Problem-Solving: The Debates in Composition and Psychology

ELIZABETH B. HOUSE and WILLIAM J. HOUSE

Ann Berthoff's and Janice Lauer's debate about problem-solving is one of the most interesting controversies in composition literature. Sparked by Lauer's *College Composition and Communication* article, "Heuristics and Composition," the exchange includes several essays by Berthoff as well as responses and counter-responses by both writers. Lauer asserts, "Unless both the testmakers and the teachers of composition investigate beyond the field of English, beyond even the area of rhetorical studies for the solution to the composition problem, they will find themselves wandering in an endless maze" (396). In rebuttal, Berthoff warns of the dangers of using problem-solving as a pedagogical tool. In "The Problem of Problem Solving" she cautions, "When we make problem-solving central to a philosophy of education we effectively separate learning from knowing: the results are philosophically disastrous and politically dangerous" (240). Even though this exchange occurred in the seventies, Berthoff's and Lauer's dialogue is still intriguing and important as well as relevant to more recent arguments about problem-solving in composition literature and in psychological studies. As Lauer's bibliography indicates, psychologists pioneered the study of and continue to investigate problem-solving. However, psychologists have not always agreed about the nature and usefulness of problem-solving. In fact, the history of twentieth-century psychology can be traced by outlining different psychological views of problem-solving. Similarly, even composition theorists who agree on its usefulness in teaching writing have not always held identical views about what problem-solving is.

In this essay, we will delineate various conceptions of and arguments about problem-solving and propose a means for dealing with these conflicts. First, we outline several ways writing specialists who advocate problem-solving have viewed it; second, we discuss the criticisms of those who, along with Berthoff, find fault with using problem-solving in composition instructions; third, we propose resolving some of these conflicts by viewing problem-solving from the perspective of an internal-external validity continuum; and fourth, we examine arguments in the psychological problem-solving literature which parallel the disagreements in composition studies. This review should lead to a better understanding of the issues surrounding problem-solving, both in theory and practice.
The Debate Over Problem-Solving in Composition

Composition specialists who advocate problem-solving can be divided, roughly, into two groups. The first group includes theorists who believe that problem-solving links writing to a wide range of intellectual activities; thus, their theories about problem-solving are not limited to pedagogical concerns. These authors, too, are often concerned with the sociological implications of communication, the ways discourse affects people's relationships with one another. The problems these theorists pose concern content, issues of truth, and uses of the communication which is created. From their point of view, the aims of problem-solving in teaching composition include making the writer more aware of and able to use problem-solving skills in many facets of life.

Several representatives of this first group have proposed specific methods for using problem-solving in composition instruction, particularly in teaching invention. For example, in "Discovery Through Questioning," Richard Larson proposes an open-ended list of topics to help students question in a systematic way. In another article, "Problem-Solving, Composing, and Liberal Education," he broadly defines problem-solving as "the process by which one moves from identifying the need to accomplish a particular task (and discovering that the task is difficult) to finding a satisfactory means for accomplishing that task" (629). Larson also lists a seven-step method for dealing with problems and making decisions, and he argues that helping a student learn to conduct inquiries is important for an "understanding of himself, his values, and his world" (628).

Advancing another conception of problem-solving, in "Topics' and Levels in the Composing Process," W. Ross Winterowd calls for a revitalization of the "concept of topics in rhetorical theory and in pedagogy" (701), and argues that topics are essentially problem-solving devices: "The purpose of topics is not to supply verbiage in lieu of real subject matter, but to generate ideas concerning the subject. In this sense, topics are devices for problem-solving; they are heuristics" (707).

Some of the most important rhetorical work in problem-solving is connected with tagmemics. Richard Young explains that tagmemics "conceives of invention as essentially a problem-solving activity" ("Paradigms and Problems" 39) and that "the conception of the creative process in tagmemic rhetoric draws heavily on the extensive psychological literature on creativity and problem-solving —on the work of Graham Wallas, John Dewey, George Miller, and Leon Festinger in particular" ("Concepts of Art" 137). Anticipating objections from those who associate psychology with strict empiricism, he also explains that this conception of creativity "does not insist on the primacy of reason nor does it repudiate non-rational activity; instead it assumes a subtle and elaborate dialectic between the two" (137).

