Beyond qualitative and quantitative data linking: An example from a mixed method study of family recreation

By: Mactavish, Jennifer B, Schleien, Stuart J

Mactavish, J., & Schleien, S. (2000). Beyond qualitative and quantitative data linking: An example from a mixed method study of family recreation. ***Therapeutic Recreation Journal***, *34*(2), 154-163.

Abstract:
In a 1993 research note in TRJ, Henderson and Bedini discussed the challenges of linking qualitative and quantitative data within a single study. Since that time, mixed method research has appeared more frequently in the therapeutic recreation literature. Mixed method research, however, has not been fully embraced as underlying philosophical concerns persist (Datta, 1994; Samdahl, 1999). A dominant-less dominant mixed method research design and its application in a study of family recreation is presented in this research note as an approach for addressing some of these concerns. The grounding of this work in the naturalistic paradigm is discussed, as are the influences of this framework on the collection, analysis, and reporting of the data.
KEY WORDS: Research, Mixed Method Research

Article:

Introduction

Mixed method research has appeared with greater frequency in a number of social science disciplines, including therapeutic recreation (Tashakkori & Teddlie, 1998). Use of these approaches has not, however, been broadly embraced as concerns persist about the appropriateness of linking qualitative and quantitative data without attending to fundamental ontological, epistemological, and methodological issues' (Henderson & Bedini, 1993; Morse, 1991; Samdahl, 1999; Tashakkori & Teddlie). This research note addresses some of these concerns by describing a mixed method research design that was used to study recreation in families that included children with developmental disabilities (Mactavish, 1994).

Debating the Appropriateness of Mixed Method Research

For several decades, debates have raged among philosophers of science about the superiority of positivist and/or naturalistic research2 for studying society and human behaviour (Denzin & Lincoln, 1994; Guba, 1990; Reichardt & Rallis, 1994; Samdahl, 1999). One aspect of this debate has questioned the appropriateness of combining quantitative and qualitative methods within a single study (Tashakkori & Teddlie, 1998). From a traditional purist perspective, method and paradigm are inextricably linked; therefore, qualitative and quantitative approaches are viewed as distinct and incompatible (Guba; Guba & Lincoln, 1994). Capturing this perspective, Smith and Heshusius (1986) stated that "if one extends the different sets of assumptions to their logical implications, it is clear the two perspectives part company over major issues such as the conceptualization given such basic conditions as validity and reliability, the place of techniques in the inquiry process, and the interpretation of research results" (p. 9). Others, however, have articulated less rigid views arguing that qualitative and quantitative methods are not mutually exclusive research strategies and hence, the appropriateness of combining them (Bullock, 1993; Firestone, 1987; Henderson, 1991; Merriam, 1988; Patton, 1990). Concurring with this stance, Kidder and Fine (1987) stated, "There is nothing mysterious about combining quantitative and qualitative measures. This is, in fact, a form of triangulation that enhances the validity and reliability of one's study" (p. 72).

Not surprisingly, these two schools of thought have resulted in contrasting views about the weaknesses and strengths of mixed method research. From the purist perspective, the inability to reconcile inherent

philosophical differences at the paradigmatic level renders mixed method research flawed and inappropriate (Guba & Lincoln, 1994). While acknowledging this concern, adherents of less rigid notions about the relationship between ontology and methodology consider this argument an abstraction that does not detract from the usefulness of mixed method designs (Tashakkori & Teddlie, 1998). Adherents of this view, often called "pragmatists," have abandoned the philosophical debate in favor of a more pragmatic approach-known as paradigm relativism. Paradigm relativism rests on the belief that methodological decisions are driven by the purpose of the research and the questions of interest, not by strict adherence to tenets of any particular worldview (House, 1994; Howe, 1988; Patton, 1990; Reichardt & Rallis, 1994). From this vantage point, the strength of mixed method research lies in its ability to facilitate the study of complex phenomena in ways that cannot be fully accommodated within a single approach (Cherryholmes, 1992; House; Howe; Reichardt & Rallis). More specifically, mixed method research has been advanced as particularly strong when the intention is to (a) seek convergent results (triangulation); (b) explore interconnected and/or distinct aspects of a phenomenon (complementarity); (c) examine similarities, contradictions, and new perspectives (initiation); (d) use methods in a ways that complement one another (e.g., interviews used to inform the development of a survey instrument); and (e) add breadth and scope to a project (Green, Caracelli, & Graham, 1989).

