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What in the universe constitutes evidence? And how do we perceive/select, gather/arrange, and then value/judge entities and processes to fulfill our definitions? Our responses concerning the nature, organization, and evaluation of evidence reveal our inquiry paradigms, both those we elect to inhabit, and those we may even help to create.

Inquiry rather than *research* is used here because its connotations are less parochial and more generous. The generic term *research* suffers from conceptual synecdoche in that, for many, the part has become mistaken for the whole: the single species of empirical research is treated as the entire genus—a matter to which I'll return. As to *paradigm*—a term as useful as it is currently modish—I will, like so many others, pluck one definition from Thomas Kuhn and call a paradigm an explanatory matrix.[2] An inquiry paradigm then is the explanatory matrix for any systematic investigation of phenomena.

A few more background comments before I suggest what elements and features make up inquiry paradigms, including those for writing. There is not necessarily a one-to-one correspondence between a given academic discipline and a given inquiry paradigm. Within a single academic field or discipline, there can be several, even many, inquiry paradigms active and working, as there can be several, even many, academic disciplines deploying a single inquiry paradigm.

As an example of the first arrangement: within the single field of belletristic studies can be found scholars who inhabit a number of distinct inquiry paradigms—say, the historical, structuralist, and the psychoanalytic—each with contrasting, even warring, assumptions and methods. As an example of the second: within a single inquiry paradigm that can be tagged as the positivistic reside many researchers within the physical, biological, and social sciences, as well as most evaluators of research in state, federal, and private

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funding and granting agencies—a matter of immense conceptual and political consequence since it means that believers in a single mode of research guard almost all entries to monies and to influence.

The concept of inquiry paradigms is widespread. In addition to Kuhn, I follow especially some of the distinctions made by three other impressive theorists. The first is Egon Guba with his monograph, *Toward a Methodology of Naturalistic Inquiry in Education Evaluation*.[3] The second is Patricia Carini, formerly of the North Dakota Study Group on Evaluation and now Director of the Archives of Early Childhood, North Bennington, Vermont. Accounts of Carini's work appear in her own monograph, *Observation and Description: An Alternative Methodology for the Investigation of Human Phenomena,*[4] and in companion monographs by B. S. Engel, *A Handbook on Documentation,*[5] and by M. Q. Patton, *Alternative Evaluation Research Paradigm.*[6] A discussion of Carini also appears in the major essay by the third theorist I cite, Elliot Mishler of the Harvard Medical School, "Meaning in Context: Is There Any Other Kind?"[7]

To qualify as an inquiry paradigm, an endeavor must be informed, I believe, by 1) a governing gaze; 2) an acknowledged, or at least conscious, set of assumptions, preferably connected with 3) a coherent theory or theories; 4) an allegiance to an explicit or at least a tacit intellectual tradition; and 5) an adequate methodology including an indigenous logic consonant with all of the above.

A Governing Gaze

An inquiry paradigm must first be informed by what I'll call a governing gaze, a steady way of perceiving actuality. As students of perception like Luria and Gregory point out, perceiving is a process of immensely complex activity and selectivity.[8] We see what we elect to see. We have, as this metaphor puts it, a gaze that is governed—by our expectations, which are in turn governed by our experiences and what we have decided cognitively to make of them: by, that is, our hypotheses (Smith, Goodman),[9] schemes (Piaget),[10] and constructs (Kelly).[11]

Most of us have a preferred way of perceiving. Although our preferred way of perceiving may have idiosyncratic features that mark our intellectual biographies, ways of perceiving are remarkably finite: there may be no more than three governing gazes, so it is easy and almost inevitable to regard most of us as one of three kinds of gazers: positivistic, phenomenological, or transactional/constructivist. Diametrically different are the positivistic and the phenomenological. "Between" these is the transactional/constructivist. I will discuss here the most fundamentally opposed, the positivistic and the phenomenological.[12]

