The Alberta Journal of Educational Research *Vol. XLVIII, No. 1, Spring 2002, 20-29*

Dan G. Bachor
University of Victoria

Increasing the Believability of Case Study Reports

In this article an overview of some of the methodology associated with case studies is provided from the perspective of the person reading case study reports. Specific suggestions are advanced to allow the reader to interpret more readily the evidence reported. These suggestions are based on a combination of personal teaching experience and a review of publications where case study and other similar qualitative techniques have been addressed. It is concluded that the provision of reporting guidelines can help readers interpret case studies and, as a result, should lead to an increase in the believability of case studies.

Cet article présente un survol d'une partie de la méthodologie associée aux études de cas et ce, selon la perspective de la personne qui lit des rapports d'études de cas. L'auteur y fait des suggestions précises qui faciliteraient l'interprétation de ces rapports par la personne qui lit. Ces suggestions reposent tant sur son expérience personnelle comme enseignant que sur une revue des publications traitant d'études de cas et d'autres techniques qualitatives similaires. L'auteur conclut que le fait de fournir des principes directeurs à ceux qui lisent des rapports d'études de cas peut faciliter leur interprétation et même accroître leur crédibilité.

Over time, different research techniques are used to a greater or lesser extent partly as a function of their credibility. A brief recent history of case study research provides a clear example of this variability in usage. In the early-to-middle part of the 20th century, case studies were sometimes used to portray whole organizations or communities (compare Whyte, 1955); to describe phenomena—for example, findings about mental health in the longitudinal case studies conducted by Vaillant (1977)—or to describe individuals, for example, as the underpinnings for a developmental model as in Levinson's (1978) examination of male adults. This trend of continual, albeit somewhat infrequent, case study usage continued through most of the 1980s; however, the primary emphasis in educational and social science research was on large-scale, quantitatively based studies. More recently, however, the popularity and frequency of case studies has increased (Baker, & Zigmond, 1995; Ballard, Bray, Shelton, & Clarkson, 1997; Callahan, 1996; Greenwood & Parkay, 1989). The acceptance of case studies as a viable research tool has reemerged, in part because people want a convenient and meaningful technique to capture a time-framed picture of an individual's—or some other aggregate that can be construed as a unit or collective—characteristics and performance. Case studies also appeal to people because they have what might be termed *face-value credibility*. That is, they can

---

Dan G. Bachor is a professor in the Department of Educational Psychology and Leadership Studies, Faculty of Education. He teaches courses in assessment and instruction for students with learning problems, current issues in special education, research design, and developmental psychology. His research interests are in case study design and reporting, classroom assessment practices, individualized diagnostic assessment, and instruction for children with special educational needs.

be seen to provide evidence or illustrations with which some readers can readily identify.

Paralleling this increased presence, texts (Abramson, 1992; Bassey, 1999; Merriam, 1988; Yin, 1994) have emerged where research methodologies to conduct case studies have been described. In addition, other sources where other qualitative procedures (Lincoln & Guba, 1985; Miles & Huberman, 1984; Spradley, 1979, 1980; Strauss, 1987; Strauss & Corbin, 1990) that contain assumptions and procedures compatible with those advanced for case studies are being endorsed. These sources have been valuable in providing guidance for the conduct of case studies in that the researcher has an array of possible general frameworks from which to select.

From the perspective of the reader, however, these case study conduct guidelines are not as helpful. The reader is faced with the task of interpreting the results of published case studies, which can be problematic in part because of the different assumptions that can be brought to case studies. The most notable source of variability is found in the methods that are used to select, present, and then report evidence. In some cases, for example, the reader often has no basis to establish how or why any illustrative quote was selected. Although methodological disagreements among practitioners of case study research will continue, at the time of publication authors of case studies have an obligation to reveal how the investigation was conducted and how collected evidence was handled and interpreted. Thus the primary purpose of this article is to provide an overview of some components of case study methodology to suggest a few reporting procedures that will allow the reader to ascertain the evidential basis of published case studies. In addition, case study methodology is considered more generally from the reader's viewpoint with the goal of increasing the believability of case study reports.