Mixed Method Research in Therapeutic Recreation

Based on an extensive review of recent social science research, Tashakkori and Teddlie (1998) concluded that despite the philosophical tussles, there have been dramatic increases in the use of and literature about mixed method studies and mixed model designs (e.g., Creswell, 1995; Miller & Crabtree, 1994; Morse, 1991).3 Paralleling this trend, examples of mixed method research have emerged within the therapeutic recreation literature (e.g., Bedini, Bullock, & Driscoll, 1993; Bullock, Mahon, & Welch, 1992; Mactavish, Schleien, & Taboume, 1997; Mactavish & Schleien, 1998; Malkin, Howe, & Del Ray, 1989; McAvoy, Schatz, Stutz, Schleien, & Lais, 1989). This emergence is not surprising as multiple perspectives and data collection approaches are promoted as essential to understanding the complex and diverse issues associated with therapeutic recreation practice and research (Bullock, 1993).

Much of the mixed method research in therapeutic recreation, although not explicitly stated, rests on tenets of paradigm relativism. Consequently, most of this work has focused more on linking qualitative and quantitative data than on addressing underlying philosophical issues about how the paradigm, research questions, methods, and data complement one another (Henderson & Bedini, 1993). While this approach has served important practical purposes, it also has fueled criticisms that mixed method research is nothing more than the use of "mixed-up" approaches that lack paradigmatic and/or theoretical grounding (Datta, 1994, p. 59). In response to this criticism, which some contend to be the major weakness of this type of research, Tashakkori and Teddlie (1998) called for enhanced clarity and greater coherence in descriptions of mixed method research.

Purpose of the Research Note

Heeding their call, this research note focuses on one example of a mixed method approach that was used to study recreation in families that included children with developmental disabilities (Mactavish, 1994; Mactavish, Schleien, & Tabourne, 1997; Mactavish & Schleien, 1998). In particular, this note describes the dominant-less dominant mixed method research design and its usefulness in reconciling some of the philosophical concerns (paradigm, research questions, and the complementary use of the data) that have been expressed about mixed method research.

The Dominant-Less Dominant Mixed Method Research Design

A dominant-less dominant mixed method research design refers to research in which "one paradigm and its methods predominate, with a smaller component of the overall study being drawn from an alternative design" (Tashakkori & Teddlie, 1998, p. 44). Typically, this is the mixed method design of choice in fields where purist approaches to positivist and/or naturalistic forms of research predominate and where criticisms about the absence of paradigmatic and theoretical grounding persist (Morse, 1991). Within studies that use a dominant-less dominant approach, both qualitative and quantitative data are collected, analyzed (qualitatively and quantitatively), and reported. These procedures are often used sequentially to: (a) triangulate or seek convergent

findings, (b) provide insights that will inform subsequent data collection and analyses, and (c) enable expansion of the breadth and scope of the research (Greene et al., 1989).

Applying the Dominant-Less Dominant Mixed Method Design to a Study of Family Recreation

To translate this description of a dominant-- less dominant mixed method research design into action, a study of recreation in families that included children with developmental disabilities is used as an example. The purpose of this exploratory study was to examine the nature and benefits of, and constraints on family recreation in these families. This research was grounded in the naturalistic paradigm, and employed survey and interview methods. The naturalistic paradigm, or what some now call constructivism (Guba & Lincoln, 1994), rests on the assumption that people's perceptions and experiences produce multiple ways of knowing and understanding the world and reality (Henderson, 1991; Merriam, 1988; Patton, 1990). Thinking about knowledge in this way has been advanced as particularly useful in research that aims-as did the study of family recreation-to enhance understanding of social phenomena within naturally occurring contexts (Bullock, 1993; Henderson, 1991).

Additionally, the naturalistic paradigm provides a flexible framework that accommodates emerging insights and information as the research evolves. These factors informed the purpose and questions of interest in the study of family recreation, and provided the rationale for grounding this research in the naturalistic paradigm.