Inquiry governed by a positivistic gaze is also often identified as "conven-

tional inquiry"; classical research; empirical research; experimental research; pure research; or, simply, globally, and, of course, mistakenly, as The Scientific Method.[13] It is so powerful and pervasive a way of gazing that, as I've already suggested, many do not know that there is, or can be, any other. Yet, as a way of seeing and perceiving, it has been historically acquired and learned, as social theory records in the writings of Auguste Comte and of Emile Durkheim. Bogdan and Taylor (1975), quoted in Egon Guba's monograph, describe a positivist as one who

> seeks the facts or causes of social phenomena with little regard for the subjective states of individuals. Durkheim advised the social scientist to consider "social facts," or social phenomena, as "things" that exercise an external and coercive force on human behavior."[14]

As the twentieth century deepens, positivism as a governing gaze has come under more and more concerted criticism—expectedly, by inquirers who have come to perceive more transactionally or phenomenologically, from Susanne Langer[15] and Karl Popper[16] in philosophy to Urie Bronfenbrenner[17] and Michael Scriven in the social sciences[18] to Patricia Carini[19] and Paolo Friere[20] in literacy education.

One of the major differentiations between positivism and phenomenology as governing gazes is the attitude toward the context in which phenomena appear—toward what can be called the width of one's gaze and the focus/field relation. For the phenomenologist, focus upon the phenomenon must include acknowledgment of the field; but for the positivist, there is no field, only focus, only the phenomenon to be examined a-contextually, with no consideration or acknowledgment of setting. Such focus is understandable in light of the positivists' ambition to claim universality or at least generalizability for the statements they make about phenomena; that *a-* is true for all times, in all places, under all circumstances. Consequently, they engage in what Mishler calls *context-stripping:*

> Context stripping is a key feature of our standard methods of experimental design, measurement, and statistical analysis. To test the generality of our hypotheses, we remove the subjects from their natural social settings; their normal roles and social networks are left behind as they enter our experimental laboratories, much as we leave our shoes outside on entering a shrine.[21]

Mishler continues with the same acerbity:

> To meet the assumptions of statistical tests, subjects are then randomly assigned to different experimental treatments, as if they were as interchangeable as the seeds of different strains of corn or alfalfa. This experimental paradigm also serves as the ideal model for various types of nonexperimental research, including sample surveys and field studies of such social organizations as schools. Thus, the elegant methods of experimental design and statistical analysis developed by R. A. Fisher for

> the agricultural sciences have been carried over into the human sciences, bringing with them their context-free assumptions.[22]

What the positivists have overlooked, according to such critics as Urie Bronfenbrenner, is that the laboratory itself is not a noncontext but rather a context of a very powerful sort, often deeply affecting what is being observed and assessed. In his 1977 critique of research into developmental psychology, Bronfenbrenner noted that "findings on cognitive and social development are context-specific rather than having the generality claimed by investigators."[23] He especially stressed that a laboratory is an "ecological context" as much as, perhaps more than, a home and that children perceive the laboratory as an alien environment, with such a perception serving as a significant factor in their responses. The laboratory must be regarded, simply and complexly, as one of the many settings in which behavior can be observed.

In contrast to the positivist's denial of context as a factor in human behavior, the phenomenologist not only acknowledges context but also often scrupulously locates and describes it. For the phenomenologist, the governing gaze must be wide enough to include the field. A reason lies in the inherent nature of the phenomenologist's concern. As Bogdan and Taylor note,

> the phenomenologist is concerned with understanding human behavior from the actor's own frame of reference. The phenomenologist examines how the world is experienced. For him or her the important reality is what people imagine it to be.[24]

To examine how the world is experienced means necessarily to describe the nature of that world for the perceiver. In addition, one of the persons whose view of reality, whose "personal knowledge"—to use Polanyi's steadily useful concept[25]—is to be described and understood is the inquirer herself, as Patricia Carini points out in her very important theoretical work.