Requirements for Case Studies

As suggested above, one fundamental requirement is placed on a researcher when reporting case studies, that is, the onus on the researcher is to conduct the case study such that the results can be communicated to the reader. Several implications follow from this assertion. First, the reader must be able to determine from the evidence presented the nature of the argument, and why and how conclusions were drawn. Second, the reader must be able to determine without doubt the evidential nature of the case as published. In other words, the reader should be able to determine, without the benefit of the writers' "head notes"[1] how the case was developed. Therefore, the evidence must follow convincingly and—when the purpose of the presented case is to move beyond description to explanation—should allow the reader to determine the basis on which any generalizations are being advanced. In the paragraphs that follow some reader-based case interpretation guidelines are suggested, which in large part have been drawn from existing literature, with minor additions or shifts in emphasis. These guidelines are intended to assist the reader as he or she examines case studies to provide a framework to help him or her decide if the presented evidence is convincing and if the necessary material has been provided to allow the reader to extend, connect, or otherwise apply the case report to his or her own circumstances.

Merits of Guidelines

Although there may be advantages to proposing a set of quasi-quality-control guidelines that can be used to judge the integrity of any published case study, there are perils as well. The main risk in offering such suggestions, however, is that researchers do not bring the same set of assumptions when designing and conducting case studies. This can be illustrated by comparing some of the different methodological perspectives that can be incorporated into case study writing (Barrett, 1991; Bassey, 1999; Holstein & Gubrium, 1994; Kazdin, 1982; Lincoln & Guba, 1985; Spradley, 1979; Stake, 1995; Stenhouse, 1988; Strauss & Corbin, 1990; Yin, 1994). The debate in case study design and implementation can, for example, revolve around the degree to which evidence is presented and then interpreted versus deconstructed, integrated with head notes, and presented. Thus in proposing guidelines to ensure rigor in case studies, the probability is that some authors or readers might reject them as being inappropriate because these guidelines are not congruent with how they believe a case study should be completed. There is, however, a counterargument, that by the time a case study is published the conduct of the case study is no longer germane. All researchers, regardless of their beliefs about case study completion, must reveal the steps they followed so that others can determine the merits of the completed work. In other words, for the reader to be convinced that case studies have merit, he or she needs to be able to determine the relationship between argument and evidence. Applying guidelines to ensure rigor in case studies should assist the reader to make this determination; in short, such guidelines might provide the basis to increase the believability of case study reports.

Basis for Recommendations

The reader guidelines proposed below are drawn from a number of sources (Lincoln & Guba, 1985; Miles & Huberman, 1984) and have evolved over the last couple of years (Bachor, 2000; Davis & Bachor, 1999). They also are based on approximately 15 years of teaching graduate students to conduct case studies. The guidelines are organized into three sections: preliminary considerations, evidence gathering and interpretation, and case reports. Before presenting these guidelines, given the purpose of this article and the variations in methodological assumptions that exist, it seems important to unfold my own methodological background and current beliefs.

Personal beliefs. Originally I was trained in the empirical tradition, where the main strategy of building knowledge was to make inferences from samples to a presumed population and/or to comparison or contrast groups. Eventually I found this tradition wanting, not so much for any assumptions underlying the method, as for a feeling of lack of applicability. Many of the questions that I was interested in examining did not meet the requirements of the between-group comparison designs described, for example, by Campbell and Stanley (1966). In addressing some topics associated with individuals with special educational needs, for example, I could not identify a population—often locating a few appropriate participants was a challenge—so I could not randomly draw a sample or meet other assumptions. In consequence, I began to explore three methodological alternatives: single case design, ethnography, and case studies. While applying these procedures, initially I remained within the philo-

sophical boundaries that marked my early training, as it was, and is, possible to remain in this tradition and to employ all three of these approaches (compare Kazdin, 1982). Unfortunately, however, this framework was too restrictive in that the problems addressed or the questions framed were often comparisons of "A or not A," which sought a bivalent solution.