The survey instrument, which was administered first, reflected, in Tashakkori and Teddlie's (1998) words, the smaller component of the study that was derived from an alternative design (p. 44). This tool included open and closed format questions but primarily produced quantitative data. Many of the questions stemmed from previous research that did not explicitly consider families that included children with disabilities and consequently, the survey was designed as a way of linking the emerging findings with existing knowledge. Of greater importance to the overall aims of the research, these data provided initial insights about a breadth of family recreation topics that became the foundation for the interviews. The interviews, which were the dominant data collection method, generated purely qualitative data. These data were helpful in establishing the trustworthiness of the survey findings and more importantly, added depth and richness to our understanding of the participating families' recreation.

While the interviews were attributed "dominant method" status, this does not mean that the survey and the resultant data were any less valuable. The survey and the interviews simply produced information that served different purposes-breadth versus depth-both of which were important in the research. In other words, the paradigm in which the research was grounded and how the data were used, not the perceived contribution of each source to the research process, were the criteria for distinguishing the dominant from the less-dominant strategy. Differentiating the strategies in this way is consistent with previous research that has employed dominant-less dominant designs (Creswell, 1995; Morse, 1991; Tashakorri & Teddlie, 1998).

Implementing the Data Collection Methods and Selecting the Families

Before administering the survey instrument, a three-stage process was instituted to assess its validity and reliability. This process involved a 45 member expert panel (i.e., composed of parents of children with disabilities; professionals who work with these families; academics in leisure, disability, and educational psychology; and experts in survey design and delivery) who scrutinized the validity of the questionnaire items. Reliability was determined using a test-retest method, whereby a small group of families (n = 9; non-study participants) completed the survey twice over a 3-week interval. Analyses of the closed response items revealed an overall reliability coefficient of .92, while answers to the open-ended questions were coded and independently compared by two individuals who were in 100 percent agreement that the data were consistent.

The survey instrument was distributed, by mail, using a three-step variation of Dillman's (1978) total design method. Three organizations (a school, an advocacy organization, and a parent support group) that provided services to families of children with a developmental disability in a large urban centre in the upper mid-western United States identified and provided mailing addresses for 118 families. To solicit the widest range of perspectives possible, a questionnaire was sent to all of these families. Ultimately, 65 families consented to

participate by completing and returning their questionnaires (55% response rate). Of these questionnaires, multiple family members completed 68%, while 32% were completed by one individual (i.e., 26% by an adult female, 6% by an adult male).

In addition to collecting information about family recreation, the survey instrument invited families to participate in a series of follow-up interviews. Forty-four families indicated an interest in being interviewed and from this pool 16 were ultimately selected using a sequential-purposive sampling technique (Patton, 1990).4 That is, the first 8 families were selected using a criterion approach, which sought to ensure that the families interviewed reflected the overall socio-demographic diversity of the sample. Subsequently, 8 additional families were selected based on survey responses that indicated potential for extending insights about one or more of the research questions of interest (i.e., a theory-based purposive technique).

The interviews were used to intensively explore issues arising from the questionnaire data while being flexible enough to accommodate emerging issues and questions. To fulfill these aims, an interview guide, which included questions specific to each of the areas of interest (nature, benefits, constraints), was used to facilitate the interviews (Patton, 1990). In most cases (68%), the interviews involved multiple adult members of the same family, usually two parents, and were conducted in the families' homes.

Analyzing the Questionnaire and Interview Data

Data analysis in quantitative and qualitative research typically includes one or more approach depending on the nature of the data and the research questions. Within quantitative studies, at least two basic approaches to analysis are commonly used: (a) descriptive statistics for summarizing information, and (b) comparative statistics for examining differences between groups and/or relationships between variables (Babbie, 1989; Kerlinger, 1986). In qualitative research, there are a variety of established procedures for analyzing data (Huberman & Miles, 1994). Generally, these procedures involve converting raw narrative data (e.g., field notes, audiotapes) into partially processed data (e.g., transcripts), which are then coded and subjected to any one of a number of analysis schemes (e.g., key theme analysis, constant comparative; Huberman & Miles; Merriam, 1988; Yin, 1991).

Mixed method research, as would be expected, may draw on one or more of the data analysis approaches found in the quantitative or qualitative research traditions. In an effort to capture the range of possible applications, Tashakorri and Teddlie (1998) described four different approaches for combining data analysis techniques from both traditions within mixed method research:

1. Conducting quantitative and qualitative data analyses on the same data simultaneously.

2. Confirming/expanding the results from one method of data analysis (e.g., quantitative) through a secondary analysis of the same data using a different approach (e.g., qualitative).