Mishler offers this summary of Carini's view: in contrast to the positivistic tradition in which "the position of the observer is defined as outside and independent of the observed phenomenon," in phenomenology

> the perspective of the observer is intertwined with the phenomenon which does not have objective characteristics independent of the observer's perspective and methods. Further, it contains multiple truths, each of which will be revealed by a shift in perspective, method, or purpose. Since reality is knowable in an infinite number of ways, many equally valid descriptions are possible. The choice among them depends on the purposes of the investigator and the focus of the investigation.[26]

"A reality knowable in an infinite number of ways" brings us to the second major distinction between positivism and phenomenology as governing gazes. The positivist believes that a one-to-one correspondence exists or can be established between a phenomenon and an interpretation of that phenomenon; the phenomenologist, as the quotation notes, believes that "many equally valid descriptions are possible." There are, for example, individual

literary critics, even schools of literary criticism, holding the belief that there exists one valid interpretation of a text. There are also contemporary philosophers and psychologists currently conducting research who reveal their positivism by assuming not only that meaning resides almost exclusively within a text but also that all texts consist of a sequence of propositions. Specifically, for the teaching of writing, a positivistic point of view reveals itself through many classical practices. One instance would be the giving of assignments. A positivistic assignment is one that does not emanate from the student writer nor from the students' prior writing such as free writings, journal entries, or response-to-text papers. Rather, the instructor sets a task, often discrete and decontextualized, from the frame of his own rhetorical reference or from the frame of a given rhetorical theory (or rhetoric text).

As with positivistic inquiry, phenomenonological inquiry assumes many forms: two of the best-known are case-study and ethnography, with case-study usually described as an intense, naturalistic examination of a given individual and ethnography as an analogous examination of a given group or culture.

An instance of case-study is *The Composing Processes of Twelfth Graders* by Emig.[27] An instance of powerful ethnographic research is the study Michael Cole and Sylvia Scribner conducted concerning the uses of literacy among the tri-literate Vai, a tribe in northwest Liberia, and reported out under the title "Literacy Without Schooling: Testing for Intellectual Effects," in the February, 1978, issue of the *Harvard Educational Review.*[28] Vai (males) deploy the three languages, roughly, as follows: English, for administrative and political purposes; Arabic, for religious purposes (reading the Ko'ran); and Vai, their own invented syllabic writing system, for writing letters and recording tribal histories. Cole and Scribner estimated that Vais write from one to forty letters every month, almost exclusively to tribal members in other villages.

Cole and Scribner asked themselves if there were any cognitive consequences to letter writing among the Vai, their major mode of literacy (with no connection to formal schooling); and they constructed two ingenious tests to obtain responses to their question. They summarized their findings as follows:

> These studies provide the first direct evidence that what an individual does with text, or with pencil and paper, can promote specific skills that are available to support other behaviors. . . . It stands as the first clear-cut evidence in a present-day society that personal engagement in reading and writing does have psychological consequences. These consequences, however, are all highly specific to activities with the Vai script.[29]

Here, too, is part of their discussions of their findings:

> If the educational objective is to foster analogical reasoning, that objective should guide the choice of instructional program. It should not be assumed that these skills will follow inevitably from practice in writing

> essays. Writing essays may be helpful, as may oral practices. This is undoubtedly the common wisdom of the classroom and the educational planner. But it would be helpful to ally this wisdom with the psychological literature on literacy so that the conceptual framework informs teaching practice and practice informs the theory.[30]

The significance of such ethnographic studies seems clear. By representing descriptions of cultures other than our own, they help us to examine our own culture more explicitly and critically. Only if we acknowledge the true range of diversity in literacy practices contrastively, in cultures other than our own, can we make sensible, accurate, and nonparochial statements about the relations of language and learning and about the unique values of classic Western modes—say, exposition—for cognitive growth.

