for the scientific future of psychology and other social sciences. If science does depend on a single central language game (or, at the very least, a limited set of such games) to anchor a developing knowledge structure, where does this come from in fields that are focused on social and cultural products? Physical objects might provide a stabilizing context for the natural sciences in postmodernity, but where is there parallel stability in concepts such as intelligence, aggressiveness, shame, friendliness, introversion, assertiveness, psychological warmth, democratic government, group cohesiveness, premenstrual syndrome and intrinsic motivation? All of these

terms (as well as others like them) have been used to describe, explain, identify, interpret and summarize what happens when people interact with each other or with the social structures that constrain or liberate us. They refer to processes and/or events that can have very powerful meanings for each of us and we are not surprised when we find them being used in a wide variety of different ways. Even within modernity, with its inherent tendency to restrict and control the operational meanings or uses such terms might have, assembling a science of social process has been damnably difficult. In postmodernity, with its positive encouragement of language and concept diversity, finding a way to accumulate knowledge might be impossible over the longer run.[6]

The problem is that most social processes or constructs do not have sustaining physical existences in the sense that rocks, water, neurons and oxygen molecules do. They do not insist on having the same or roughly the same effects on the knowers who encounter them. To use Fine's (1992) phrase, generally they lack obdurateness. Without this characteristic, it is not at all clear how scholars who study them will be able to rally around an effective and very special single language game that will permit the accumulation of stable meanings or, in other words, a body of scientific knowledge. A postmodern version of science in the behavioral and social sciences may certainly be *possible*, but it is not misplaced to wonder about the *probability*.

If Science in the Behavioral Sciences is Not Possible, Does It Matter Anyway?

If, in a postmodern world, and as Smith (1994) appears to fear, the behavioral sciences become a branch of the humanities rather than fields of study allied with the natural sciences, will this transition mean the end of scholarly study of psychological and socio-cultural processes? Most decidedly not; there are many examples of good scholarship in the humanities and, for the most part, humanists make no pretense of being scientific. There is no reason to believe that scholars in the social sciences (if our world becomes a postmodern one, this phrase just might disappear) will find any need to give up their scholarly interests. While they might not be involved in the progressive accumulation of knowledge about the social world in the style of the natural scientist, they will have no end of opportunity to explore new and emerging meanings.

The outlines of the postmodern social scientist's scholarly work are already beginning to emerge. If Toulmin (1990) is right, the epistemology of this new form of social study will be focused on the particular, the timely, the oral (as well as the written) and the local. The central objective of this work will be the articulation of the meaning, for individual persons and for

society as a whole, of the social events that constitute life and its socio-cultural existence. At the micro level of the individual, scholarship will probably follow the idiographic forms we are used to seeing in the clinical branches of psychology. People typically live in quandaries and they often seek guidance from others who are wiser and more deeply schooled in the forces that operate on our values, our decisions, our goals and our interpretations of the social events we experience. As the content of our culture changes over time or as people enter new cultural contexts, they will need to read about, talk about and understand the new meanings they are creating or are being offered. There is no need for anyone to regard these changes as improvements in the quality of the knowledge they have; they are only required to appreciate how meanings and realities can change and be prepared to adopt new attitudes or modes of existence. In a sense, the work for an intelligent, creative, insightful, careful, sensitive and rigorous scholar will never end. The diversity of meanings and realities possible in the postmodern world is probably endless and in a constant state of renewal. There will always be a need for someone to help others locate and understand them.

At the more macro level, scholarship focused on social process might look generally like social policy research. Where the modernist scholar might look askance at such work because it does not go behind the current, temporal events to uncover the underlying universal social realities in operation, the postmodernist will understand that, under a postmodern epistemology, these temporal events are all there are and that to look for something more enduring is misguided at best and meaningless at worst. The postmodern researcher will still look for ways to gather data describing the community and its collective behavior so that appropriate macro-interventions can be developed and implemented in order to achieve agreed upon social goals. Success in these enterprises will depend on the timeliness of the information and the sense it makes to the wider community as it struggles to understand what is happening within itself. Gone will be any sense that such scholars are going to find the 'best', 'correct' or 'only' way to design and deliver human services. In its place will be an awareness of change and the need to monitor constantly the nature of the local culture and socio-political economy to discern emerging future needs which will vary from place to place and from time to time. Like the 'clinician' working at the level of the individual, there will never be an end to this need to define our wider and collective realities.

