

The Application of Theory in Clinical Research: A Point of View

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In this paper, I specify some of the working assumptions of the speakers who presented a special session on the application of theory in clinical research, and whose papers follow (Davis, 1996; Tompkins, 1996). Recognizing that there is controversy about some of these premises and assumptions, we want to make our starting point clear.

THEORY DEFINED

There are many senses of the term *theory*, beginning with the familiar notion of a theory as something untested, and fairly dubious or doubtful as an explanation. For our purposes, Kerlinger's (1967) definition captures all of the key elements: "A theory is a set of interrelated constructs (concepts), definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena" (p. 11). Distinctions have been made between descriptive and explanatory theories (Seidenberg, 1993); or personal and topical theories (Robey and Schultz, 1993); however, space limitations do not allow us to delve into these distinctions.

THE VALUE OF THEORY

Until the recent contribution of Robey and Schultz (1993), research and design texts written for students of communication science and disorders have rarely put theory in the foreground. This panel agrees with Kerlinger, who represents many writing in other social and behavioral sciences, when he declares: "The basic aim of science is theory" (1967, p. 11).

Kerlinger is referring to the process of tying together knowledge of separate events; finding general explanations of those events; and making reliable predictions of similar, future events. Of course, determining which predictions and hypothetical explanations are general and reliable, necessitates testing. Kerlinger asserts further, even more controversially, that "all observations have to be for or against some view if they are to be of any use" (p. 11).¹ Here, he emphasizes the value of hypothesis-driven research over ad hoc exploration.

Closer to home, in our discipline, Kent and Fair (1985) compared science without theory to stamp collecting: "Systematic but without potential to advance knowledge" (p. 26). Closer yet, in aphasiology, Kearns and Thompson (1991) warned us about the serious risks to our clinical science posed by our increasing *conceptual myopia*. And more recently, Horner, Loverso, and Gonzalez Rothi (1994) urged clinical aphasiologists to conduct more tests of the theoretical underpinnings of our research and treatment.

In our view and that of many authorities before us, theory provides the superordinate structure that is needed to further knowledge in our field. It does this in several ways. Theory contributes to the cohesiveness and comprehensibility of accumulating literature, by helping to integrate seemingly isolated or disparate findings, and to suggest generalizations that organize and make sense of available observations. In addition, theory provides an essential guide to programmatic research. Theories help investigators to frame and test new predictions, which are not always intuitive (e.g., modularity theory predicts the now well-established, but initially counterintuitive, observation that there is momentary activation of multiple meanings of balanced lexical ambiguities, even in highly biased contexts (see, e.g., Simpson, 1984)); and to generate and sharpen empirical questions. In short, theories provide frameworks for collecting, interpreting and assimilating new findings, and for asking new or different questions as a result of that process.

This panel holds the conviction that theory is of great value in focusing clinical assessments and treatments. Theory helps us to know what to look for when we seek to understand and evaluate presumed causes for observed behaviors or symptoms. Further, theory helps us to know how to interpret what we find and to avoid *pure task blindness* (Davis, 1983) in interpreting our test results. Theory also assists with our decisions about where and how to focus treatment; with making predictions about manipulations that should modulate performance in treatment; and with developing expectations

1. This quote does not imply that we should cast away our objectivity while making observations, or when developing and implementing other aspects of our research methods. Rather, the quote refers to the driving motivations for research hypotheses and questions, which, according to Kerlinger, are most useful when they are derived from and focused on a theoretical position.

about the nature and scope of generalized learning that should derive from treatment.

From another perspective, clinical research that is based in theory has the potential to contribute to theory building and testing. For example, as noted in the work of Tompkins (1996), clinical research can advance theory when predictions deduced from a theoretical perspective are upheld, or when outcomes are identified that are not clearly predicted by the theory, necessitating extension or revision.

By emphasizing the value of theory-driven research, the panel does not intend to deny the role of exploratory research in clinical aphasiology. Describing behavior and events also constitutes science—there are certainly cases in which we want to seek and ponder unhypothesized relations. In addition, we are well aware of the role of accident, or serendipity, in shaping scientific discovery. Nonetheless, our point of view is well represented once again by Kerlinger (1967, p. 12), who maintains that the “most usable and satisfying relations . . . are those that are the most generalized, those that are tied to other relations in a theory.” Further, we suspect that most researchers who renounce theory are guided implicitly by some personal theories, or hunches, that they revise as knowledge and observations accumulate. Finally, we underscore the value of theory here because we believe that the balance of research in clinical aphasiology is overly skewed toward the descriptive and exploratory, reflecting the *conceptual myopia* that troubled Kearns and Thompson (1991). Exploratory studies already predominate in clinical aphasiology; therefore it is important to put more of our efforts into theoretically motivated work.

WHAT KINDS OF THEORIES CAN GUIDE OUR WORK?

The papers that follow will refer to theory building, analysis, and testing from several perspectives, each of which can contribute to scientific advancement in clinical aphasiology. In the context of our own disciplinary interests and pursuits, we want to build and evaluate theories of language and communication processes and disorders in neurological populations. Recently several of our distinguished colleagues have urged us to construct and test theories of the treatment process (Byng, 1994; Holland, 1994). In addition, the members of this panel believe that in deriving and enriching theories to guide disciplinary questions and clinical concerns, clinical aphasiologists should turn to frameworks from related disciplines such as cognitive psychology, linguistics, and psycholinguistics. Though not developed to explain and predict disordered phenomena, theories from disciplines engaged in the study of normal language are undeniably relevant to our interests in characterizing and understanding disorders. Cognitive theories about

learning—including those that focus on generalization, and process and strategy acquisition—should also be valuable sources for our efforts to develop explanatory frameworks regarding the mechanisms and processes of the treatment enterprise itself.

In brief, our position is that the nature of cognitive/language organization, processing, breakdown, recovery, and remediation in communicatively-impaired individuals can best be understood with reference to normal theories of cognition and language. As Davis (1994) recently noted, these kinds of theories provide important information and direction regarding the functions that we want to assess and rehabilitate. We do not mean to imply that we must be concerned exclusively with these kinds of theories; however, for us they are an essential part of the investigative and explanatory landscape.

Finally, the application of normal cognitive and linguistic theory is useful for showing how pertinent phenomena can originate from independently motivated principles, that are not framed exclusively in response to data in specific domains. That in itself is often proposed as a desirable aspect of a theory, lending it more of an explanatory than a descriptive quality (Seidenberg, 1993).

CONCLUSION

The papers that follow will build on these assumptions and perspectives in addressing the application of theory to clinical research. The authors believe that theory-driven research is crucial for advancing knowledge in clinical aphasiology. We are also convinced that the credibility of our discipline will be enhanced as the theoretical foundations and implications of our research become more evident.

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