3. Using, sequentially, the findings obtained through one approach to data analysis (e.g., quantitative) as a starting point for the analysis of other data generated via an alternative approach (qualitative).

4. Utilizing the results of one approach to data analysis (e.g., qualitative interviews) as a starting point for developing subsequent data collection strategies (e.g., instrument development) or collecting/analyzing new data using another approach (e.g., expanding on questionnaire findings using qualitative interviews).

Illustrating the fourth approach described by Tashakorri and Teddlie (1998), the mixed method study of family recreation incorporated multiple strategies to analyze the quantitative and qualitative data generated by the survey instrument and the interviews. The closed-response items in the questionnaire were analyzed using

descriptive and non-parametric (cross tabulations, chi-square) statistical procedures. As noted by Patton (1990), the quantification of data in naturalistic research is not unusual or unacceptable; however, potential problems arise if the results are used in ways that were not intended. Within exploratory research, "getting to know your data in an effort to maximize what is learned" has been emphasized as the purpose of statistical analyses (Hartwig & bearing, 1979, p. 75). Drawing on these points, it should be noted that in keeping with the naturalistic framework in which this study was grounded and its exploratory aims, the statistical analyses were not conducted for the purpose of offering inferences. Instead, they were used as a means of learning as much as possible about the participating families and the research questions of interest (i.e., breadth of information), and as a starting point for identifying issues to be explored, more intensively, during the interviews (i.e., depth of information).

Transcripts of the qualitative data (from the questionnaires and interviews) were read and reread to identify preliminary key phrases and themes (Yin, 1989). A systematic or constant comparative method also was instituted, which utilized the preliminary themes as the basis for comparing, contrasting, and integrating emerging insights about family recreation (Strauss & Corbin, 1990). This process was adhered to until gaining convergent responses to the research questions (Merriam, 1988).

Establishing trustworthiness and consistency. To establish confidence in the trustworthiness of the findings, multiple approaches to triangulation were used. These included triangulation of methods and data sources, as well as investigator or analyst triangulation (peer review; Denzin, 1978; Patton, 1990). Triangulation of methods was achieved by using the interview data to assess and verify the questionnaire data. In addition, the interviews enabled parents to provide feedback, which ensured that the emerging findings accurately reflected their perspectives (member checks). With more than one family member involved in completing 68% of the questionnaires (n = 44) and the interviews (n = 11), multiple data sources also added confidence in the trustworthiness of the findings. Furthermore, an expert in qualitative research, who was not directly involved in the research, independently reviewed all the data and emerging themes. This approach, which Denzin labeled investigator or theory triangulation, or alternatively, what Patton called triangulation of analysts, was used to enhance confidence in the trustworthiness and credibility of the researchers' interpretations of the data. While it was a priority to establish the results as trustworthy, there was less concern about their reliability over time or whether they could be generalized to other families that included children with disabilities. Instead, paralleling the tenets of naturalistic research, the emphasis was on ensuring that the results were consistent with the data, and that the research process and participants were described in sufficient detail for readers to evaluate the appropriateness of extrapolations to other situations and settings (Lincoln & Guba, 1985; Yin, 1989).

Demonstrating the Complementary Nature of the Questionnaire and Interview Data

While a full accounting of results is beyond the scope of this research note, several examples are offered to illustrate how the questionnaire and interview data complemented one another. Before considering these examples, it must be acknowledged that the interviews were not equally helpful in answering all the research questions. Specifically, information about family recreation activities was derived from the questionnaire data exclusively (Mactavish & Schleien, 2000). This outcome occurred because the interview data were consistent with, but did not reveal additional insights about, the activities families engaged in during their recreation. Discussing family activities was useful, however, in providing a natural starting point for conversations about other issues (i.e., patterns, benefits, constraints) explored in the research.

In addressing these other issues, data from the questionnaires and interviews were used in tandem as they complemented and extended one another. Focusing first on patterns, the survey revealed that small groups of family members, as opposed to the family as a whole, typically participated in family recreation (Mactavish, Schleien, & Tabourne, 1997). In most instances these intra-family clusters included one parent, most commonly mothers, in interactions with their children) with a disability or all their children. From the interview data, it became apparent that this pattern was employed, by parents, as a conscious strategy for (a) ensuring that family recreation occurred despite busy schedules and often competing demands; and (b) making family activities more manageable when attempting to juggle divergent interests, abilities, and needs of the children.