Thus I sought a different analytical framework and recently began to apply the principles of fuzzy logic (Kosko, 1994). The application of this framework underscores the relative nature of problems and requires that the full complexity of problems be considered. As Kosko, explains in applying fuzzy logic,

> everything is a matter of degree.... Fuzziness has a formal name in science: multivalence. The opposite of fuzziness is bivalence or two-valuedness, two ways to answer each question, true or false, 1 or 0. Fuzziness means multivalence. It means three or more options, instead of just two extremes. It means analog instead of binary, infinite shades of gray between black and white. (pp. 18-19)

This method of reasoning allows a more flexible interpretation of evidence, which is the only application brought to case study methodology and interpretation in this article—no formal application of fuzzy logic is attempted. As far as I am aware, there have been no attempts to apply fuzzy logic to case studies. Detailing such an explanation and application is beyond the scope of this article. What does follow, as a result of applying this logical perspective, however, is that an expanded set of problem-specific measurement models, as well as the assumptions associated with them, can be brought to the examination of case studies.

Preliminary Considerations: Problem Representation

When the reader examines a case study report, he or she should be able to find early in the article a clear statement of the conceptual underpinnings of the case. Further, the reader should be able to determine readily how this conceptual issue was translated into a researchable question or issue or into a series of questions or issues.

An aside may help to anticipate some counterargument. Some researchers may be tempted to argue that having a problem representation is outside the paradigm they are employing to conduct their investigation. At the point of submitting the case study report for publication, however, my argument is that the process of conducting the research is no longer germane. Each case study researcher or research group can argue in favor of any particular tradition that is congruent with their world view, with the caveat that they apply the method in question rigorously.

By the time the report is published, however, the reader must be able to discern both the fundamental conceptualization of the case and to identify questions or issues under investigation that are derived from it. The match between the conceptualization and its translation, the problem representation, must be congruent. Both Merriam (1988) and Yin (1994) make similar suggestions, although expressing this notion somewhat differently. Yin, for example, highlights the importance of ensuring that questions and research goals correspond, arguing that this correspondence must be addressed before conducting the research.

The following example illustrates problem representation. Suppose researchers claimed that they were exploring autism in the context of a family. In selecting participants, however, they included only mothers. By arguing that mothers represent the viewpoints of the family, a problem representation mismatch results as part of the family context is ignored. If on the other hand all family members (mother, father, any siblings, and the autistic individual himself or herself) are included, there is a higher probability of a conceptual and logical match. Simply including all possible participants does not, of course, ensure a full problem representation; other logical and logistical considerations must be taken into account. The fundamental feature of problem representation, however, is a clearly delineated match between the research question or problem and the researcher's original intent in posing that question or problem. Thus the reader needs to search to determine if there is an intent-question(s)/problem(s) match.

A second feature that the reader might apply to problem representation in some cases is related to the nature of the work undertaken. The longer the time frame over which the case study is conducted, the more difficult it will be to ensure problem representation, and the more carefully the reader must search for the degree to which the researcher(s) addressed this issue. Although there may be congruence between the question(s) and the intent posed at the outset of the study, the question(s)-intent may not equate over time. That is, in posing a question or questions that are investigated longitudinally, the intent-question(s)/problem(s) match may need to be modified to take into account potential changes in participants or the specific dynamics of the proposed study (e.g., context, location, participant descriptors).

In summary, problem representation is instrumental to the clear formation of a logically stated and conceptually clear research formulation. Further, as a subsequent consideration to problem representation, the logistics of the research endeavor need to be articulated: at a minimum this must be completed by the time the case report is complete, although my personal preference is for a much earlier clarification. Thus at least by the time of the case-based research report, it must be clear to the audience how "What was the purpose of the research?" was translated into "How was the research done?"

Evidence Collection and Interpretation

The next logical step is for readers to evaluate how the evidence was collected. To determine if the case study is believable, the reader at the time of publication needs to be provided with sufficient information to be able to determine if the evidence has been reported in a systematic and thoughtful manner to ensure that it is both accurate and meaningful. To make this judgment, the reader—again regardless of how the researcher's evidence was collected and interpreted—should be able to resolve the following issues.

The sources of evidence, how it was collected, and the rules of evidence that were applied must be addressed. The reader needs to have a clear sense of the sources of information used as a basis of the published work. This should include, for example, a description of the setting where the case study was conducted. In addition, the reader should be able to find a clear statement of how evidence was collected, processed—transcribed, for example—and incorporated into the writer's theoretical perspective. If, for example, head notes are treated as

evidence that is incorporated into the evidential basis of the reported case, then this dictum must be revealed.