In Rhetoric: Discovery and Change, Young, Becker, and Pike ex-
plain that problems "arise when one becomes aware of inconsistencies in his own image of the world" (71). Such inconsistencies cause uneasiness, they point out, and if these inconsistencies are "insistent enough, a person seeks an explicit, conscious understanding of the problem and a reconciliation of the uneasiness," through efforts which constitute "the process of inquiry": preparation, incubation, illumination, and verification (73). Their tagmemic approach to problem-solving offers heuristics for identifying, analyzing, and stating problems, as well as for distinguishing between unsolvable and apparently unsolvable problems, for exploring a problem from varying perspectives, and for evaluating hypotheses.

Young, Becker, and Pike's conception of problem-solving also accounts for broad sociological dimensions. Their book, they maintain, is "in part, the result of our concern with . . . social changes . . . . We have sought to develop a rhetoric that implies that we are all citizens of an extraordinarily diverse and disturbed world, that the 'truths' we live by are tentative and subject to change, that we must be discoverers of new truths as well as preservers and transmitters of the old, and that enlightened cooperation is the preeminent ethical goal of communication" (9). Thus, the creators of tagmemics see problem-solving as a means to achieve social ends.

Lee Odell's conception of problem-solving integrates psychological considerations into that of Young, Becker, and Pike by drawing on Piaget's theories to explain the genesis of problems. In "Piaget, Problem-Solving, and Freshman Composition," Odell cites Piaget's belief that "our awareness of some 'disequilibrium,' a state in which our ways of thinking and acting become inadequate to deal with a change that has taken place within or outside ourselves" (36), causes us to engage in activities through which we try first to "assimilate" the world around us and, failing that, we try to achieve equilibrium. Odell labels "the process by which we achieve equilibrium as 'problem-solving'" (36-37).

The second group of composition theorists deals with problem-solving in a more limited context. Often depending on techniques specifically borrowed from cognitive psychology, these authors attempt to describe and chart writers' mental processes. Thus, from the cognitive point of view, problem-solving in composition is not primarily concerned with the truth or sociological perspectives of discourse; rather, it places emphasis on explaining the mental processes writers engage in as they compose, not on determining ends for the discourse itself. Researchers in this second group limit themselves to studying specific aspects of writing behavior which are separate—at least for the purposes of study—from the whole.

Linda Flower and John Hayes are, perhaps, the most well-known theorists of this second group, and their concept of problem-solving is closely related to the views of two cognitive scientists, Herbert Simon and Allen Newell. After studying protocols of experienced and novice writers, Flower and Hayes conclude in "Problem-Solving
Strategies and the Writing Process" that problem-solving heuristics help writers generate ideas and adapt language to their own goals as writers and to the needs of their readers. In "The Cognition of Discovery: Defining a Rhetorical Problem," they give a basic definition of what a problem is: "From a psychological point of view, people have a 'problem' whenever they are at some point A and wish to be at another point B" (22). In several of their articles, they provide flow charts of mental processes through which they believe writers move as they compose or solve rhetorical problems.

Mike Rose's views of problem-solving are also founded on the principles of cognitive psychology. In "Rigid Rules, Inflexible Plans, and the Stifling of Language: A Cognitivist Analysis of Writer's Block," he writes that "composing is a highly complex problem-solving process" (390), and he concludes that disruptions in the problem-solving process cause some kinds of writer's block. Like Flower and Hayes, Rose focuses his research on descriptions of writers' mental processes.

The mainstream of recent composition research makes use of problem-solving heuristics, borrowed from psychologists, to inquire into the process by which writers produce texts. However, a significant minority of composition specialists has joined Berthoff in criticizing composition studies which deal with problem-solving or which use the methodologies of cognitive psychologists to study writing. Their criticisms have several facets, but the main thrust of each is to show that composition theory or pedagogy based on problem-solving is too narrow to be useful in the teaching of writing.