The questionnaire data on benefits, like the data on patterns, produced descriptive information that provided a useful starting point for learning about the positive outcomes parents attributed to family recreation. These findings indicated that family recreation was viewed as a means for promoting overall quality of family life (i.e., unity, satisfaction, health) and for helping children develop life-long skills (recreation, physical, social) and values (Mactavish & Schleien, 1998). While this contention was supported in the interviews, these discussions also indicated that family recreation was considered particularly important for children with disabilities-not only as a beneficial catalyst for development, but as the most accepting and enduring context in which these children were likely to experience recreation.

On the issue of constraints, the questionnaire data suggested that a host of previously identified factors (e.g., work and family responsibilities, lack of time, money, common interests, skills) affected family recreation (Crawford, Jackson, & Godbey, 1991). The interviews confirmed the presence of these challenges and added clarity about the nature of some of these constraints. For example, in discussions about work/family responsibilities and a lack of time, it became apparent that parents considered these to be symptoms that masked a more salient challenge-coordinating family members' schedules so that family recreation was possible. Additionally, the interviews revealed that while a lack of common interest was frequently noted in the survey data as a constraint, the real concern revolved around finding family activities that could accommodate wide ranges in age and skill. Beyond enhancing clarity about the nature of some constraints, the interviews extended understanding about the influence of these factors. For many parents, it was extremely difficult, if not impossible, to isolate specific factors that constrained their family's recreation. Instead, constraints were described as an accumulation of complex family and individual issues that had to be "worked through or around" for family recreation to occur (quote from a parent).

The preceding summary highlights some of the key findings and more importantly, demonstrates how the questionnaire and interview data were used together in a study of family recreation. This summary also illustrates that the two approaches, in concert, produced richer insights about the participants' views on the patterns and benefits of, and constraints to family recreation than would have been possible using either method alone.

Conclusions

Mixed method research designs, although increasingly used, have not been fully embraced in the social sciences. This reluctance appears to be rooted in at least two criticisms-both of which relate to explanations of mixed method designs in the literature. The first criticism contends that descriptions of mixed method research lack clarity, depth, and coherence (Tashakkori & Teddlie, 1998); and the second criticism charges that insufficient attention has been paid to the underlying philosophical issues that these approaches engender (Datta, 1994; Samdahl, 1999). Responding to these criticisms, this research note described a dominant-less dominant mixed method research design and its application in a study of family recreation. The rationale for grounding this work in the naturalistic paradigm was discussed, as were the influences of this framework in the collection, analysis, and reporting of the data. A summary of the results was presented to show how the quantitative and qualitative data were used to complement and extend what was learned about family recreation.

The exemplar presented in this research note counters contentions that mixed method research is a "mixed-up" approach to inquiry that lacks paradigmatic and/or theoretical grounding (Datta, 1994). It also demonstrates the usefulness of a dominant-less dominant design when the aim is to generate knowledge that: (a) facilitates understanding of complex issues within naturally occurring contexts, (b) enhances confidence in the trustworthiness and credibility of research findings, and (c) provides a greater breadth and depth of information than otherwise would be possible with a single approach. These outcomes are not limited to the example used in this research note, but are general points that have been advanced in support of mixed method research (Bullock, 1993; Greene et al., 1989; Henderson, 1991; Howe, 1988; Patton, 1990; Tashakkori & Teddlie, 1998).

Recalling previous discussion about the strengths of mixed method designs (Green et al., 1989), these approaches may be very useful in a number of areas of therapeutic recreation research. For example, mixed

method studies may be particularly appropriate when the aims of therapeutic recreation research include: (a) uncovering convergent results on the efficacy of a specific type of intervention (e.g., leisure education, person-centered planning); (b) enhancing understanding of interrelated and/or distinct factors that affect leisure behavior (e.g., self-determination, constraints) and/or practices (e.g., agency goals, staff training, participant outcomes); (c) examining similarities, differences, and new perspectives in professional preparation (education, certification) and service delivery; and (d) promoting knowledge in areas that are not conducive to single-method approaches to inquiry (e.g., family recreation).

