

Myths, Misconceptions, and Missed Opportunity: Single-Case Designs and Counseling Psychology

John P. Galassi and Tracey L. Gersh

The status of single-case designs in counseling psychology is reviewed. Also, reasons for the underuse of these designs by counseling psychologists are discussed. Finally, potential contributions (a) in research linking process and outcome, (b) in group counseling, (c) across a variety of theoretical approaches, and (d) to evaluation and quality assurance in clinical practice are described.

In their recent book, *Research Design in Counseling*, Heppner, Kivlighan, and Wampold (1992) stressed the value of programmatic counseling research built on paradigmatic diversity. Such an approach recognizes that all research methodologies have both strengths and limitations. Accordingly, Heppner et al. viewed the knowledge base as being best advanced when multiple approaches to knowledge are pursued for a particular phenomenon. A combination of investigatory approaches provides a potentially more comprehensive view of a counseling phenomenon than is afforded by knowledge derived from a single research paradigm. However, research in counseling psychology, influenced by psychology in general, has relied on and evolved almost exclusively from a single tradition, the quantitative research approach, with its emphasis on between-group comparisons, large-sample designs, and statistical analyses of data.

Despite repeated calls for methodological diversity (e.g., Gelso, 1979; Harmon, 1988; G. S. Howard, 1984; Polkinghorne, 1984; Scherman & Doan, 1985), counseling psychology has been notably slow to embrace paradigmatic diversity in research methods (Polkinghorne, 1991). Among the relatively unheeded methodologies is the single-case design, which involves intensive, systematic, repeated, and multiple assessments of an individual client, dyad, or group, often under controlled or manipulated conditions, to investigate relationships among variables. In this article, we review the status of single-case methods in counseling psychology and outline their potential contributions to research and practice.

Counseling psychology, a field that reveres the individual (G. S. Howard, 1992), virtually eschews single-case designs, a research methodology that is explicitly intended for study-

ing the individual. This assertion is both a fundamental contradiction for the specialty and a major premise of this article. But is there anything to this assertion other than mere rhetoric? The answer is an unequivocal yes; supporting data are available from two sources: counseling psychology publication practices and training practices.

With respect to publication practices, we compared, in a previous study (Galassi & Gersh, 1991), the types of designs used in studies published in two major journals: the *Journal of Applied Behavior Analysis (JABA)*, the principal and most prestigious outlet for single-case research, and the *Journal of Counseling Psychology (JCP)*, the most prestigious counseling psychology research journal. A review of the 1989 issues of *JABA* revealed 35 data-based studies. Of these, 31 (89%) were single-case experiments, and the multiple baseline design was used most frequently. In contrast, over a 10-year period (1980-1989), 668 data-based studies were published in *JCP*, of which only 21 (3%) could be characterized as being conducted, at least in part, from a single-case perspective. Furthermore, only 1 of these 21 studies used an experimental, multiple baseline design. Thus, 10 years of research in *JCP* failed to yield the number of single-case studies that appeared in 1 year of research published in *JABA*. In short, single-case designs, as evidenced by *JCP* publication practices, hardly constitute a major part of the research procedures routinely used by counseling psychologists.

A Survey of Training Practices and Single-Case Designs

The indifference to single-case methods is also evident in the research training practices of counseling psychology programs. We (Galassi & Gersh, 1992) surveyed the training directors of 59 counseling psychology programs accredited by the American Psychological Association (listed in the December 1991 issue of the *American Psychologist*) with respect to training in single-case research methods. In this survey, the training directors were instructed to consider the terms *single-case research*, *single-subject designs*, *time-series designs*, *intensive designs*, and *N = 1 research* as synonyms. Replies were received from 49 directors, an 83% return rate.

John P. Galassi and Tracey L. Gersh, Department of Counseling Psychology, School of Education, University of North Carolina at Chapel Hill.

Portions of this article were presented at the 100th Annual Convention of the American Psychological Association, August 1992, Washington, DC. We thank Linda Brooks for her comments on an earlier version of this article.

Correspondence concerning this article should be addressed to John P. Galassi, Department of Counseling Psychology, School of Education, CB #3500, Peabody Hall, University of North Carolina, Chapel Hill, North Carolina 27599-3500.

The results were quite consistent. In general, an overwhelming majority of the programs did not provide students with sufficient instruction to use these designs. Moreover, virtually no hands-on experience with these methods was provided, and a substantial percentage of programs even proscribed their use in dissertation research.