In her "Response to Janice Lauer," for instance, Berthoff writes that psychologists "who reduce and limit the operations of imagination . . . who undertake to study 'mentation' or problem solving . . . leave out, in order to accumulate 'meaningful data' and quantifiable results, the very factors which we as English teachers should be concerned with" (414). Berthoff further argues, in "The Problem of Problem Solving," that we must consider the "crucial interdependency of psychological and political factors" with learning (237). Anthony Petrosky echoes Berthoff's complaints in a review of Linda Flower's problem-solving-based textbook, complaining that Flower "puts writing in a vacuum" (234). Petrosky maintains that in her book Flower hints at a broader context "only to conceal the gaps in a narrow theory of mind and writing" (235). Marilyn Cooper and Michael Holzman assert that Flower and Hayes "deny the artificiality of the writing situation they study" (98), and, Irwin Hashimoto argues that advocates of heuristic procedures don't emphasize enough that students' experience affects their "ability to use heuristic procedures" (74).

A more specific complaint is that problem-solving strategies give writers no means to judge the truth or validity of what they compose. Susan Wells contends that tagmemics implies "a set of questions compatible" only with "overtly empiricist rhetoric" (470)
and "in a certain sense forbids [some] . . . questions" (474). James Kinney argues that tagmemics is a rational rather than empirical heuristic but agrees with Wells' contention that in writers it tends to produce "a state of disengagement, a willingness to relativize everything, the desire to leave both object and manipulator essentially unchanged" (353). And Charles Yarnoff's praise of tagmemics is tempered by his belief that it provides writers with "no way to know where anomalies in their belief-structures come from and how to look for them" (560).

Although the debate noted above is interesting, it presents problem-solving in an unproductive either/or context. What is needed is a way to incorporate both sides of this argument into our understanding of how writers write. Rather than viewing Lauer's and Berthoff's ideas through a lens which presumes one right and the other wrong, we can more usefully see their two positions as different points on a single continuum. One way of doing this is provided by the ideas of internal and external validity, terms which Campbell and Stanley set forth in Experimental and Quasiexperimental Designs for Research.

Internal and External Validity

The story of Squanto, the Indian who taught the Pilgrims to plant corn, is especially helpful in illustrating the differences between internal and external validity. This paper's co-author, as a child, had an American history picture book which contained drawings of Squanto; the tale that accompanied the pictures revealed how the Indian taught the Pilgrims to plant a seed of corn along with a small fish and a bead. Squanto explained to them that the fish and beads fed the gods, made them happy, caused them to think kindly of humans, and, thus, made the corn grow well. The book didn't say what the pilgrims thought of Squanto's theory, but it did say that they followed his instructions, the corn grew beautifully, and the Pilgrims didn't starve.

In telling the pilgrims why fish and beads should be planted with the corn, Squanto had a theoretical explanation of how part of the world operates. This theory is characterized by what contemporary scientists would call "external validity," meaning that it apparently predicts what will happen in the real world: if a Pilgrim or anyone else follows the procedures implied by Squanto's theory, the corn will probably grow quite well. In other words, the world behaves in accordance with Squanto's theory. Theoretical propositions which have apparent practical results, which enable people to accomplish things in the real world, are said to be externally valid. If following certain procedures enables one to grow corn or teach college freshmen to write good essays, then the theory on which these procedures are based has external validity. Thus, a theory should have external validity. However, having external validity does not make a theory flawless. In fact, a theory which has "external validity" may not be true; it may be mere opinion, or superstition, or downright
wrong. The corn's growth may not be influenced by the gods.

In continuing Squanto's story, one could imagine that the first American scientist, perhaps one of Squanto's upstart daughters, might not be satisfied with her father's explanation of the phenomenon. To discover exact truth, cause and effect, this scientist might want to achieve internal validity, and, to do this, she would want to perform experiments in which variables which supposedly result in crop growth are carefully controlled. She would want to change these variables systematically and then compare the corn they produced.