A Set of Assumptions

With any inquiry, particularly one into a phenomenon as intricate and complex as writing, it is almost impossible to proceed without a set of assumptions, although, like a tradition, they can be implicit or explicit. For writing, these assumptions would inescapably concern (1) the nature of language, oral and written; (2) the meaning of a given language act or text, if one were a phenomenologist, within some culture—linguistic, aesthetic, possibly educational; (3) also that act or text as a revelation or at least a reflection of a writer's own attitudes and beliefs, as well as her state of knowledge and experience concerning the topic or theme; and, possibly, (4) her specific or general cognitive abilities. Take as example the use of a single writing sample in any inquiry involving the assessment and placement of students within any institutional setting. Among the assumptions behind the use of a single writing sample are the following:

i) A single writing sample in a single mode is a reflection of that writer's ability to
   a) write in that specific mode, not only on the single occasion represented by the testing situation but also on any subsequent occasion;
   b) write in a related mode: e.g., if the sample involves argument, then exposition;
   c) write in any mode.

ii) The piece of writing produced on any one occasion reflects the ability to write another piece of writing on any other occasion: in other words, language is a fixed phenomenon—language_1 is language_2 is language_3.[31]

iii) A single piece of writing is a sufficiently useful index of ability to "write," "do," or "pass freshman composition," "do college work."

iv) Decisions by instructors, chairs, deans, departments, admissions offices, and testing agencies can sensibly be made on the basis of this

> one sample that affect placement in a course, a college career, or, indeed, a full human future.

To summarize, the whole notion and enactment of a monolithic writing sample operates out of a set of positivistic assumptions.

A Theory

Indeed, perhaps one useful definition of a theory is that it represents a coherent and explicit set of assumptions. There are many sophisticated definitions and discussions of theory in the recent literature—for example, those by Gregory Bateson,[32] Jerome Bruner,[33] Howard Gruber,[34] and George Kelly.[35] Here is Bruner on theory:

> A theory is also a way of stating tersely what one already knows without the burden of detail. In this sense it is a canny and economical way of keeping in mind a vast amount while thinking about a very little . . .[36]

And a bit later in the same discussion:

> We now see the construction of theory as a way of using the mind, the imagination, of standing off from the activities of observation and inference and creating a shape of nature.[37]

Even more lyrical is Kelly's. After informally defining theory "as a way of binding together a multitude of facts so that one may comprehend them all at once," Kelly notes that

> a theory provides a basis for an active approach to life, . . . not merely a comfortable armchair from which to contemplate its vicissitudes with detached complaisance. Mankind need not be a throng of stony-faced spectators witnessing the pageant of creation. Men can play active roles in the shaping of events. How they can be free to do this and still themselves be construed as lawful beings is a basic issue in any psychological theory.
>
> The answer lies, first of all, in our recognition of the essentially active nature of our universe. The world is not an abandoned monument. It is an event of tremendous proportions, the conclusion of which is not yet apparent. The theories that men employ to construe this event are themselves incidents in the mammoth procession. The truths the theories attempt to fix are successive approximations to the larger scheme of things which slowly they help to unfold. Thus a theory is a tentative expression of what man has seen as a regular pattern in the surging events of life. But the theory, being itself an event, can in turn be subsumed by another theory, or by a superordinate part of itself, and that in turn can be subsumed by another. A theory is thus bound only by the construction system of which it is understood to be a part—and, of course, the binding is only temporary, lasting only as long as that particular superordinate system is employed.[38]

Inquiries into writing, into composition, probably need to be informed by at least four kinds of theories: 1) a theory of meaning; 2) if this is different, a

theory of language; 3) a theory of learning; and 4) a theory of research. Preferably, all of these should be consonant or congenial.

For meaning, every inquirer must commit herself to some response to the question, where does meaning reside? in the text? in the context? in the reader? or in the transaction among the three?

It is useful, too, to know explicitly one's own learning theory. How do learners learn? by trial and error? by errorless programed experiences? from parts to whole? from wholes to parts? by an elaborate orchestration of both? by tight syllabi and drill on discrete features of discourse? by loose experimenting with many modes in a self-selected ordering?