With respect to training, only 9 programs (18%) devoted a substantial portion (at least one quarter) of one course to these methods, and only 1 program (2%) reported having a required course or the majority of a required course devoted to single-case designs. Thirty-nine programs (79.6%) indicated that they spent 1 or 2 weeks of class time on these methods, and 29 programs (59%) expected that students would read about them sometime during their graduate studies. Thus, training in single-case methods almost appears to be an afterthought for most counseling psychology programs.

With respect to hands-on exposure, only 3 training directors (6%) reported that students were required to complete single-case research projects during graduate study. Moreover, they estimated that only 4.4% of the previous 20 dissertations completed by students in their programs involved single-case methods. Finally, and perhaps of most interest, 13 training directors (26.5%) reported that single-case methods were unacceptable for dissertation research. Once again, this indifference toward—and even overt opposition to—research methods designed to study the individual by a specialty that is so committed to the individual is both surprising and ironic.

How can counseling psychology's indifference to single-case research methods be explained? Our (Galassi & Gersh, 1992) training director survey identified some of the more likely explanations, and these warrant brief consideration. Training directors who indicated that relatively little emphasis was given to these designs (i.e., no more than 1 or 2 weeks of class time) were asked to check off several possible reasons or to provide their own explanations for this state of affairs. By far the most common explanation (endorsed by 22 directors) was that faculty lacked expertise in these methods.

It is not especially surprising that faculty tend to teach students what they, in turn, have been taught; however, other explanations provided by training directors may suggest why faculties have not been better educated in these methods. Moreover, these explanations pinpoint key myths and misconceptions that surround such designs. For example, 13 directors indicated that faculty view single-case methodology as less scientifically valid than other types of methodologies. Another explanation (endorsed by 18 directors) was that single-case methods are limited in applicability (primarily to behavioral counseling approaches). Other explanations, many of which exemplify the myths and misconceptions already mentioned, included the following: Research methods are taught by statistics faculty who are hostile or uninformed in regard to single-case designs or who do not believe they are important; such designs compete for time with other methodologies, and no particular research methodology is taught in depth; faculty are not interested; and single-case methods receive about the right amount of coverage.

Addressing Myths and Misconceptions

Are single-case designs applicable only to behavioral counseling approaches? In this regard, designs such as the withdrawal (e.g., A-B-A, A-B-A-B, B-A-B, and B-A-B-A) design are usually cited. In a withdrawal design, data are typically collected first during a baseline or nonintervention (A) phase, and then an intervention (B) phase is introduced and data continue to be collected. If the data collected during the intervention phase change in the desired direction, then a nonintervention (second A) phase is introduced, which, in turn, is often followed by a second intervention (B) phase. If desired change occurs only when the intervention is introduced and deterioration or deceleration of positive change occurs when the nonintervention phase is reintroduced, then intervention is depicted as having "caused" the change. Such designs have been criticized as being well suited only to behavioral interventions in which rapid changes in behavior can reasonably be expected to follow the introduction and withdrawal of an intervention. Although this design and other single-case methods have been applied most often by behaviorists and appear suited to many behavioral problems, they are not limited to behavioral applications (Kazdin, 1980). For example, the nonbehavioral possibilities of a withdrawal design were demonstrated by Truax and Carkhuff (1965) in research on client-centered therapy. Truax and Carkhuff used a B-A-B design to determine the effects of alternating high (B) and low (A) therapeutic core conditions on depth of self-exploration with 3 clients. Results suggested that depth of interpersonal exploration varied in the expected directions as a function of manipulation of therapist core conditions.

Moreover, several single-case designs neither are associated with nor favor a behavioral orientation. For example, McCullough (1984a, 1984b; McCullough & Carr, 1987) described the stage process design, which is intended for use in investigating cognitive or nonoperant (nonbehavioral) phenomena and avoids a variety of operant (behavioral) assumptions (e.g., the dependent variable must be stable before treatment is introduced, the dependent variable must be demonstrably influenced by the presence or absence of the independent variable, and treatment changes must be demonstrated by rapid changes in the dependent variable soon after treatment has been introduced). Using a series of stages, the design tracks the extent to which a client learns a set of cognitive or other skills needed to resolve a problem and the extent to which the implementation of these skills generalizes to a predicted set of changes in cognitive, emotional, or behavioral symptoms suggested by the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.; American Psychiatric Association, 1987) for that particular problem. Each stage is characterized by a set of client performance task criteria and a set of therapist stage rules that represent a type of lesson plan for counselor functioning in that stage. Progress to the next stage of the design is predicated on the client acquiring the prerequisite cognitive or other skills of the previous stage.