This prototypical scientist might construct a greenhouse of sorts where large pots of soil would be set. In this enclosure, her lab, she could control variables—for example, how much sun and water the corn plants received. Also, she might plant half the corn with fish and the other half with beads or some other object which might please the gods. Now it might be that she would control her experiments so that she would discover the fertilizing power of fish; she would then be able to report that planting beads with the corn was unnecessary and, thus, save both the Indians and Pilgrims some work. However, what if Squanto's daughter decided to control the variables in such a way that she gave little or no water or sun to the corn planted with the fish, while giving exactly the right amount to corn planted with beads? Probably, the non-fertilized plants, the ones planted with beads, would grow much better than the fish-fertilized ones which received only minimum sun and water. This study would have internal validity; that is, if the Indian scientist, or any other person for that matter, repeated it in exactly the same way, she would get the same results. But then the scientist would have to interpret her data. From her experiment, Squanto's daughter might conclude that water and sun are more important to plant growth than is fertilization. But she might also conclude that corn planted with beads does better out in real corn fields than does corn planted with fish. If she convinced the Indians and Pilgrims of this notion, widespread hunger might result.

Thus, just as depending exclusively on external validity can lead to superstitious behavior, there are problems, too, with depending on internal validity alone. Even in the laboratory, variables are difficult, if not impossible, to control completely. Even controlled data are reported by humans who may or may not interpret them correctly.

External and internal validity can be pictured on a mutual continuum: increase in one results in a diminishing of the other. The elegant, narrow, internally valid study has precision and consistency. However, it is also a retreat from the world, a move which may indeed trade real-life complexity for control of variables. Laboratory control is crucial for detailed understanding and explanations of phenomena, but theory derived from such studies is limited, ungeneralizable, even impractical, if external validity is not also ascertained. The most valid account of how to grow corn can be
had only by taking into account both Squanto's and his daughter's ideas.

Viewing internal and external validity as different points on a single plane—for example, as a ruler balanced on a stand—one can suppose that Lauer and other composition specialists who advocate problem-solving pedagogy would want to weight the ruler on the side of internal validity. Researchers such as Flower and Hayes would place themselves on a point close to the end of the internally valid side of the plane, while theorists such as Young and Odell would choose a spot closer to the ruler's midpoint. Conversely, Berthoff and other critics of problem-solving theory and pedagogy would place most weight on the ruler's opposite side, on the side of external validity. However, both internal validity (Squanto's daughter's controlled experiments and Lauer's psychological studies) and external validity (Squanto's real world knowledge and Berthoff's distaste for the laboratory's limitations) are necessary. To reach as close to truth as is humanly possible, we must achieve a balance of different perspectives, an understanding of others' viewpoints. This balance is, we think, essential for composition studies.

Problem-Solving and Internal/External Validity in Psychology

As we have noted above, the current debate about problem-solving in composition focuses on this issue: how broad or narrow a perspective composition theory and pedagogy should have. Interestingly, this same disagreement is a key point in similar arguments in psychological literature. In fact, the history of scientific psychology can be depicted as a history of periodic shifts between two kinds of methods, theories, and paradigms—those which, on the one hand, strive for internal validity (that is, precise control over a narrow field of inquiry), and those, on the other hand, whose advocates place a premium on external validity (or practical application of theory to real-world situations).

Psychologists usually deal with problem-solving in the context of the controversial term "thinking." However, psychologists in the twentieth century have held radically different views of how to study thinking and, even, of whether "thinking" is a helpful concept. At the turn of the century, "functionalism" was the dominant force in American psychology. A pragmatic mode of thought and an intellectual descendant of William James, functionalism and its proponents were most interested in application of theory to human problems; they represented a radical swing toward a preoccupation with external validity. As Donald Johnson notes, John Dewey, a leading figure in the functional movement, "popularized the notion that man's mind and achievements, including rules of logic and systems of philosophy, were human solutions to intellectual and social problems" (6). To a great extent, functionalism was a reaction against German structuralism, a school of psychology whose followers strove for precise descriptions of sensory experience by con-
ducting tightly controlled laboratory experiments. The experiments of such structuralists as Wilhelm Wundt had strict internal validity, virtual mathematical precision, and, thus, could be systematically replicated.