When employing mixed method approaches in therapeutic recreation research it is also essential that we attend to Tashakorri and Teddlie's (1998) call for heightened clarity and coherence in our descriptions of these designs. Failing to connect this type of research to an underlying paradigm-whether it be one of the traditional frameworks (positivistic, naturalistic) or the alternative presented by paradigm relativism-- leaves mixed method research vulnerable to charges that it lacks sound ontological and epistemological grounding, which diminishes the potentially important contributions of these approaches in generating and extending knowledge (Datta, 1994; Guba & Lincoln, 1994; Samdahl, 1999). In conclusion, while it is important to keep these points in mind and to address them in written accounts, therapeutic recreation researchers and professionals should not shy away from mixed method designs, as they are well suited for studying the intricacies that affect practice and knowledge in our field.

1 Ontology refers to the paradigm or worldview; epistemology is about the "science of knowing" (i.e., it describes how research is conducted); and methodology "is the science of finding out" (i.e., the procedures that are used to learn about the issues of interest; Babbie, 1989; Henderson, 1991).

2 While recognizing that dissatisfaction with the axioms of positivism gave rise to post-positivism following World War II (Hanson, 1958; Popper, 1959), and constructivism is the term frequently used in place of naturalistic inquiry (Guba & Lincoln, 1994), a detailed discussion of these shifts is beyond the scope of this research note. The terms "positivist and naturalistic" are used, therefore, for the purpose of discussion and to distinguish between the two approaches to research that have dominated the social sciences (Reichardt & Rallis, 1994).

3 Mixed method research combines qualitative and quantitative approaches in the methodology of a study (e.g., data collection), while mixed model studies combine these two approaches across all phases of the research process (e.g., conceptualization, data collection, data analysis, and inference; Tashakkori & Teddlie, 1998).
4 A series of analyses revealed that the interview group did not differ in any substantive way from the overall group of participating families. It should also be noted that similar analyses between survey respondents who indicated a willingness to be interviewed and those who did not revealed no differences between these two groups.

References

Babbie, E. (1989). The practice of social research (5th ed.). Belmont, CA: Wadsworth.
Bedini, L. A., Bullock, C. C., & Driscoll, L. B. (1993). The effects of leisure education on factors contributing to the successful transition of students with mental retardation from school to adult life. Therapeutic Recreation Journal, 27(2), 70-82.
Bullock, C. C. (1993). Ways of knowing: The naturalistic and positivistic perspectives on research. In M. J. Malkin & C. Z. Howe (Eds.), Research in therapeutic recreation: Concepts and methods (pp. 25-42). State College, PA: Venture.
Bullock, C. C., Mahon, M. J., & Welch, L. K. (1992). Easter Seals' progressive mainstreaming model: Options and choices in camping and leisure services for children and adults with disabilities. Therapeutic Recreation Journal, 26(4), 61-70.
Cherrybolmes, C. C. (1992). Notes on pragmatism and scientific realism. Educational Researcher, 21, 13-17.
Crawford, D., Jackson, E., & Godbey, G. (1991). A hierarchical model of leisure constraints. Leisure Sciences, 13, 309-320.

