Abstract

There is a growing interest in using a case study approach in educational research where questions of meaning and process can be answered only through understanding the context in which they exist. Unfortunately, most basic research courses do not deal with the case study in any substantive way. Consequently, persons interested in using this approach must become apprentices to someone experienced in the method and/or search out material that will offer them guidance in the use of this method. The purpose of this article is to review selected materials on the case study so that readers can access sources most relevant to their needs. The following three topics are addressed in this review: (1) characteristics of, and philosophical assumptions underlying, the case study; (2) the mechanics of conducting a case study; and (3) concerns about reliability, validity, and generalizability in using the case study method.

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THE CASE STUDY IN EDUCATIONAL RESEARCH: A REVIEW OF SELECTED LITERATURE

Case study has a long history of use in medicine, law, anthropology, political science, psychology, and social work. More recently, education has recognized the advantage of using a case study approach for better understanding the process or dynamics of certain aspects of practice. All levels of education — preschool through adult — contain many questions that might best be dealt with by the case study approach.

Typically, a person becomes aware of some event or situation that is puzzling or problematic. From a research perspective, some situations cannot be adequately understood or explained by merely describing relationships within the problem area or by isolating and manipulating particular variables. The case study is one research approach that allows for a level of understanding and explanation not possible through conventional experimental or survey designs. Unfortunately, most basic research courses do not deal with the case study in any substantive way. Persons interested in using this approach must apprentice themselves to someone who has experience with the method, and/or search out materials that will offer them guidance in the use of this method. Furthermore, the literature on case study is scattered across many disciplines, and much time can be wasted searching for selections that address one's specific questions. The purpose of this article is to review selected materials on case study as a research methodology and thereby aid readers who are interested in searching for resources that pertain to this method.

In selecting literature for this review, an attempt was made to find articles and books that addressed both the case study as a research method in general and the case study as a research strategy applicable to educational problems in particular. To this end a computer search of ERIC was conducted to supplement general research texts and articles. Many of the ERIC citations were of case studies of particular school systems or issues, such as integration. These sources were scanned for discussions of the case study methodology employed in the investigation. The literature for this review, therefore, comes from a wide range of sources including journal articles, method-

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ology sections of research reports, chapters on case study in research texts, and recent texts on qualitative or naturalistic inquiry. Out of approximately 75 selections read in preparation for this review, 54 were found to be helpful in addressing one or more of the following topics: (1) characteristics of, and philosophical assumptions underlying, the case study; (2) the mechanics of conducting a case study; and (3) concerns in using the case study.

Characteristics of the Case Study

Overall, few sources have looked at the case study as a research method distinguishable from other qualitative research strategies. The case study is, more often than not, embedded within discussions of qualitative research and naturalistic inquiry, and referred to interchangeably with ethnography, field study, or participant observation. Some sources focus on case study's application to a specific field such as science education (Smith, 1982), policy studies (Collins and Rablit, 1978), art education (Elsner, 1979), and evaluation (Wilson, 1979; Milley, 1979).

While some writers make the point that a case study can test theory and employ quantitative data, there is general consensus in the literature that the philosophical assumptions underlying this method are those common to naturalistic inquiry. Several recent books and articles can be cited for discussions of the philosophical differences between the traditional, scientific approach to research and the qualitative or naturalistic orientation. Patton (1980) has a clear discussion of the roots of qualitative research as found in phenomenology, ethnomethodology, and symbolic interactionism. Guba's (1978) monograph on naturalistic inquiry highlights the philosophical differences clearly and concisely. A recent book by Bogdan and Biklen (1982) presents the two paradigms as they emerged historically and as they appear in education today. Articles by Eisner (1979), Rockhill (1982), MacDonald and Walker (1977), Kenny and Grotelueshan (1984), also explore the assumptions underlying case study research.

Rist (1982) focuses his discussion of the use of qualitative strategies in education upon the nature of the problem. Using qualitative methods requires having a problem that lends itself to (1) seeking "A *holistic* understanding of the event/situation/phenomenon" (p. 441), (2) using inductive logic — that is, "the task is to study the specific and build towards the general," (p. 441), and (3) being conducted in a natural setting, rather than one that is contrived or artificial.

Guba and Lincoln (1981) discuss three assumptions that distinguish "scientific" paradigms from "naturalistic" ones: (1) reality is a multiple phenomenon; (2) the inquirer-subject relationship is interactive; and (3) truth statements evolve from an idiographic knowledge base. Similarly, Smith (1982) notes the following common assumptions underlying the use of case study: "the context has great impact on social behavior... the subjectivity of the researcher is not only inevitable but provides the only means of knowing, and control is instituted through multiple perspectives and methods". (p. 628).