However, the American functionalists believed that achieving internal validity was not a sufficient goal for psychology; they felt, rather, that psychology should help people solve everyday human problems. Thus, from functionalism derived the study of children (developmental psychology), inquiry into the nature of mental illness (abnormal psychology), and the investigation of mental ability (psychological testing). However, the functionalists, with their emphasis on the utilitarian, were often accused of fuzzy theorizing and, in fact, were blamed for obscuring the very definition of psychology.

In Russia, developments similar to those occurring in the United States had a major impact on the development of psychology. At the turn of the century, the dominant figure in Russian psychology was Ivan P. Pavlov. In his "classical conditioning" experiments with dogs, Pavlov was extremely concerned with internal validity, with precise and narrow experimental studies. Pavlov's methods and attitude about the empirical goal of psychology and much of his theory of learning were incorporated into American behaviorism, and he also played a major role in the development of Soviet psychology. However, in contrast to the behaviorists whom he influenced, Pavlov's Soviet successors were concerned with working out the social relevance of their work; thus, they strove to achieve a large measure of external validity. In the study of the psychology of language, the two most important of these post-Pavlovian Soviet psychologists were L. S. Vygotsky and his disciple A. R. Luria, writers whom Berthoff cites. Both Vygotsky and Luria studied language development outside of the laboratory in real-life situations. They were concerned with the social implication of their work and strove to avoid the artificiality of laboratory studies.

Modern experimental study of problem-solving was begun by the German gestalt psychologists, whose influence peaked before World War II. "Gestalt" is usually translated as "configuration" or "organized whole," and a central belief of this group was that people perceive the environment not in discrete parts but as whole configurations. The gestaltists, inheritors of structuralist rigor and direct progenitors of contemporary cognitive science, were concerned with what they perceived as the limitations of structuralism and the unbridled practicality of American functionalism. Thus, they attempted to establish a science which would have been a compromise between the extreme internal validity of structuralism and the loose external validity of functionalism. As Robert Solso explains, the gestaltists believed that problems in general and perceptual problems in particular "exist when tension or stress occur as a result of some interaction between perception and memory factors. By thinking about a problem, or by examining it from differ-
ent angles, the 'correct' view can emerge in a moment of 'insight'" (395). The World Wars and American behaviorism, however, overwhelmed their efforts.

The advent of behaviorism, principally a reaction against functionalism, signalled a move back toward internal validity. In 1913, John Watson, the father of the movement, published an article in *Psychological Review* which called for a behavioristic psychology; here he asserted that most psychologists of the day were no more precise in their use of words such as "thinking" and "perceiving" than were non-scientists. Thus, he called for behaviorists to reject terms such as "thinking" and recommended that problem-solving be discussed in terms of stimulus and response. In *Behaviorism*, Watson explains this position: "The behaviorist began his own formulation of the problem of psychology by sweeping aside all mediaeval conceptions. He dropped from his scientific vocabulary all subjective terms such as sensation, perception, image, desire, purpose, and even thinking and emotions as they were subjectively defined" (5-6).

The neobehaviorists, whose best known modern advocate is B. F. Skinner, took Watson's ideas even further by dealing only with observable behavior. Because these psychologists completely accepted logical positivism, they refused to accept any concept which was nonempirical, and they were suspicious of any notion which was theoretical. Thus, the neobehaviorists' viewed problem-solving in terms of "contingencies of reinforcement" and "stimulus generalization."