In another single-case approach—one that borrows heavily from a more qualitative research tradition—Gordon

and Shontz (1990a, 1990b) described representative case research (RCR). RCR draws heavily on personology, which emphasizes the meanings rather than the mechanisms of human actions. Instead of attempting to explain behavior, it focuses on comprehending people in all their complexity. In RCR, individuals are chosen carefully and examined one at a time to determine how each experiences or manages an important set of circumstances, events, or decisions. Each person is considered to be a co-investigator (an expert consultant who knows about the topic of interest), and the research undertaking is a collaborative one. A research supervisor and advisors assist with the management of the research process, research decisions, and data interpretation. The research is carried out in cycles, with all data interpretations being repeatedly submitted to the co-investigator for clarification and comment. Several types of data are collected, which allows for different levels of interpretation. Among the types of data collected are critical incidents, personality tests, and dreams and artwork that permit interpretations on idiographic (unique), normative (general), and universal levels, respectively. Gordon and Shontz (1990b) viewed the methodology as well suited to uncovering (depth or insight-oriented) approaches to counseling. For example, they (Gordon & Shontz, 1990a) illustrated how the design was used to investigate changes in the life themes and perceptual world of a client who tested positively for the acquired immunodeficiency syndrome (AIDS).

Are single-case designs and methods less scientifically valid than other types of research methodologies? Although threats to the validity of single-case methods have been discussed extensively elsewhere (e.g., Kazdin, 1982; Tawney & Gast, 1984; Yin, 1989), such threats remain an issue. It is commonly (and wrongly) assumed that generalizability of results or external validity is much more likely for large-sample research, because of the large and varied number of subjects included in the sample (for a discussion of generalizability from large samples and single experiments, see Barlow & Hersen, 1984; Edgington, 1966; Yin, 1989), than for single-case research. In single-case research, replication is the key to demonstrating generalizability. Replication involves producing studies with clearly and carefully specified treatment and measurement procedures as well as detailed descriptions of client characteristics. Barlow and Hersen (1984) described three types of replication: (a) direct (replicating the same procedures with several additional clients), (b) systematic (changing the variables of interest [e.g., settings and disorders] in subsequent studies), and (c) clinical (testing treatment packages with clients presenting similar behavioral-emotional problems). Whereas direct replication addresses the reliability of findings or internal validity, systematic and clinical replications are concerned with generalizability or external validity. "In terms of external validity or generality of findings, a series of single-case designs in similar clients in which the original experiment is directly replicated three or four times can far surpass the experimental group/no treatment control group" (Barlow & Hersen, 1984, p. 57). This assertion is based on characteristics of single-case methodology, such as repeated assessment and treatment design flexibility, that provide considerably more in-

formation than between-group research about variability in individual client responsiveness to treatment.

Another methodological concern that may have contributed to the view that single-case approaches are less scientifically valid is the issue of multiple treatment interference. When an individual client is given multiple treatments or a single treatment with multiple elements, how can the effects of the different treatments be disentangled, and are the effects of one treatment different in the presence of another treatment than in its absence? Although an extended discussion of this issue is beyond the scope of this article (see Barlow, Hayes, & Nelson, 1984; Tawney & Gast, 1984), replication with other clients using alternative treatment sequences or the use of an alternating treatment design in which treatments are randomly and rapidly alternated in a between-series comparison with the same client represent two common ways in which this concern has been addressed. Moreover, with respect to the alternating treatment design, Barlow and Hersen (1984) asserted that it "provides one of the most elegant controls . . . for ruling out rival hypotheses in accounting for the difference between the two treatments" (p. 252).

Thus, apart from past socialization, there is really no basis for the belief that single-case methods are less scientifically valid than other types of methodologies. Kazdin (1980) has summarized research indicating that design does not provide an open window to uncovering a phenomenon but contributes to the findings itself. For example, within experimental psychology, results have differed depending on whether an independent variable is studied between groups or within participants. Thus, a more functional belief is that there are a variety of alternative modes of investigation, each with a unique set of advantages and limitations (Heppner et al., 1992; Polkinghorne, 1991; Yin, 1989). The most important considerations are the effective matching of research methods with the problem to be investigated, given the existing knowledge base at a particular point in time (Gelso et al., 1988; Heppner et al., 1992), and the scientifically rigorous application of those methods (Yin, 1989).