Turning to the literature for definitions and characteristics of the case study reveals that most sources first distinguish case study from case work, case method, and case history. *Case work* denotes "the developmental, adjustment, remedial, or corrective procedures that appropriately follow diagnosis of the causes of maladjustment" (Good and Scates, 1954, p. 729). *Case method* is an instructional technique whereby the major ingredients of a case study are presented to students for illustrative or problem-solving purposes. *Case history* — the tracing of person, group, or institution's past — is sometimes part of a case study.

Definitions of the case study are most often expressed in terms of its functions and appropriate uses. Becker (1968, p. 233) writes that the dual aims of a case study are "to arrive at a comprehensive understanding of the groups under study" and to develop "general theoretical statements about regularities in social structure and process." MacDonald and Walker's (1975, p. 2) definition of a case study as "the examination of an instance in action" brings to mind Guba and Lincoln's (1981, p. 371) statement that the purpose is "to reveal the properties of the class to which the instance being studied belongs." Wilson(1979, p. 448) conceptualizes the case study as a process "which tries to describe and analyze some entity in qualitative, complex and comprehensive terms not infrequently as it unfolds over a period of time." Yin (1981a) calls the case study a research strategy that can be distinguished from an experiment or history in its attempt to examine "(a) a contemporary phenomenon in its real-life context, especially when (b) the boundaries between phenomenon and context are not clearly evident" (p. 59).

Several sources discuss different types of case studies. Yin (1981b) writes that case studies explore a phenomenon, describe a situation, or test explanations. Shaw (1978) distinguishes between descriptive and analytical studies. In analytical studies understanding process is as important as describing outcomes. The most thorough discussion of types of case studies can be found in Lijphart's review (1971), which delineates six types. Two types that reflect an interest in the case *per se*, rather than in building theory are atheoretical case studies, which are entirely descriptive, and interpretive case studies which apply theoretical properties to the case in order to better understand the case. Four other types lead to theory building: (1) hypothesis generating case studies; (2) theory-confirming studies; (3) theory informing studies; and (4) deviant case analyses in which a case is selected for study because it deviates from established generalizations. These types of case studies represent the different ways in which theory interacts with method. Drawing examples from political science, Eckstein (1975) provides an even more thorough discussion of the role of theory in case studies.

In summary, it is unfortunate that the literature on case study does not, as a whole, offer a clear notion as to what differentiates this methodology from other research strategies. A case study can test theory as well as build theory, and use data gathering and data analysis techniques common to traditional forms of research. Neither is a case study defined by its focus upon a single social unit. A community is a social unit, for example, and one can survey that unit, conduct an experiment with it, or study the unit's history. A case study differs from other research methods primarily in the nature of the product. The case study results in an intensive, holistic description and analysis of the phenomenon or social unit being studied. It is characterized by what Geertz (in Guba and Lincoln, 1981) calls "thick description."

> Thick description involves literal description of the entity being evaluated, the circumstances under which it is used, the characteristics of the people involved in it, the nature of the community in which it is located, and the like... Thick description also involved interpreting the meaning of such demographic and descriptive data in terms of cultural norms and mores, community values, deep-seated attitudes and motives, and the like. (p. 11a).

Rather than surveying a few variables across many cases, the case study intensively examines the interplay of all variables in order to provide as complete an understanding of the phenomenon as possible. Several methods of collecting data are used to reveal the total picture of the case under study.

Case study shares the philosophical assumptions underlying qualitative research discussed earlier in that it takes place in a natural setting and it strives for a holistic interpretation of the

phenomenon under study. And while the distinctions are minor, case study *can be* differentiated from two other forms of naturalistic inquiry — ethnography and grounded theory. Ethnography which comes from the discipline of anthropology, is "the attempt to describe culture or aspects of culture" (Bogden and Biklin, 1982, p. 35). Indeed, the underlying assumptions and procedures in ethnographic research are identical to those of the case study. Furthermore, the term ethnography has been used by educational researchers in particular, to refer to any study that is qualitative rather than quantitative. What differentiates ethnography from case study is "the framework of culture, whatever the specific definition, as the principal organizational or conceptual tool to interpret data" (Bogden and Biklin, 1982, p. 37). The term ethnography has come to have two distinct meanings. Ethnography is (1) a set of methods or techniques used to collect data, and (2) the written record that is the product of using ethnographic techniques. It is the first meaning of the term that is often used interchangeably with case study. Wolcott (1980) makes the distinction between technique and account clear in the following:

> Specific ethnographic techniques are freely available to any researcher who wants to approach a problem or setting descriptively. It is the essential anthropological concern for cultural context that distinguishes ethnographic method from fieldwork techniques and makes genuine ethnography distinct from other 'on-sit observer' approaches. And when cultural interpretation is the goal, the ethnographer must be thinking like an anthropologist, not just looking like one. (p. 59)

The distinctions between a grounded theory study and case study are even finer than those between ethnography and case study. Grounded theory, developed by sociologists Glaser and Strauss (1967), has as its goal the discovery of theory — theory that is "grounded" in the data. It is an inductive methodology employing qualitative data in a systematic and rigorous manner. The result of this type of study is a substantive theory consisting of categories, properties that illuminate the categories, and hypotheses that provide the links between the conceptual elements of the theory. To the extent that a case study ends in a well-developed theory to be tested, the two methodologies are synonymous. Rarely, however, do case studies result in the level of abstraction sought in a grounded theory study.

Thus, if the final product offers a socio-cultural interpretation of the case, it can be correctly labeled an "ethnography" (Wolcott, 1980); if the final product is a theory and certain techniques were used in building that theory as discussed by Glaser and Strauss (1967), then it is a grounded theory study; if the final product is an intensive, thick description and interpretation of the phenomenon so that the reader understands the "slice of life" (Wolf and Timitz, 1976-77) investigated, it is a case study.

Mechanics of Conducting a Case Study

Graduate study is the most common means of preparing people to do research in their field of interest, and in most graduate programs, most students get some practice collecting and analyzing quantitative data. Unfortunately, few students, in graduate programs of education at least, ever conduct even a small scale investigation that relies upon qualitative data. If this approach is selected for a major research study, the student must become an apprentice to someone who has had experience with the method and/or read about how to do it. This section reviews sources that discuss collecting data, analyzing and interpreting data, and writing the case study.

It is assumed that the "case" to be investigated has been identified before any data are collected. The case is a single, "bounded system" (Smith, 1978) such as an individual, program, community, or process. Its selection is determined by the purpose of the research and the interest

of the researcher. Eckstein (1975) gives a good example of how the unit of analysis changes depending upon the focus of the study. If six general elections in Britain were to be investigated, for example, one could define the case as the election system itself (n = 1), the six elections (n = 6) or the voters (n = 120,000,000).

The data for a case study are gathered through three major strategies: observation, interviewing, and document analysis (Rist, 1982; Yin, 1981b; Gilbert, 1981; Milley, 1979). Extensive discussions of the three major data collection strategies can be found in Guba and Lincoln (1981), Patton (1980), Bogan and Biklen (1982), and Spradley (1979, 1980). Through interviewing participants, observing the phenomenon, or analyzing documents, five types of qualitative data most "relevant" to a case study can be obtained:

1. Form and content of verbal interaction between participants
2. Form and content of verbal interaction with the researcher
3. Non-verbal behavior
4. Patterns of action and non-action
5. Traces, archival records, artifacts, documents (Wilson, 1979, p. 198)

Data gathered through interviews, observation and document analysis are primarily qualitative in nature and it is these data that are used directly to build the intensive, thick description of a case study. Data that is primarily quantitative — test scores, survey responses, attitude measures, and so on, might also contribute to developing the fullest picture possible of the phenomenon under study. Yin (1981b) and others (Guba and Lincoln, 1981; Owens, 1982; MacDonald and Walker, 1977) recommend that a variety of data sources be used to enhance the validity of the findings. This use of multiple data sources — called triangulation (Denzin, 1978) — in part distinguishes qualitative or naturalistic inquiry from traditional forms of research.

While there is much written about the techniques of gathering data, discussions of what to do with the data once they have been collected are not nearly as explicit. Authors of several recent articles (Yin, 1981a; Owens, 1982; Rist, 1982; Smith and Robbins, 1982) stress the importance of analyzing data *while* they are being collected. In this process, called theoretical sampling by Glaser and Strauss (1967), the data help to guide the researcher in further data collection. Owens (1982), however, visualizes the processes of gathering and analyzing data as being overlapping, rather than simultaneous: "Typically, the strategy will emphasize data-gathering in the early phase of the project. Checking, verifying, testing, probing and confirming activities will follow in a funnel-like design resulting in less data-gathering in later phases of the study along with a concurrent increase in analysis-checking, verifying, and confirming" (p. 11). In a recent article, Miles and Huberman (1984) discuss several stages of data analysis in terms of *data reduction*. Several strategies are suggested for reducing data before, during, and after data collection.