The importance of behaviorism and neobehaviorism in psychology derives at least partly from their success in developing a high degree of internal validity in methodology. In the modern behavioral laboratory, operant-conditioning techniques are the principal experimental approaches used by neobehaviorists. With great care, these scientists measure amounts of reinforcement and the consequent responses. This work aims to achieve considerable external validity as well as internal validity. From animal behavior-shaping experiments have come behavior modification therapy and token economy systems, both successfully used in schools and prisons to control problem behaviors. Also, from these laboratories have come biofeedback methods used to relieve pain. Even non-behavioral psychologists and other professionals have found these technological developments useful because their practicality, or external validity, is not bound to a philosophical perspective.

It could be argued that cognitive psychology—cognitive science or information-processing psychology, as it is widely known today—is becoming the most influential mode of contemporary psychological thought. In sharp contrast to behaviorists who eschew all "mentation" or study of mental processes, cognitive psychologists attempt to construct detailed theoretical models of thought processes. Cognitive psychologists are primarily concerned with theory, but they strive to construct theories which do not violate
experimentally observable facts. Like atomic physicists who theorize about sub-atomic particles which cannot be seen but which exert an influence on the observable world, cognitive psychologists try to conceptualize the internal mental activities which result in human behavior.

As noted earlier, Richard Young cites the influence of Leon Festinger and George Miller on tagmemics. Festinger's theory of cognitive dissonance, as James F. Brennan notes, asserts that "contrasting goals within a person's value system result in discomfort that must by resolved by adapting behavioral strategies to reduce the dissonance . . . " (291). Festinger's theory, Brennan continues, is a "view holding an explanatory central mechanism with mentalistic implications. Thus, Festinger offered a cognitive model that directly confronts the . . . premise . . . of Watsonian behaviorism" (291). Similarly, in Plans and the Structure of Behavior, George Miller, Eugene Galanter, and Karl H. Pribram propose looking at such human behavior as problem-solving in terms of TOTE units. These three psychologists theorize that humans test-operate-test-exit as they interact with their environment.

Jean Piaget's developmental psychology also outlines cognitive models. Because of behaviorism's dominance in the first half of this century, his work, published in the 1920's through 1950, was largely ignored until well into the 1950's. Piaget's popularity parallels the resurgence of cognitive psychology in the 1960's and the high regard developing for theoretical constructs with external validity. Piaget's theories, of course, have had a significant impact on contemporary educational practice.

More recently, psychologists have constructed computer programs which "model" or simulate human problem-solving. The best known of the cognitive scientists doing such studies are Allen Newell and Herbert A Simon, whose ideas Flower and Hayes cite, and whose book Human Problem Solving is a seminal work in the field. Newell and Simon propose a computer model and theory of human problem-solving which "posits internal mechanisms of great extent and complexity, and endeavors to make contact between them and the visible evidence of problem solving" (10). For visible evidence of problem-solving, Simon and Newell draw on verbal protocols, in which subjects verbalize their thinking as they solve problems, on computer simulations of human thinking, which Simon and Newell call the General Problem Solver (GPS). These computer programs are capable of playing games such as chess, dealing with mathematical data, and solving means-ends kinds of problems, which Robert Solso describes:

An essential concept in GPS is that a problem is a difference between two states, say A and B. State A is what already exists and state B is the desired goal. To solve this problem, A must undergo certain transformations to make it identical to B. The procedure used in solving a problem involves an analysis of the features of A and B, with the differences between them de-
tected by a matching process. . . . A solution to a problem is then said to occur
when the features of the existing state are identical to those of the terminal
state. (398)

The debate over internal and external validity is mirrored by the
disagreement about the merits of studying thinking and problem-
solving processes as elements separated from each other. In other
words, like other psychologists and composition theorists, cognitive
scientists argue about the relative weight, or importance, of internal
and external validity.