Missed Opportunity

In our estimation, counseling psychology's indifference to single-case methods has resulted in a significant cost to the specialty: the squandered opportunity to effectively implement a scientist-practitioner model of professional functioning. A clear trend has emerged in the employment patterns of psychologists in recent years. It consists of a marked increase in the percentage of psychologists employed in practitioner and service roles coupled with a decline in the percentage who are employed in research and academic positions (A. Howard et al., 1986). Similarly, it is apparent from the annual surveys conducted by the Council of Counseling Psychology Training Programs (e.g., Cameron, Galassi, Birk, & Waggener, 1989; Tracey & Anderson, 1992) that the vast majority of counseling psychology graduates are likely to be employed in practitioner positions.

Although this trend toward employment in practitioner roles has escalated, the dominant training model in both counseling psychology and professional psychology in gen-

eral continues to be a scientist–practitioner rather than a practitioner model. In fact, the strength of the commitment to the scientist–practitioner model or to the integration of science and practice seems to have intensified, as reflected by recent statements of professional conferences and organizations including the Georgia Conference on Counseling Psychology (Meara et al., 1988), the National Conference on Scientist-Practitioner Education and Training for the Professional Practice of Psychology (1990; Moses, 1990b), and the National Council of Schools of Professional Psychology (Moses, 1990a). Inherent in the scientist–practitioner model is the assumption that psychologists will contribute to both the generation and application of psychological knowledge. The responsibility of psychologists to generate knowledge is even formalized in the preamble of the recent revision of the American Psychological Association's (1992) *Ethical Principles of Psychologists and Code of Conduct*: "Psychologists work to develop a valid and reliable body of scientific knowledge based on research" (p. 1599). At the same time, it has long been recognized (e.g., Carkhuff, 1968) that most psychologists, especially those employed exclusively in practitioner settings (Barrom, Shadish, & Montgomery, 1988), will produce little or no research. Moreover, many of these professionals perceive the methods and the results of current research in counseling and psychotherapy to be incompatible with or irrelevant to clinical practice (Cohen, Sargent, & Sechrest, 1986; Heppner & Anderson, 1985; Morrow-Bradley & Elliott, 1986). Perhaps this is one of the reasons why the National Conference on Scientist-Practitioner Education and Training adopted a broader view of the scientist–practitioner model. The Conference asserted that practitioners who conduct no research but reflect a scientific attitude toward their work, as demonstrated by hypothesis testing and critical thinking with individual clients and skepticism about psychological interventions, exemplify the scientist–practitioner tradition (Moses, 1990b). Although a scientific approach to practice is certainly desirable, another interpretation of this assertion is of a tacit admission that it is unrealistic to expect practitioners to play an active research role in the knowledge-generation process. Apart from the time demands of the service role, the requirements of traditional research methods in counseling and psychotherapy (e.g., large sample sizes and control groups) make research and even evaluation impractical, and probably, impossible, for the typical practitioner.

Given the commitment to the scientist–practitioner model, coupled with the incompatibility of traditional research methods in clinical practice, does counseling psychology simply accede to this modified version of the scientist–practitioner role (i.e., scientific practice only) and concede that a knowledge-generating role is unrealistic for the practitioner? Our position is that single-case designs represent one of the few research methodologies (e.g., Barlow et al., 1984) that could be useful and practical to the majority of future graduates, who we hope will make positive contributions to both the scientific basis of the field and to scientific and accountable practice. A number of the advantages of single-case designs, such as not withholding treatments from groups of individuals, make them more compatible with the

realities of clinical practice than are the between-group research methods that have been much more frequently applied in counseling and psychotherapy.

Potential Contributions and Applications of Single-Case Methods

One of the major advantages of single-case designs is their widespread applicability. They can be used for hypothesis generation as well as hypothesis-testing purposes, in outcome as well as process research, with a single participant or an extremely large number of participants, across a wide spectrum of theoretical approaches, in personal counseling as well as career counseling, for accountability and evaluation as well as research purposes, and in group counseling and family therapy as well as in individual counseling. Our purpose of this section is to briefly illustrate a few of these uses.