Several recent articles discuss the problem of integrating vastly different types of data within the same study. The problem is especially acute in large-scale, multi-site studies where different investigators might be handling survey, interview, observation, and document data. Louis (1982b) reports on a study of seven research and development projects operating in 20 states and serving over 300 schools. Data were integrated in two ways: through continuous and early analysis of all data sources, and transforming unstructured data into a more structured form by coding data according to identifiable variables. She calls this approach an interactive model in contrast to (1) a sequential model in which qualitative data precedes the collection of quantitative data, (2) a parallel model in which the collection of qualitative and quantitative data collection is done

independently but simultaneously, and (3) the fused model where certain features of quantitative data collection, such as testing hypotheses, are fused with qualitative observation and interviews (Louis, 1982a).

Most writers would agree with Shaw's (1978) observation that case study data can be both rich and humdrum, and "to describe the humdrum analytically needs a conceptual framework to catch it in — not to dignify it, not to celebrate it, but to give it meaning" (p. 3). Rist (1982) proposes "no less than seven analytic frameworks... for the organization and presentation of qualitative data." Data can be organized (1) by role of participants, e.g., teacher; (2) by network analysis of formal and informal exchanges among groups, (3) historically, (4) thematically, (5) by resources of an organization, (6) by ritual and symbolism, and (7) by critical incidents "that challenge or reinforce the fundamental beliefs, practices, and values of an organization" (p. 446).

Whatever the analytical scheme one uses to organize data, the main purpose of such a framework is to make sense out of the data — to look for patterns among the data, patterns that give meaning to the case under study. Barton and Lazarsfeld (1964) discuss different types of qualitative analysis ranging from simple procedures involving single observations to complex encompassing "a great number of dimensions" (p. 164). Several sources discuss step-by step procedures for handling data in qualitative research. Bogdan and Biklen (1982) discuss the development of "coding categories:"

> As you read through your data, certain words, phrases, patterns of behavior, subjects' ways of thinking, and events repeat and stand out. Developing a coding system involves several steps: You search through your data for regularities and patterns as well as for topics your data cover, and then you write down words and phrases to represent these topics and patterns. These words and phrases are *coding categories*. They are a means of sorting the descriptive data you have collected... so that the material bearing on a given topic can be physically separated from other data. (p. 156)

Guba and Lincoln (1981, p. 93) write that, although the process of categorizing is "highly intuitive," there are useful steps one can take in "converging" raw data. Looking for "recurring regularities" in the data is one step. These regularities form tentative categories — categories that are then tested for their internal homogeneity and external heterogeneity. The categories are "fleshed out" until the data are exhausted or until the categories become "saturated" — that is, new data are redundant. Glaser and Strauss (1967) also discuss the notion of saturation of categories.

Gathering and analyzing data for the case study still leaves one important task — the writing of the case study. Guba and Lincoln (1981) note the lack of adequate guides for constructing a case study, and they suggest one learn it by apprenticeship, by reading numerous case studies, and by practising writing case studies. Patton (1982) writes that "the case study should take the reader into the case situation, a person's life, a group's life, or a program's life...making accessible to the reader all the information necessary to understand that person or program" (p. 304). He presents a comprehensive outline for writing an evaluation case study (pp. 341-2).

The most troublesome issue in writing a case study report is determining the right combination of description and analysis; the literature reveals differing opinions concerning the proper balance. Some feel the report should be largely descriptive leaving the reader to interpret the findings (Baker, 1968; Owens, 1982); others call for a report that is heavily analytical (Rist, 1982; Yin, 1981a).

Closely related to this concern is what Wilson (1979) identifies as a problem of usefulness.

"The logic of *writing* a case study," he observes, "may not match the logic of usefulness to the reader. Any given reader will want more detail about perspective and action of particular kinds of actors... than would make sense in the overall study" (Wilson, 1979, p. 450). Wilson suggests that researchers prepare "specialized condensations" for appropriate groups and/or hold "debriefings for potential users" (p. 457). Other suggestions in the literature include replacing the narrative with "a series of answers to a set of open-ended questions" (Yin, 1981a; p. 64), writing for the reader who skims, presenting summaries at the beginning of each section and headings that encapsulate the information (Smith and Robbins, 1982), preparing analytic summaries with supporting data in appendices (Rist, 1982), and creatively displaying the data in graphic representations (Miles and Huberman, 1984).