Computer simulations of thinking processes are especially vul-
nerable to criticisms of being too narrow, of concentrating too much
on achieving internal validity. In Human Problem Solving, Simon
and Newell anticipate the criticism that GPS deals only with certain
kinds of problems and that computer simulations do not address
such human qualities as motivation. They explain that they choose
to deal with a limited kind of problem-solving because they need to
understand it before attempting to deal with more variables; re-
searchers, Simon and Newell write, "exclude motivational and per-
nality variables . . . [in GPS] by reason of conviction, not about the
importance or unimportance of the phenomena, but about the order
in which theory should develop. . . . A plausible scientific strategy is
to put our cognitive models in order before moving to these other
phenomena (8)." In contrast, Donald A. Norman voices concern not
only about computer simulations, but also about what he sees as the
limited perspective of cognitive science in general. Norman writes,

In recent years I have become more and more dissatisfied with the conven-
tional view of information processing. The source of the dissatisfaction was
not obvious: each of the components of Figure 1 [a conventional "flow chart"
representation of human thinking] seemed reasonable. . . . The problem
seemed to be in the lack of consideration of other aspects of human behavior,
of interaction with other people and with the environment, of the influence
of the history of the person, or even the culture. . . . The human is a physical
symbol system, yes, with a component of pure cognition describable by mecha-
nisms of the sort illustrated in Figure 1. But the human is more . . . The core
disciplines of cognitive science have tended to ignore these aspects of be-
behavior. The results have been considerable progress on some fronts, but steri-
ity over all, for the organism we are analyzing is conceived as pure intellect,
communicating with one another in logical dialogue, perceiving, remembering,
thinking where appropriate, reasoning its way through the well-
formed problems that are encountered in the day. Alas, that description
does not fit actual behavior. (266)

As Norman's criticism suggests, most contemporary cognitive
scientists have been interested in achieving theoretical internal
validity. However, such enterprises as writing specialists' attempts
to apply cognitive theories of problem-solving to the classroom are
of critical interest to the historians of psychology; if the internally
valid theories of the cognitive scientist are of value to teachers, then
a positive measure of these theories' external validity will have
been taken.
Conclusion

Clearly, the history of psychological inquiry reveals a continuing tension and shifting dominance between psychological schools stressing internal validity—searching for theoretical or experimental consistency, control, narrowness—and those striving for external validity—addressing wholes rather than parts of experience, seeking to solve practical human problems. This historical perspective suggests, we think, that the present theoretical tension in composition studies will continue and that the field will most likely experience similar dominance shifts.

Debates between various schools of psychology and between composition theorists such as Lauer and Berthoff are valuable in the dialectical search for knowledge. Through point and counterpoint, a discipline is frequently able to achieve tenable answers to important questions. However, we too often see the goal of debate as declaring a winner. This argumentation style, most familiar to us from political contests, posits situations in which agreements between adversaries are thought to weaken both sides. We would argue that this debate style is seldom useful in academic disciplines. Rarely will truth be found exclusively in one point of view, and open-mindedness is one mark of real quests for knowledge.

Thus, rather than increasing polemics, composition studies should, we feel, strive to find a common language with which proponents of oppositional views can communicate with each other. This common language can be achieved, we feel, in another kind of debate, one which attempts to preserve commonalities between two contending sides. This kind of debate attempts to find truth by searching for flaws in a position, yet also strives to pinpoint and retain factors common to both sides. According to Thomas Kuhn, this type of debate reflects the way which "normal science" works. And, as many experienced composition instructors could add, the way that a great deal of good teaching evolves.

The Lauer-Berthoff debate never reached stasis; the two writers' arguments never met because Berthoff and Lauer did not share a common language for stating the precise question they were debating. No meaningful exchange of ideas between the two ever occurred. In the present essay, we have proposed a means for looking at different views of problem-solving, not as right or wrong but as different points on a continuum of internal and external validity. Such a perspective encompasses the idea that both internal and external validity are necessary in the search for truth and, at the same time, provides a common language for proponents and opponents of problem-solving. We believe that the "problem" of composition will be solved only when our profession is able to look at writing from more than one perspective.

Augusta College
Augusta, Georgia

University of South Carolina
Aiken, South Carolina
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