One of the most concerted curricular movements in English education within the past decade involves that of sentence-combining in all of its manifestations and permutations. There is obviously a practice of sentence-combining, but is there an adequate theory? Reading the texts and the many (endless?) articles in *Research in the Teaching of English,* one gains little sense that it proceeds from any adequate theoretical base, despite proponents' claims that it can cure all ills, including, one feels at times, the energy crisis. What learning theory or theory of human development informs the claims of cognitive growth for student writers using sentence-combining? The practices and assessments of these practices seem barren of a generating or buttressing theory.

A Tradition

In another essay I have very fully developed the notion that the presence of an explicit or of at least a tacit intellectual tradition is requisite for a full and self-respecting inquiry paradigm, as acknowledgment of that tradition is requisite for any self-respecting paradigm inhabitant.[39] (In fact, it could be said that those who neither know nor acknowledge their intellectual origins are the true bastards of the world.)

The reason the only decent scholarly ploy is to know and to acknowledge one's sources is that, at this very late date in human intellectual history, it is deeply unlikely that at least those of us who work in the humanities—that non-cumulative endeavor—will have a wholly original idea. For example, anyone pretending to claim for the first time that the gesture may be the origin of writing would have to ignore the same observation made by the following scholars: Wundt,[40] Huey,[41] G. H. Mead,[42] Vygotsky,[43] and Condon.[44]

Whom then do we seek and cite as ancestors and authorities? To seek confirmation from Plato obviously marks a very different inquiry from one that cites, instead, Chomsky. Any full-bodied inquiry is marked by the productive and necessary tension between the tenets of the tradition in which the inquiry is made and the divergence represented by the individual talents of the inquirer.

A Methodology

A mature inquiry paradigm also requires an appropriate methodology, including an indigenous logic. Given methodologies can be deemed appropriate or inappropriate for given inquiries. And dissonance between methodology and intent, or between methodology and content, is often easy to discern. For the kinds of questions an examination of writing throws off in its early stages—and early is assuredly where we are in writing research, conceptually as well as historically—certain methodologies seem premature, given the naive state of our knowledge. Tight pre-post-test designs, for example, imply an inquiry where the significant variables are not only known but also weighted and rated: true about writing?

Also, where the acquisition and development of language are concerned, there are, for example, often *no* comparison or control groups. Or, if they exist, they are too bizarre or special to serve as sources even of contrastive insight. Children in whom language development is suppressed—the Genies and wild boys of the world—are, as Lenneberg and others have already pointed out, freaks. Since, again as Lenneberg has observed,[45] all children outside wolf packs and closets develop language, we do not have the total absence of a trait, as required for experimental/comparison mitoses, but only lesser or more developed instances of its presence.

A Logic

There are many modes of logic, each with its own claim for validity and power: for example, the Euclidean, the Aristotelian, the Russellian. An indigenous logic is one so inextricably associated with a total mode of inquiry that the two cannot readily be considered separately: the logic, rather, seems almost a genetic attribute.

For example, rhetorical inquiries are informed by syllogistic or Aristotelian logic. Here, as with other modes of logic, historical origins suggest their current as well as past values for inquiry paradigms. Aristotelian—more particularly, syllogistic—logic originated to regulate debates in law courts, political assemblies, and schools. Deploying this mode of logic, one can assign correctness or goodness to a sequence of generalizations possessing certain formal characteristics. While syllogistic logic serves rhetorical paradigms well and situations where the *p.q. (persuasion quotient)* is more significant than the truth value, it is not especially useful in empirical inquiries where the concern *is* with establishing truth value.