Creswell, J. W. (1995). Research design: Qualitative and quantitative approaches. Thousand Oaks, CA: Sage.
Datta, L. (1994). Paradigm wars: A basis for peaceful coexistence and beyond. In C. S. Reichardt & S. F. Rallis (Eds.), The qualitative-quantitative debate: New perspectives (pp. 53-70). San Francisco, CA: Jossey-Bass.
Denzin, N. K. (1978). The logic of naturalistic inquiry. In N. K. Denzin (Ed.), Sociological methods: A sourcebook. New York, NY: McGraw-Hill.
Denzin, N. K., & Lincoln, Y. S. (Eds.). (1994). Handbook of qualitative research. Thousand Oaks, CA: Sage.
Dillman, D. (1978). Mail and telephone surveys: The total design method. New York, NY: John Wiley & Sons.
Firestone, W. A. (1987). Meaning in method: The rhetoric of quantitative and qualitative research. Educational Researcher, 16(7), 16-21.
Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-- method evaluation designs. Educational Evaluation and Policy Analysis, 11, 255-274.
Guba, E. G. (1990). The paradigm dialog. Newbury Park, CA: Sage.
Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (pp. 105-117). Thousand Oaks, CA: Sage.
Hartwig, F., & Dearing, B. E. (1979). Exploratory data analysis. In J. Sullivan & R. Niemi (Series Eds.), Quantitative applications in the social sciences (Vol. 16, series no. 07-016). Beverly Hills, CA: Sage.
Hanson, N. R. (1958). Patterns of discovery: An inquiry into the conceptual foundations of science. Cambridge, UK: Cambridge University Press.
Henderson, K. A., & Bedini, L. A. (1993). Notes on linking qualitative and quantitative data. Therapeutic Recreation Journal, 28(2), 124-130.
Henderson, K. A. (1991). Dimensions of choice: A qualitative approach to recreation, parks and leisure research. State College, PA: Venture.
House, E. R. (1994). Integrating the quantitative and qualitative. In C. S. Reichardt & S. F. Rallis (Eds.), The qualitative-quantitative debate: New perspectives (pp. 13-22). San Francisco: JosseyBass.
Howe, K. R. (1988). Against the quantitative-- qualitative incompatibility thesis or dogmas die hard. Educational Researcher, 17, 10-16.
Huberman, A. M., & Miles, M. B. (1994). Data management and analysis methods. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (pp. 428-444). Thousand Oaks, CA: Sage.
Kerlinger, F. N. (1986). Foundations of behavioral research. New York: Holt, Rinehart, & Winston. Kidder, L. H., & Fine, M. (1987). Qualitative
and quantitative methods: When stories converge. In M. M. Mark & R. L. Shotland (Eds.), Multiple methods in program evaluation. San Francisco, CA: Jossey-Bass.
Lincoln, Y. S., & Guba, E. G. (1985). Naturalistic inquiry. Beverly Hills, CA: Sage.
Mactavish, 1 (1994). Recreation in families that include children with developmental disabilities: Nature, benefits, and constraints. Unpublished doctoral dissertation. University of Minnesota, Minneapolis.
Mactavish, J., Schleien, S., & Tabourne, C. (1997). Patterns of family recreation in families that include children with a developmental disability. Journal of Leisure Research, 29(l), 21-46.
Mactavish, I., & Schleien, S. (1998). Playing together growing together: Parents' perspectives on the benefits of family recreation in families that include children with a developmental disability. Therapeutic Recreation Journal, 32(3), 207-230.
Mactavish, J., & Schleien, S. (2000). Exploring family recreation activities in families that include children with a developmental disability. Therapeutic Recreation Journal, 34(2), 132-153.
Malkin, M. J., Howe, C. Z., & Del Rey, P. (1989). Psychological disability and leisure dysfunction of female suicidal psychiatric clients. Therapeutic Recreation Journal, 23(l), 36-46.
McAvoy, L. H., Schatz, E. C., Stutz, M. E., Schleien, S. J., & Lais, G. (1989). Integrated wilderness adventure: Effects on personal and lifestyle traits of persons with and without disabilities. Therapeutic Recreation Journal, 23(3), 50-64.
Merriam, S. B. (1988). Case study research in education. San Francisco, CA: Jossey-Bass.
Miller, W. L., & Crabtree, B. J. (1994). Clinical research. In N. K. Denzin & Y. S. Lincoln (Eds.), Handbook of qualitative research (pp. 340-352). Thousand Oaks, CA: Sage.
Morse, J. M. (1991). Approaches to qualitative/quantitative methodological triangulation. Nursing Research, 40, 120-123.

Patton, M. Q. (1990). Qualitative evaluation and research methods. Newbury Park, CA: Sage. Popper, K. R. (1959). The logic of scientific
discovery. New York, NY: Basic Books.
Richardt, C. S., & Rallis, S. F. (1994). The qualitative-quantitative debate: New perspectives. San Francisco, CA: Jossey-Bass.
Samdahl, D. M. (1999). Epistemological and methodological issues in leisure research. In E. L. Jackson & T. L. Burton (Eds.), Leisure studies: Prospects for the twenty-first century (pp. 119 -133). State College, PA: Venture.
Smith, J. K., & Heshusius, L. (1996). Closing down the conversation: The end of the quantitative/qualitative debate. Educational Researcher, 15(l), 4-13.
Strauss, A. L., & Corbin, J. (1990). Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park, CA: Sage.
Tashakkori, A., & Teddlie, C. (1998). Mixed methodology: Combining qualitative and quantitative approaches. In L. Bickman & D. J. Rog (Series Eds.), Applied Social Sciences Research Methods Series (Vol. 46). Thousand Oaks, CA: Sage.
Yin, R. K (1989). Case study research: Design and methods. Newbury Park, CA: Sage.