Evidence verification or confirmation procedures should be obvious to the reader. The reader should check three major issues relating to convincibility and generalizability—not all of which as a function of the stated purpose of the case study will be addressed in any specific article. First, the issue(s)/problem(s)/context(s) to be investigated need to be represented in a conceptually clear manner so that any reader will find them convincing. Second, evidence should be provided that the collected information has been verified; that is, the researcher(s) must have taken steps to ensure that the informants' intent has been captured in the collected evidence. There is one exception to the suggestion that verification procedures must be in place. In the rare case that verification will be in direct conflict with the problem representation of the case study while the evidence is being collected, this procedure can either be omitted or delayed.

Third, the researcher(s) should provide evidence that the case has been conducted in a manner that is consistent with the principles of trustworthiness—in particular, the type and extent of triangulation and the presence of an audit trail should be documented, as described by Lincoln and Guba (1985) or, stated differently, the criteria for internal and external validity as explicated by Yin (1994) are met.[2]

The reader needs to be able to determine how the evidence has been interpreted, conclusions reached, and/or judgments made. This is perhaps the point where the case study reader needs to exercise the greatest degree of caution in deciding how believable any case report is. Due to the considerable variation in possible approaches to case studies and more generally qualitative research, the reader cannot predict what will be presented in any case study. Regardless of the approach to evidence taken, however, the researcher(s)[3] has/have an obligation to unfold how evidence is interpreted. Further, the reader should be informed as to what degree the evidence presented is representative of informants' viewpoints as opposed to being more representative of the researcher's head notes.

Case Reports

In the final phase of case study research, the researcher must, in my view, try to move beyond his or her perspective so that a reader can unfold the relationship between the researcher's perspective and the evidence collected for the current case.

The dilemma in reading many case studies is that it is not clear how the portrayed evidence was selected for inclusion in the case report. It is possible to select evidence to correspond with the claims that the author wishes to advance, as may be the case in the head note evidence-incorporation approach to case studies. Alternatively, the author can choose to present representative illustrations of the obtained information. In either approach, to increase the believability of the case study the underlying assumptions must be revealed.

In order to meet the latter goal, the following three approaches to case study reporting illustrate some of the techniques that assist readers to make sense of reports.

Graphical or visual approach. Illustrative graphs or other pictorial representations that provide important information about the design or context of the study can be helpful to the reader. For example, Valencia and Au (1997) provide helpful graphs to show the characteristics of the locations of the case studies they conducted. Although the specific information presented will vary as a function of the case study conducted, information on the context in which the case study was conducted—for example, describing key community location characteristics such as population size, ethnic diversity, or social-economic conditions—or a description of the characteristics of the participant(s), such as who took part in the case (e.g., volunteers), how typical or atypical are these participants (perhaps in relation to a population), nature, and type of experience (work or personal) each participant brings to the case—may clarify the case background for the reader.

More generally, Miles and Huberman (1984) describe a qualitative data analysis procedure that provides the reader with a picture of the increasing abstractions starting with a synopsis of the original evidence known as a dendrogram. More recently, some authors (Bachor & Baer, 2000; Scanlan, Stein, & Ravizza, 1989; Shulha, 1999) have quantified dendrograms to some degree, which allows the reader to determine quickly the typicality of the evidence being reported.

Ratios. To permit the reader to judge the evidential basis of a case study, I have suggested that a ratio can be computed (Bachor, 2000; Davis & Bachor, 1999). This ratio is the number of times a point is raised within a theme divided by the total number of points raised within each theme. To illustrate with a general example, if the theme of a response to a question was "male-female relationship issues" and there were a total of 12 respondents, 12/12 would mean that all respondents had made salient remarks about this theme. Next, quotes that best illustrate each of the reported themes would be selected.[4] In this illustration, one or two representative quotes would be selected from these 12 responses.