As demonstrated by Tracey (1983), the associational (A-B) design can be applied regardless of a counselor's theoretical orientation and can serve a useful hypothesis-generation function. In the Tracey illustration, an outcome variable consisted of tracking client study time before a counseling intervention (A), during the intervention (B), and at follow-up. The process variables included counselor interpretation (a desired but nonbehavioral type of intervention) and counselor questions (a less desirable intervention), as well as client introspection, which was presumed to be related to client study time. In the illustration, positive relationships among amount of study time, client introspection, and counselor interpretation, as well as an inverse relationship between these variables and counselor questions, were in evidence. Thus, the design served an important hypothesis-generating function in suggesting that an increase in counselor interpretations and a decrease in counselor questions are associated with an increase in client introspection and study time. Whether an increase in counselor interpretation coupled with a decrease in counselor questions actually caused the desired client changes can subsequently be investigated with either single-case or between-subjects designs in which these variables are systematically manipulated. Thus, simple A-B designs, which can be used to simultaneously track counseling outcome with covariations in client and counselor process variables, can play an important role in generating hypotheses in counseling and psychotherapy research.

Stringing together simple A-B designs (with different durations of the baseline, or A phase, for different clients) into a multiple baseline design would permit the hypotheses generated in the preceding paragraph to be tested experimentally. Thus, if a counselor had 3 available clients, baseline data on counselor questions, counselor interpretations, client introspection, and client study time could be taken on each client. After a presumably stable baseline for all 3 clients, counselor interpretations could be increased with 1 client while baseline conditions remained in operation for the others. If the intervention resulted in a stable increase in client introspection for the client who received the intervention but no changes for the others, the intervention would then be implemented with the second client while baseline was continued

for the third client, and so forth. Thus, a multiple baseline design across clients would be used to test the hypothesis that an increase in counselor interpretations results in an increase in client introspection and a change in the outcome variable. Of course, the hypothesis that a decrease in counselor questions was the important variable, or a third hypothesis—that both an increase in interpretations and a decrease in questions were required for change—could also have been tested.

Even a case study (the most basic of single-case designs), when coupled with repeated measurement and statistical procedures for the analysis of sequences of behavior, can play an important hypothesis-generating and hypothesis-testing role in research linking counseling process and outcome. For example, Wampold and Kim (1989) reanalyzed data collected by Hill, Carter, and O'Farrell (1983) for a single counseling dyad. The authors tested hypotheses about (a) the effects of particular nonbehavioral counseling interventions (e.g., confrontation vs. minimal encouragers) on client storytelling (description) and experiencing, (b) the effects of specific client behaviors such as description on counselor use of minimal encouragers and confrontation, (c) the simultaneous bidirectional effects of behavior (e.g., counselor minimal encouragers on client descriptions and client descriptions on counselor minimal encouragers), (d) whether client verbal behavior was more predictable from counselor verbal behavior or vice versa, and (e) the extent to which particular sequences of counselor–client verbal behavior were associated with an outcome measure of counseling session satisfaction. Of course, the generalizability of these findings would need to be assessed by replicating the results with other counseling dyads. Another example of the potential of multiple case study data coupled with sequential analytic procedures was provided by Reandean and Wampold (1991), who studied power and involvement in high and low working-alliance dyads using these procedures.

As mentioned earlier, single-case procedures are not limited to research with one or even a few individuals but have been applied with noncounseling interventions involving thousands or even a million individuals (McSweeney, 1978; Schnelle, Kirchner, McNees, & Lawler, 1975). With respect to counseling applications, the advantages of single-case methods have been discussed for research on group counseling (Cetingok & Hirayama, 1983; Robison, Morran, & Hulse-Killacky, 1989) and the evaluation of family therapy (Cross, 1984). An example of single-case methods in group research is illustrative. Jauquet (cited in Heppner et al., 1992) used a randomized A-B design to examine the effects of an "agenda-go-round" exercise on group cohesion and member involvement. The exercise (B phase) or its absence (A phase) was randomly assigned to group sessions. Cohesion was rated by the members on self-report instruments (the engaged and avoiding scales of a group climate questionnaire); involvement was rated from videotapes by observers. Data for the sessions were analyzed in a 2 (agenda exercise vs. no exercise) \times 2 (session preceded by an exercise vs. session not preceded by an exercise) design. Results revealed no main effects on the cohesion measures; however, there was a significant interaction effect. Non-agenda-go-round sessions that followed agenda-go-round sessions were rated by

the group members as more engaged and less avoidant than any of the other combinations, suggesting that the periodic use of the exercise may enhance members' perceptions of group cohesion.

In addition to the various applications of single-case designs already discussed, this methodology can address important questions relevant to cultural diversity, alternative life-styles, people who are physically challenged, and other diverse groups or research areas in which the usual large sample sizes required for traditional between-group research methods are frequently unavailable. Also, given the limited ability of group designs for investigating individual variability, single-case methods, as illustrated previously by Gordon and Shontz (1990a) with an AIDS patient, offer a viable alternative for studying individual characteristics and unique patterns of functioning. Thus, the use of single-case methodologies has been discussed in terms of answering research questions relative to working with people with severe handicaps (Kratochwill & Williams, 1988), gifted children (Foster, 1986), elderly people (Cetingok & Hirayama, 1983), and the deaf (Bullis & Anderson, 1986).