If indeed a postmodern epistemology progressively replaces the modern, what are the implications for the various social science disciplines? Those disciplines, such as sociology, anthropology, economics and political science, which deal mainly with purely social and cultural products/objects of study will likely remain intact, albeit with internal reorganizations as new roles and purposes are worked out. Psychology, however, would probably

suffer a different fate. Those parts of the discipline which deal with strongly physical areas of study such as neuroscience and physiology would likely separate from the rest of what we now call psychology and find their way into some branch of the biological sciences. The remaining areas, including, among others, social psychology, developmental psychology, counseling psychology and family psychology, would likely either find new organizing themes among themselves or be divided up among other existing disciplines dealing with social and cultural phenomena. Indeed, a few years ago Scott (1991) explored a possible future for psychology departments as they moved toward the middle of the 21st century. His appraisal, based on the emerging trends already evident in the field, led to roughly the same endpoints as does the present analysis. As Scott suggested, there is no reason for deep despair in any of this; it is perfectly reasonable to hold 'an optimistic view of the disciplines that compose the field of psychology, extending and renaming their vectors, tearing administrative membranes as they grow, forming new alliances, and enjoying the creation of scientific and clinical offspring whose forms we cannot yet predict' (p. 976).

Whatever is to be the fate of psychology as a discipline and for whatever reason, it seems possible that all of the behavioral and social sciences might be entering some sort of epistemological endgame. Gergen (1994) is probably right to be excited about the possibilities for future knowledge creation in a postmodern world. But Smith (1994) and Gage (1996) are also correct in pointing out that the certainty that most psychologists and other behavioral scientists thought they might be searching for may indeed slip away if the ground rules that have proven to be so effective in traditional science are abandoned or unsustainable. Is there really a genuine choice to be made here or is there, instead, a tide in the history of ideas that simply cannot be resisted? The future will be interesting to watch.

Notes

1. In fact, the last 15 years have seen a veritable explosion of writing concerned with the impact of postmodern ideas, in their numerous forms, on the social sciences, including psychology. Needless to say, attention cannot be given to such a large body of writing in the space provided for this essay. For a sampling of the recent impact of postmodernity on the study of the self, see Benhabib (1992), Edge (1994), Gergen (1992, 1993), Glass (1995); on psychotherapy, see Held (1995), McNamee and Gergen (1992), Weingarten (1996), Young (1997); on psychoanalysis, see Barratt (1993), Carlisky, De Eskenazi, and Kijak (1997), Elliott (1996), Flax (1991, 1993); on sociology, see Denzin (1991), Featherstone, Hepworth, and Turner (1991), Flanagan and Jupp (1997), Geyer (1996), Lemert (1997); on education, see Marshall (1996), Parker (1997), Peters (1995), Usher and Edwards (1994), Wexler and Smith (1995); on geography, see Watson and Gibson (1995).
2. While the central concern here is on the relatively narrow question of the nature of reality, it is recognized that the collection of ideas called postmodernity is

concerned with a great many other issues, including the nature of culture and social discourse, where the emphasis is on the human capacity to create new modes of existence for itself.

3. The discerning reader will note that the discussion that follows has a realist (Bhaskar, 1978; Greenwood, 1992; Hooker, 1987; Manicas & Secord, 1983) coloring in its reluctance to avoid mentioning physical phenomena. At the same time, the tactic being adopted in this paper is rather like that used by Potter (1992) in his constructionist critique of the philosophy of science discourse often used by scientific realists. There is no intent to deny the existence of physical phenomena or to argue that discussing them is inherently problematic (as is sometimes the case with extreme social constructionist positions). Instead, the focus of the discussion, having dressed it in some postmodernist clothing, is on how we come to develop our discourse, scientific or otherwise, about anything.
4. In fact, it is impossible to make any simple (and correct) statement about the nature of logical positivism (Losee, 1993; Passmore, 1968). From our vantage point in the last decade of the century when the term 'positivist' is used too often as an epithet, it is sometimes too easy to forget that logical positivism was aimed primarily at finding a way past the conceptual problems about the nature of reality arising from metaphysics (Stam, 1992). While some positivists (e.g. Schlick) asserted a realist ontology in this task, others (e.g. Neurath) found a place for sense-data, biologically, rather than metaphysically, understood.
5. Actually, Descartes's epistemological maneuver here was complicating in more than one way. He not only opted for an epistemology oriented to a defined and God-designed external reality, he also divided reality into two substances: Mind and Matter. For Descartes, the certainty he sought was to be found in logically formed ideas in the Mind, which informed him of the true nature of reality. He was distrustful of sensory impressions, which he felt lacked the clarity and stability of ideas. While this strategy satisfied his need for certainty, it also created a new problem for western thought: how can the gap between body and mind be crossed? Just as the Mind–Matter split is an integral part of modernity, the avoidance of this picturing of psychological reality is one of the major objectives of postmodern discourse.
6. More than a decade ago, Hedges (1987) took up the question of knowledge accumulation in the physical and social sciences He reasoned that if the physical sciences readily accumulate knowledge while the social sciences do not, then they should be found to differ in their capacity to deliver consistent findings within specified areas of research. He used meta-analytic techniques to examine the degree of agreement in research findings in each of these areas. His results showed that the two domains of science did not differ in the consistency of reported research findings. Such results led him to the conclusion that knowledge accumulation is not advantaged or disadvantaged in either domain. From a postmodern perspective, however, a more important question to ask concerns the fate of findings and concepts over a time-span long enough to see the development of new systems of measurement along with new ways of looking at a problem. Such changes are significantly more common in the social sciences than in the physical sciences.

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