Portraits. A common suggestion for reporting case studies is to construct a portrait. The advantage of this technique is that is that portraits "allow us to look at the world through the researcher's eyes, and, in the process, to see things we might not otherwise have seen" (Donmoyer, 1990, p. 196). Hill (2000) noted that portraits could be thought of as providing multiple lenses on selected illustrative cases. She suggested that portraits do not have to be construed as "unitary, essential and universal, but rather ... [can be employed] ... to attempt to explain in more detail through these portraits how multiple, competing discourses impact on ... [the selected cases], sometimes in unexpected and unintended ways" (p. 268). By following Hill's suggestion, the drawback of "romanticis[ing] ... individuals and thus reify[ing] notions of a unitary subject/hero" (Munro, 1998, p. 12) can be avoided.

Although designing portraits does provide condensed shapshots of a set of cases, I believe that further caution is necessary to unfold the nature of the evidential basis of portraits before confidence can be placed in the conclusions drawn from them. For example, Baker and Zigmond (1995) present an interesting variation on a portrait in which they combine cases to present a composite of special education teachers' practice. In another example, Hill (2000) presents

well-thought-out portraits of teachers' visions of their assessment practices. In neither case illustration, however, is it clear how the illustrative quotes were selected. Combining portraits with the ratio procedure suggested above is one procedure that will address this issue, which will in turn increase the confidence that can be placed in the conclusions drawn from the evidence.

Thus if the goal is to generalize, it is necessary for the author(s) to reveal to the reader the evidential base around which conclusions are based. There are a number—three are suggested in this section—of ways of accomplishing this step. Primarily, however, it must be obvious to the readers how conclusions were drawn from the incorporated evidence.

Conclusion

Case studies have reemerged as a popular technique to convey an in-depth examination of some evidence associated with an individual, a composite, or other aggregate. With this popularity, however, the scrutiny brought to case studies has increased, and in some instances dissatisfaction with the transparency of the finished report has resulted. For example, in the United States the National Science Council apparently is reluctant to recommend funding for research that incorporates case study methodology. Thus in this article, I argue that a reader's perspective must be taken if case study reports are—and more generally case study research is—to be seen to have credibility. In sum, it is argued that the researcher must unfold his or her perspective and clarify how evidence has been interpreted so that the reader can determine if the case study as published has integrity.

Notes

1. Head notes are typically used to refer to the information that researchers have in their head that inform how they view and interpret any problem or issue and the accompanying research evidence. Head notes stand in contrast to field notes, which represent the informant evidence only. The basis of head notes can be derived from Strauss (1987) who describes "'data in the head' (whether experiential or from previous studies) that eventuates in so-called hunches, insights, and very provisional formulations of hypotheses" (p. 12).
2. There is some debate about the degree to which this latter criterion should be applied to all types of cases. When researchers are offering an explanation or shifting to theory-building, there is no debate; the principles of trustworthiness are to be applied. When the purpose is to describe or to explore some topic, readers should be aware that there may be circumstances in which these criteria can be relaxed. In such cases the researcher should provide a rationale for not following these procedures.
3. Researchers can make a number of choices when interpreting evidence to help the reader follow their perspective, such as using computer-based interpretations like Atlas/ti (Muhr, 1997), using constant comparison (Strauss & Corbin, 1990), or following a procedure that emphasizes contextual quotations and head notes (Kvale, 1996; Strauss, 1987). The selected procedure will, of course, vary as a function of perspective and is not limited to the above exemplars.
4. Kvale (1996) offers some well-thought-out guidelines for reporting interview quotes. He argues that only the best quote should be selected for any representative subtheme. Generally, I concur with this recommendation except when there are subtle differences in the source material that illustrate informants' points of view. Thus I have suggested one or two quotes be selected for each subtheme.

References

Abramson, P.R. (1992). *A case for case studies: An immigrant's journal*. Newbury Park, CA: Sage.

Bachor, D.G. (2000, May). *Rethinking case study research methodology*. Paper presented at the Special Education National Research Forum, Helsinki.

Bachor, D.G., & Baer, M.B. (2000, May). *An examination of pre-service teachers' portfolio diaries*. Paper presented at the annual meeting of the Canadian Society for the Study of Education, University of Alberta, Edmonton.