In addition to their application as a research tool, single-case methods can play an important role in evaluation and quality assurance in clinical practice (Nuehring & Pascone, 1986). These methods provide a flexible approach to accountability through their ability to chronicle client changes. At a minimum, these changes can be shown to covary with the implementation of clinical interventions. Such a documentation of client change involves the practitioner in a scientific approach to assessing the results of practice. A few examples illustrate this point.

With minimal disruption to clinical practice and regardless of theoretical orientation, a major step toward greater accountability by counseling psychology practitioners could be taken if simple A-B designs with short-term follow-up (i.e., 6 months) were routinely applied with clients. In most instances of current clinical practice, an initial assessment using standardized self-report and other types of measures is typically undertaken with a client before treatment commences. Relatively little inconvenience and expense is involved in readministering some of these measures periodically throughout the contact with the client and then again at a follow-up point. For example, a counseling psychologist working with a depressed client could administer a global measure such as the Beck Depression Inventory (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961), coupled with a self-report measure of dysfunctional thoughts, every few weeks during contact with a client and at follow-up. At a minimum, the repeated assessments provide the psychologist with an indication of how depression and dysfunctional thoughts covary with the presence of counseling and whether the changes endure after the counseling relationship has been terminated. Of course, the results do not indicate whether the changes are attributable to counseling, but they do provide suggestive evidence. Kazdin (1981, 1991) has noted that, under some circumstances, such designs can even provide a relatively strong basis for attributing change to a specific therapeutic intervention. Finally, when these data are collected over time along with other client information (e.g.,

demographic or personality characteristics), they can elicit speculation by the scientist-practitioner about the differential effectiveness of his or her interventions with particular types of depressed clients or about the need for interventions to help particular clients maintain their changes once counseling has terminated. Unfortunately, collection of self-report and other forms of data currently continues to be the exception rather than the norm because evaluation of clinical practice tends to be sporadic and unsystematic.

The accountability function of single-case designs is certainly not limited to personal counseling. Hinkle (1992), for example, discussed the potential of these designs for evaluating the effects of computer-assisted career guidance interventions, and Holahan and Galassi (1986) demonstrated their applicability in supervision accountability. In the latter example, data from a multiple baseline design across behaviors demonstrated that a specific supervisory intervention, which consisted of a counselor and supervisor monitoring a 4-min segment of counselor behavior coupled with supervisor reinforcement, resulted in a decrease in counselor questions and an increase in counselor reflections. In turn, these counselor changes resulted in an increase in client feeling statements and total statements. Moreover, counselor and client changes were maintained at follow-up.

Conclusion

Single-case designs are by no means a panacea for research and evaluation in counseling psychology. As is true for any research methodology, they have limitations. As mentioned previously, providing more than one treatment to clients may result in carryover effects or multiple treatment interference, which can create difficulties in investigating questions about interactions. Similarly, single-case designs are not particularly well suited for answering questions about whether a treated group performed significantly better than an untreated group. Nevertheless, single-case designs constitute an important but overlooked tool for research and evaluation in counseling psychology. They are extremely flexible and can help provide answers to questions about process, outcome, and accountability in clinical practice and supervision. These designs are also applicable to research with special populations in which large numbers of participants are not available; they fit well with the realities of clinical practice; and they hold promise for enabling the practitioner to become a practicing scientist. In counseling psychology, a lack of knowledge of these designs and a few misconceptions have primarily prevented their greater use. It is time to give these designs their due.

