

Multimethod Research: A Search for Understanding

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Medawar (1979), in his book *Advice to a Young Scientist*, defined science as “all exploratory activities of which the purpose is to come to a better understanding of the natural world” (p. 1). Medawar listed four kinds of experimentation—Baconian, Aristotelian, Galilean, and Kantian—any or all of which a researcher might choose to increase this understanding and thereby “do” science. The purpose of this paper is to suggest that the understanding of aphasia will be enhanced by encouraging different types of experimentation in aphasiology. Triangulation of findings, taken from a wide range of experimental paradigms and methods, should provide a better understanding of human communication and its dissolution.

Current science appears to divide Medawar’s four types of experimentation into two kinds: qualitative and quantitative. How does one choose which type of science to do? The choice of paradigm and/or methodology appears to have much to do with the overall philosophy and experience of a given researcher. However, the experimental inquiry should also push the researcher to consider which paradigm or methodology or combination provides the *best fit* for the type of information desired.

Ingham (1990), in a discussion of issues related to design and experimental control, suggested that certain experimental questions are best answered by single-subject designs whereas other questions lend themselves to group designs. This logic should be extended. Researchers need to consider that certain experimental questions and/or areas of inquiry in aphasiology might be better suited to research that is either qualitative, quantitative, or multimethod in style.

The vast majority of papers appearing in *Clinical Aphasiology* have been quantitative in nature. Why has this been the case? Is it because the experimental questions or areas of inquiry have a best fit with

quantitative methods? This would seem surprising given the diversity of fields that are using qualitative methodology. In fact, concepts emerging from such disciplines as physics, chemistry, ecology, education, evolution, mathematics, philosophy, politics, psychology, linguistics, religion, and sociology are suggesting a shift toward qualitative approaches to scientific inquiry (Fetterman, 1988; Fielding & Fielding, 1986; Lincoln & Guba, 1985; Mayr, 1988; Waldrop, 1992). It is not my purpose in this paper to pit quantitative against qualitative research. Instead, I analyze why researchers have not made better use of qualitative approaches in research regarding aphasia, either independently or in combination with quantitative methods.

One explanation for the lack of qualitative approaches to the study of aphasia may be the belief that qualitative research is too *costly* in terms of time and research effort needed. Qualitative inquiry encompasses a variety of methods including interviewing, use of questionnaires, and field work. These qualitative techniques vary with respect to time and labor intensiveness, as do the variety of research techniques used in more quantitative approaches (see Patton, 1990, for a discussion of qualitative methods). What seems more important than a comparison of the number of hours invested in research projects is the appropriateness of a particular methodology for answering a given experimental question. Inappropriate application of methods to questions has high costs, not only for research time and dollars, but also for the ultimate advancement of scientific understanding.

Another explanation for the lack of qualitative approaches to the study of aphasia is a belief that qualitative research is "weak," "subjective," or "sloppy." Quantitative indices such as validity and reliability seem to be absent from qualitative research, leading many scientists to distrust this approach or its subsequent findings. However, criteria are available to evaluate the trustworthiness of qualitative research. Lincoln and Guba (1985) suggested that all research (quantitative and qualitative) should be evaluated with regard to four aspects of trustworthiness: truth value, applicability, consistency, and neutrality. In quantitative paradigms, these criteria are termed, respectively, internal validity, external validity, reliability, and objectivity. Lincoln and Guba (1985) extended these criteria to the qualitative paradigm and translated the terms to credibility, transferability, dependability, and confirmability. They also provided specific procedures and strategies to strengthen qualitative research along these four dimensions. These criteria also provide the reader with a way to evaluate qualitative research. *Credibility* is enhanced by performing activities that increase the probability of identifying the appropriate patterns of behavior. Such activities include use of a field journal, peer debriefing, and negative

case analysis. *Transferability* strategies consider the representativeness of the subjects and require investigators to document specific subject characteristics in great detail. *Dependability* and *confirmability* strategies include the use of an audit whereby an outside researcher checks the data gathered by the investigator (dependability) as well as the processes and logic (confirmability) and determines independently whether he or she would make the same decisions and reach the same conclusions as the investigator. A thorough yet concise review of these concepts can be found in Krefting (1991).

Knowledge and use of the above trustworthiness concepts should limit criticism of qualitative research as being methodologically weak. If we as researchers in aphasiology accept that qualitative research can provide trustworthy data, do we accept that it will increase our understanding of aphasia, a basic goal of research? Until the data are gathered, and the truth is known, it seems prudent to encourage all types of research. Conceptualization of science and experimentation as either quantitative or qualitative seems simplistic. Instead it seems more useful to view experimentation as a continuum with naturalistic/qualitative approaches on one end and empirical/quantitative approaches on the other.

In this volume Simmons-Mackie and Damico (1995) were interested in investigating the communicative compensatory strategies used in natural environments by two individuals with nonfluent aphasia. These authors appropriately selected the qualitative end of the continuum to address their experimental question by using ethnographic procedures to determine the systematicity of compensatory strategy use as a function of social context and goals. On the quantitative end of the continuum, also in this volume, McNeil, Odell, Miller, and Hunter (1995) were interested in whether articulatory error patterns for successive speech repetitions differed among apraxic, conduction aphasic, and ataxic dysarthric speakers. These authors appropriately used highly controlled quantitative procedures including stringent subject criteria, carefully selected target stimuli, and precise measurement techniques to answer their experimental question. These selected examples indicate that some investigators will pose questions that are best addressed by ends of the continuum. Others will delve into issues that cry out for a marriage of philosophical and methodological approaches.

Whether within a single study or a compilation of studies, diversity of research approaches and methodologies may prove to increase understanding and actually be more than the sum of the parts. Webb, Campbell, Schwartz, and Sechrest (1966) stated, "Once a proposition has been confirmed by two or more measurement processes, the uncertainty of its interpretation is greatly reduced. The most persuasive

evidence comes through a triangulation of measurement processes. If a proposition can survive the onslaught of a series of imperfect measures, . . . confidence should be placed in it" (p. 3). Denzin (1978) suggested that four types of triangulation exist: triangulation of sources, methods, investigators, and theories. Denzin (1970) contended that, "by combining multiple observers, theories, methods and data sources, sociologists can hope to overcome the intrinsic bias that comes from single-method, single-observer, single-theory studies" (p. 313). In other words, multiple methods should ultimately increase the credibility of research findings.

Experimental paradigms and methods should not be treated as mutually exclusive alternatives. Each approach has relative strengths and weaknesses. Brewer and Hunter (1989) stated, "The multimethod perspective on research stresses that there are a variety of ways of arriving at knowledge but that all entail chances of error, although fortunately not always the same errors. This viewpoint is quite tolerant of these different methods, because it sees multiple approaches as a scientific necessity" (p. 196). Qualitative methods permit the researcher to study questions in depth, in detail, and in the natural setting. Quantitative approaches allow one to measure the behaviors of a greater number of people, but to a more limited set of questions. Although outside the field of speech-language pathology, a good example of effective multimethod research has been the coordination of human and animal research, clinical case studies, health surveys, and statistical analyses of medical records to determine the relationship between cigarette smoking and lung cancer (Brewer & Hunter, 1989). As Waldrop (1992) stated, "By adding to the array of possible methods we have to use, we are better able to design research that is driven by questions that concern us, not by a particular set of measures or methods" (p. 125).

Multimethod experimentation may ultimately provide the best understanding of many phenomena including human communication. I hope that encouraging diversity along a qualitative-quantitative continuum, taken in tandem with a best fit approach to research questions and methodology, will allow triangulation of data that should ultimately increase the understanding of aphasia.

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