In empirical inquiries, logics that can characterize the relational are more appropriate since the inquirer is almost always engaged in some act of comparison. Such inquiries usually proceed at one of two levels of confirmation and validation: correlational or causal. In the first case, the inquirer is content to demonstrate a relationship: to note, simply, for example, that *a* occurred before *b*—that, in the jargon of this logic, *a* is a subsequent, *b* a consequent

variable. A commonplace example is that heavy smoking often precedes the onset of lung cancer, with heavy smoking the subsequent, lung cancer the consequent, variable. With a causal relationship one must unequivocally demonstrate that *b* is the inevitable outcome of *a*—often, of *a* only: that there can be no other persuasive explanation for the phenomenon. As another commonplace example, yellow fever is caused always and only by the bite of the tse-tse fly. In certain kinds of classroom experiments, the goal is to demonstrate that the outcome in learning by the students is only and inevitably the outcome of a given kind of treatment or teaching. Since statistics as a mode concerns itself with correlations, refined as well as blunt, it is useful as a mode of analysis within positivistic inquiries.

Conclusion

What is the value in making this elaborate—some might say overelaborate—characterization of inquiry paradigms as they pertain to writing or to any other complex act or process? First, it is quite possible that unexamined inquiries are not worth making. Two, it is equally possible that impoverished or immature inquiries are also not worth making, and that the surest way to identify these is to set them against mature paradigms and fully-realized inquiries.

Second, despite the avowed national commitment to pluralistic evaluation, there can be no real possibility of contrastive assessment if evaluators literally do not know that more than the positivistic paradigm exists; if they have no criteria by which to evaluate a range of paradigms; and if, undemocratically, they do not acknowledge the legitimacy of alternate world views. For what is involved in paradigm construction and inquiry enactment is, I have tried to show, no less than how we choose to perceive the world and how we elect to define what is distinctly human about human life.

Notes

1. I thank Ann Berthoff, Carol Hostetter, and Robert Rottkamp for their generative reading of this paper.

2. Thomas S. Kuhn, *The Structure of Scientific Revolutions,* 2nd edition, enlarged (Chicago: The University of Chicago Press, 1970).

3. Egon G. Guba, *Toward a Methodology of Naturalistic Inquiry in Educational Evaluation,* UCLA Graduate School of Education Monograph Series, No. 8 (Los Angeles: University of California, 1978).

4. Patricia Carini, *Observation and Description: An Alternate Methodology for the Investigation of Human Phenomena,* North Dakota Study Group on Evaluation Monographs (Grand Forks, ND, University of North Dakota Press, 1975).

5. B. S. Engel, *A Handbook on Documentation* (Grand Forks, ND, University of North Dakota Press, 1975).

6. M. Q. Patton, *Alternative Evaluation Research Paradigm* (Grand Forks, ND, University of North Dakota Press, 1975).

7. Elliot G. Mishler, "Meaning in Context: Is There Any Other Kind?" *Harvard Educational Review,* 49 (February, 1979) 1-19.

8. A. R. Luria, *Cognitive Development: Its Cultural and Social Foundations* (Cambridge, MA: Harvard University Press, 1976).

9. Frank Smith, *Understanding Reading* (New York: Holt, Rinehart, and Winston, 1971), p. 230; Kenneth Goodman, "Reading: The Psycholinguistic Guessing Game," in *Theoretical Models and Processes of Reading,* ed. Harry Singer and Robert B. Ruddell (Newark, DE: International Reading Association, Inc., 1976), pp. 497-508.

10. Jean Piaget, *The Origins of Intelligence,* trans. Margaret Cook, Vol. IX (New York: W. W. Norton, 1952).

11. George Kelly, *A Theory of Personality: The Psychology of Personal Constructs* (New York: W. W. Norton, 1963).

12. I have fully described a transactional/constructivist gaze in "The Tacit Tradition: The Inevitability of a Multi-Disciplinary Approach to Writing," in *Reinventing the Rhetorical Tradition,* ed. Ian Pringle and Aviva Freeman (Conway, Arkansas: L & S Books, for the Canadian Council of Teachers of English, 1980), pp. 9-17. Here, perhaps, it is enough to note that the transactional/constructive gaze notes the interplay between the knower and the known, and the mutually transforming effects of that interaction.