References

- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
- American Psychological Association. (1992). Ethical principles of psychologists and code of conduct. *American Psychologist*, *47*, 1597-1611.
- Barlow, D. H., Hayes, S. C., & Nelson, R. O. (1984). *The scientist practitioner: Research and accountability in clinical and educational settings*. Elmsford, NY: Pergamon Press.
- Barlow, D. H., & Hersen, M. (1984). *Single case experimental designs: Strategies for studying behavior change* (2nd ed.). Elmsford, NY: Pergamon Press.
- Barrom, C. P., Shadish, W. R., Jr., & Montgomery, L. M. (1988). Ph.D.s, Psy.D.s, and real world constraints on scholarly activity: Another look at the Boulder model. *Professional Psychology: Research and Practice*, *19*, 93-101.
- Beck, A. T., Ward, C. H., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, *4*, 561-571.
- Bullis, M., & Anderson, G. (1986). Single-subject research methodology: An underutilized tool in the field of deafness. *American Annals of the Deaf*, *131*, 344-348.
- Cameron, A. S., Galassi, J. P., Birk, J. M., & Waggener, N. M. (1989). Trends in counseling psychology training programs: The Council of Counseling Psychology Training Programs Survey, 1975-1987. *The Counseling Psychologist*, *17*, 301-313.
- Carkhuff, R. R. (1968). A non-traditional assessment of graduate education in the helping professions. *Counselor Education and Supervision*, *8*, 252-261.
- Cetingok, M., & Hirayama, H. (1983). Evaluating the effects of group work with the elderly: An experiment using a single-subject design. *Small Group Behavior*, *14*, 327-335.
- Cohen, L. H., Sargent, M. M., & Sechrest, L. B. (1986). Use of psychotherapy research by professional psychologists. *American Psychologist*, *41*, 198-206.
- Cross, D. (1984). Single-case design: The neglected alternative for the evaluation of family therapy. *Australian Journal of Family Therapy*, *5*, 275-279.
- Edgington, E. S. (1966). Statistical inference and nonrandom samples. *Psychological Bulletin*, *66*, 485-487.
- Foster, W. (1986). The application of single-subject research methods to the study of exceptional ability and extraordinary achievement. *Gifted Child Quarterly*, *30*, 33-37.
- Galassi, J. P., & Gersh, T. L. (1991). Single-case research in counseling. In C. E. Watkins & L. J. Schneider (Eds.), *Research in counseling* (pp. 119-161). Hillsdale, NJ: Erlbaum.
- Galassi, J. P., & Gersh, T. L. (1992, August). Advancing counseling research and practice by using single-case designs. In C. E. Watkins, Jr., & L. G. Schneider (Co-chairs), *Research in counseling and psychotherapy: Issues, problems, possibilities*. Symposium conducted at the 100th Annual Convention of the American Psychological Association, Washington, DC.
- Gelso, C. J. (1979). Research in counseling: Methodological and professional issues. *The Counseling Psychologist*, *8*(3), 7-35.
- Gelso, C. J., Betz, N. E., Friedlander, M. L., Helms, J. E., Hill, C. E., Patton, M. J., Super, D. E., & Wampold, B. E. (1988). Research in counseling psychology: Prospects and recommendations. *The Counseling Psychologist*, *16*, 385-406.
- Gordon, J., & Shontz, F. C. (1990a). Living with the AIDS virus: A representative case. *Journal of Counseling and Development*, *68*, 287-292.
- Gordon, J., & Shontz, F. C. (1990b). Representative case research: A way of knowing. *Journal of Counseling and Development*, *69*, 62-66.
- Harmon, L. W. (1988). Editorial. *Journal of Counseling Psychology*, *35*, 219-221.
- Heppner, P. P., & Anderson, W. P. (1985). On the perceived nonutility of research in counseling. *Journal of Counseling and Development*, *63*, 545-547.
- Heppner, P. P., Kivlighan, D. M., Jr., & Wampold, B. E. (1992). *Research design in counseling*. Pacific Grove, CA: Brooks/Cole.
- Hill, C. E., Carter, J. A., & O'Farrell, M. K. (1983). A case study