Baker, J.M., & Zigmond, N. (1995). The meaning and practice of inclusion for students with learning disabilities: Themes and implications from the five cases. *Journal of Special Education, 29*, 163-180.

Ballard, K., Bray, A, Shelton, E.J., & Clarkson, J. (1997). Children with disabilities and the education system: The experiences of fifteen fathers. *International Journal of Disability, Development and Education, 44*, 229-241.

Barrett, M. (1991). *The politics of truth*. Cambridge, MA: Polity Press.

Bassey, M. (1999). *Case study research in educational settings*. Milton Keynes, UK: Open University Press.

Callahan, S. (1996). *Using portfolios for accountability: The ethic of care collide with the need for judgment*. Paper presented at the Annual Meeting of the Conference on College Composition and Communication, Milwaukee. (ERIC Document Reproduction Services No. ED 397 419)

Campbell, D.T., & Stanley, J.C. (1966). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand McNally.

Davis, T.M., & Bachor, D.G. (1999, June). *Case studies as a research tool in evaluating student achievement*. Paper presented at the Canadian Society for Studies in Education Conference, Sherbrooke.

Donmoyer, R. (1990). Generalizability and the single case study. In E.W. Eisner & A. Peshkin (Eds.), *Qualitative inquiry in education: The continuing debate* (pp. 175-200). New York: Teachers College Press.

Greenwood, G.E., & Parkay, F.W. (1989). *Case studies for teacher decision making*. New York: Random House.

Hill, M.F. (2000). *Remapping the assessment landscape: Primary teachers reconstructing assessment in self-managing schools*. Unpublished doctoral dissertation, University of Waikato, Hamilton, New Zealand.

Holstein, J.A., & Gubrium, J.F. (1994). Phenomenology, ethnomethodology, and interpretive practice. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 262-272). Thousand Oaks, CA: Sage.

Kazdin, A.E. (1982). *Single-case research designs: Methods for clinical and applied settings*. New York: Oxford University Press.

Kosko, B. (1994). *Fuzzy thinking: The new science of fuzzy logic*. London: Harper Collins.

Kvale, S. (1996). *InterViews. An introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage.

Levinson, D.J. (1978). *The seasons of a man's life*. New York: Ballantine.

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Merriam, S.B. (1988). *Case study research in education: A qualititative approach*. San Francisco, CA: Jossey-Bass.

Miles, M.M., & Huberman, A.M. (1984). *Qualitative data analysis: A sourcebook of new methods*. Newbury Park, CA: Sage.

Munro, P. (1998). *Subject to fiction: Women teachers' life history narratives and the cultural politics of resistance*. Milton Keynes, UK: Open University Press.

Muhr, T. (1997). *Atlas/ti: The knowledge workbench*, version 4.1. Berlin: Scientific Software Development.

Scanlan, T.K., Stein, G.L., & Ravizza, K. (1989). An in-depth study of former elite figure skaters: II. Sources of enjoyment. *Journal of Sport and Exercise Psychology, 11*, 54-64.

Shulha, L.M. (1999). Understanding novice teachers' thinking about assessment. *Alberta Journal of Educational Research, 45*, 288-303.

Spradley, J.P. (1979). *The ethnographic interview*. New York: Holt, Rinehart, & Winston.

Spradley, J.P. (1980). *Participant observation*. New York: Holt, Rinehart, & Winston.

Stake, R. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.

Stenhouse, L. (1988). Case study methods. In J.P. Keeves (Ed.), *Educational research, methodology, and measurement: An international handbook* (pp. 49-53). Oxford, UK: Pergamon Press.

Strauss, A. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.

Strauss, A.L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Vaillant, G.E. (1977). *Adaptations to life*. Boston, MA: Little Brown.

Valencia, S.W., & Au, K.H. (1997). *Portfolios across educational contexts: Issues of evaluation, teacher development, and system validity*. Athens, GA: National Reading Research Center. (ERIC Document Reproduction Service No. ED 402 558)

Whyte, W.F. (1955). *Street corner society*. Chicago, IL: University of Chicago Press.

Yin, R.K. (1994). *Case study research: Design and methods* (2nd ed.) Newbury Park, CA: Sage.