13. E. D. Hirsch, Jr., for example, exhibits this misunderstanding in his writings on research.

14. Quoted in Guba. See also R. Bogdan and S. J. Taylor, *Introduction to Qualitative Research Methods* (New York: John Wiley & Sons, 1975), pp. 11-12.

15. Susanne K. Langer, *Mind: An Essay in Human Feeling,* Vol. I (Baltimore, MD: The Johns Hopkins Press, 1967).

16. Karl Popper and Sir John Eccles, *The Self and Its Brain* (New York: Springer International, 1977).

17. Urie Bronfenbrenner, "Toward an Experimental Ecology of Human Development," *American Psychologist,* 32 (July, 1977), 513-531.

18. Michael Scriven, *Primary Philosophy* (New York: McGraw Hill, 1966).

19. Carini, *passim.*

20. Paolo Friere, "The Adult Literacy Process in Cultural Action for Freedom," in *Thought & Language, Language & Reading,* ed. Maryanne Wolf, Mark K. McQuillan, and Eugene Radiom, *Harvard Educational Review* Reprint Series No. 14 (Cambridge, MA: Harvard University Press, 1980), pp. 363-381.

21. Mishler, p. 2.

22. Mishler, p. 2.

23. Bronfenbrenner, pp. 513-531.

24. Quoted in Guba, p. 12.

25. Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy,* Harper Torchbooks Edition (New York: Harper and Row, 1964).

26. Mishler, p. 10.

27. Janet Emig, *The Composing Processes of Twelfth Graders* (Champaign, IL: National Council of Teachers of English, 1971).

28. Reprinted in *Thought & Language, Language & Reading.* pp. 382-395.

29. Scribner and Cole, pp. 390-391.

30. Scribner and Cole, p. 394.

31. H. C. Clark, "The Language-as-fixed-effect Fallacy: A Critique of Language Statistics in Psychological Research." *Journal of Verbal Learning and Verbal Behavior,* 12 (April, 1973), 335-359.

32. Gregory Bateson, *Mind and Nature: A Necessary Unity* (New York: E. P. Dutton, 1979).

33. Jerome Bruner, "The Perfectibility of Intellect," in *The Relevance of Education* (New York: W. W. Norton, 1971).

34. Howard Gruber, "Darwin's 'Tree of Nature' and Other Images of Wide Scope," in *On Aesthetics in Science,* ed. Judith Wechsler (Cambridge, MA: M.I.T. Press, 1978).

35. Kelly, p. 11.

36. Bruner, p. 15.

37. Bruner, p. 15.

38. Kelly, pp. 18-19.

39. In "The Tacit Tradition: The Inevitability of a Multi-Disciplinary Approach to Writing Research" (see note 12).

40. Wilhelm Wundt, *Völkerpsychologie, Die Sprache* (Leipzig: W. Engelmann, 1900).

41. Edmond Burke Huey. *The Psychology and Pedagogy of Reading* (1908), reprinted 1968 (Cambridge, MA: The M.I.T. Press, 1968), p. 189.

42. George Herbert Mead, *Mind, Self, and Society* (Chicago, IL: University of Chicago Press, 1934).

43. Lev Vygotsky, "The Prehistory of Written Language," in *Mind in Society: The Development of Higher Psychological Processes,* ed. Michael Cole, Vera John-Steiner, Sylvia Scribner, and Ellen Souberman (Cambridge, MA: Harvard University Press, 1978), pp. 105-119.

44. W. S. Condon and L. W. Sander, "Synchrony Demonstrated Between Movements of the Neonate and Adult Speech," *Child Development* 44 (June, 1974), 456-462.

45. Eric Lennenberg, "A Natural History of Language," in *Psycholinguistics: A Book of Readings,* ed. Sol Saporta (New York: Holt, Rinehart, and Winston, 1961).