- of process and outcome of time-limited counseling. *Journal of Counseling Psychology*, 31, 430-441.
- Hinkle, J. S. (1992). Computer-assisted career guidance and single-subject research: A scientist-practitioner approach to accountability. *Journal of Counseling and Development*, 70, 391-395.
- Holahan, W., & Galassi, J. P. (1986). Towards accountability in supervision: A single case illustration. *Counselor Education and Supervision*, 25, 166-174.
- Howard, A., Pion, G. M., Gottfredson, G. D., Flattau, R. E., Oskamp, S., Pfafflin, S. M., Bray, D. W., & Burstein, A. G. (1986). The changing face of American psychology: A report for the Committee on Employment and Human Resources. *American Psychologist*, 41, 1311-1327.
- Howard, G. S. (1984). A modest proposal for a revision of strategies for counseling research. *Journal of Counseling Psychology*, 31, 430-441.
- Howard, G. S. (1992). Behold our creation! What counseling psychology has become and might yet become. *Journal of Counseling Psychology*, 39, 419-442.
- Kazdin, A. E. (1980). *Research design in clinical psychology*. New York: Harper & Row.
- Kazdin, A. E. (1981). Drawing valid inferences from case studies. *Journal of Consulting and Clinical Psychology*, 49, 183-192.
- Kazdin, A. E. (1982). *Single-case research designs: Methods for clinical and applied settings*. New York: Oxford University Press.
- Kazdin, A. E. (1991). *Research design in clinical psychology* (2nd ed.). Elmsford, NY: Pergamon Press.
- Kratochwill, T. R., & Williams, B. L. (1988). Perspectives on pitfalls and hassles in single-subject research. *Journal of the Association for Persons with Severe Handicaps*, 13, 147-154.
- McCullough, J. P. (1984a). Single-case investigative research and its relevance for the nonoperant clinician. *Psychotherapy*, 21, 382-388.
- McCullough, J. P. (1984b). The need for new single case design structure in applied cognitive psychology. *Psychotherapy*, 21, 389-400.
- McCullough, J. P., & Carr, K. F. (1987). Stage process design: A predictive confirmation structure for the single case. *Psychotherapy*, 24, 759-768.
- McSweeney, A. J. (1978). Effects of response cost on the behavior of a million persons: Charging for directory assistance in Cincinnati. *Journal of Applied Behavior Analysis*, 11, 47-51.
- Meara, N. M., Schmidt, L. D., Carrington, C. H., Davis, K. L., Dixon, D. N., Fretz, B. R., Myers, R. A., Ridley, C. R., & Suinn, R. M. (1988). Training and accreditation in counseling psychology. *The Counseling Psychologist*, 16, 366-384.
- Morrow-Bradley, C., & Elliott, R. (1986). Utilization of psychotherapy research by practicing psychotherapists. *American Psychologist*, 41, 188-197.
- Moses, S. (1990a, March). More science is urged in professional training. *APA Monitor*, p. 31.
- Moses, S. (1990b, March). New image affirmed for graduate training. *APA Monitor*, p. 31.
- National Conference on Scientist-Practitioner Education and Training for the Professional Practice of Psychology. (1990). *Science-practitioner education and training for the professional practice of psychology* (Revision 3). Gainesville, FL: Author.
- Nuehring, E., & Pascone, A. (1986). Single-subject evaluation: A tool for quality assurance. *Social Work*, 31, 359-365.
- Polkinghorne, D. E. (1984). Further extensions of methodological diversity for counseling psychology. *Journal of Counseling Psychology*, 31, 416-429.
- Polkinghorne, D. E. (1991). Qualitative procedures in counseling research. In C. E. Watkins & L. J. Schneider (Eds.), *Research in counseling* (pp. 163-204). Hillsdale, NJ: Erlbaum.
- Reandeau, S. G., & Wampold, B. E. (1991). Relationship of power and involvement to working alliance: A multiple-case sequential analysis of brief therapy. *Journal of Counseling Psychology*, 38, 107-114.
- Robison, F., Morran, D., & Hulse-Killacky, D. (1989). Single-subject research designs for group counselors studying their own groups. *Journal for Specialists in Group Work*, 14, 93-97.
- Scherman, A., & Doan, R. E., Jr. (1985). Subjects, designs, and generalizations in Volumes 25-29 of the *Journal of Counseling Psychology*, 32, 272-276.
- Schnelle, J. F., Kirchner, R. E., McNeese, M. P., & Lawler, J. M. (1975). Social evaluation research: The evaluation of two police patrolling strategies. *Journal of Applied Behavior Analysis*, 8, 353-365.
- Tawney, J. W., & Gast, D. L. (1984). *Single subject research in special education*. Columbus, OH: Charles E. Merrill.
- Tracey, T. J. (1983). Single case research: An added tool for counselors and supervisors. *Counselor Education and Supervision*, 22, 185-196.
- Tracey, T. J., & Anderson, M. Z. (1992, August). 1992 survey of counseling psychology doctoral training programs. Paper presented at the 100th Annual Convention of the American Psychological Association, Washington, DC.
- Truax, C. B., & Carkhuff, R. R. (1965). Experimental manipulation of therapeutic conditions. *Journal of Consulting Psychology*, 29, 119-124.
- Wampold, B. E., & Kim, K. H. (1989). Sequential analysis applied to counseling process and outcome: A case study revisited. *Journal of Counseling Psychology*, 36, 357-364.
- Yin, R. K. (1989). *Case study research: Design and methods* (Rev. ed.). Newbury Park, CA: Sage.

Received November 16, 1992

Revision received February 19, 1993

Accepted February 23, 1993 ■