To summarize the literature on conducting a case study, it is evident that certain areas of the process are better delineated than others. There is a vast amount of information on the major data collection techniques of interviewing, observation, and document analysis. These discussions can be found not only in books and articles on case study, naturalistic research, and ethnography, but in many standard research texts as well. The tasks of reducing and analyzing or interpreting data gathered are not as well covered, but several recent texts offer helpful discussions and give numerous examples. Finally, few sources touch upon how one goes about actually writing a case study. Rather, attention is usually directed toward questions of report length, audience, and the issue of description versus analysis.

Concerns in Using a Case Study Method

Employing a case study methodology necessitates confronting the issues of validity, reliability, and generalizability. These issues can be more easily explored through first reviewing a case study's strengths and limitations.

The case study offers a framework for investigating complex social units containing multiple variables. Grounded in a real life context, the case study as a holistic, life-like account offers insights and illuminates meanings that expand the experiences of its readers. Because of the focus on context, one researcher has suggested that it is a particularly good means of studying knowledge utilization (Yin, 1981b). Collins and Noblit (1978) advocate its use for policy study:

> Field research better captures situations and settings which are more amenable to policy and program intervention than are accumulated individual attributes. Second, field studies reveal not static attributes but understanding of humans as they engage in action and interaction within the contexts of situations and settings. Thus inferences concerning human behavior are less abstract than in many quantitative studies, and one can better understand how an intervention may affect behavior in a situation.... Field studies are better able to assess social change than more positivistic designs, and change is often what policy is addressing. (p. 26)

Finally, several writers underscore case study's usefulness in educational evaluation (Guba and Lincoln, 1981: Patton, 1980, Wilson, 1979).

Inherent in the special features of the case study — the investigator as primary instrument, flexibility, rich description, and so on — are some of the methodology's limitations. Much depends upon the sensitivity and integrity of the investigator during data gathering and analysis (Owens, 1980) and there are numerous ethical issues in the writing and dissemination of a case study (Miles, 1979). Other problems relate to the lack of guidelines and the lack of training in selecting a case and identifying its boundaries, analyzing data, and writing the case report (Miles, 1974; Wilson, 1979; Guba and Lincoln, 1981; Milley, 1979; McKinney, 1980; Becker, 1968).

Case studies may also be time consuming and costly. In a very thought-provoking discussion on applying a case study methodology to an educational setting, MacDonald and Walker (1977) note the many subtle political ramifications. For example, "educational case-studies are usually financed by people who have, directly or indirectly, power over those studied and portrayed" (p. 187). In addition,

> At all levels of the system what people *think* they are doing, what they *say* they are doing, what they *appear* to others to be doing, and what in fact they *are* doing, may be sources of considerable discrepancy.... Any research which threatens to reveal these discrepancies threatens to create dissonance, both personal and political. (p. 186)

Those factors, such as investigator as instrument or thick description, which can be construed as either strengths or limitations lead to concerns of validity and reliability. Researchers and users alike are concerned with the credibility, believability, or "adequacy" of the case study. Guba and Lincoln (1981) make the point that the same question about adequacy can be asked of any other type of research:

> The answer is the adequacy of its components. It is difficult to talk about the validity or reliability of an experiment as a whole, but one *can* talk about the validity and reliability of the instrumentation, the appropriateness of the data analysis techniques, the degree of relationship between the conclusions drawn and the data upon which they presumably rest, and so on. In just this way one can discuss the processes and procedures that undergird the case study — were the interviews reliably and validly constructed; was the content of the documents properly analyzed; do the conclusions of the case study rest upon data? The case study is, in regard to demonstrating rigor, not a whit different from any other technique. (p. 378)

Several writers (Campbell, 1975; Foreman, 1948; Reichardt and Cook, 1974) deal with the philosophical assumptions underlying notions of validity and reliability. Scriven (1972) in an article titled "Objectivity and Subjectivity in Educational Research," for example, points out that "objective" is often equated with reliable and factual, while "subjective" means unreliable and biased. Something is considered objective — hence reliable — when a number of subjects or judges experience it. However, all reports of personal experiences are not necessarily unreliable any more than all reports of events witnessed by a large number of people are reliable or objective. An audience's account of a magician, for example, would not be as reliable as the individual's who watched the show from backstage.

Most sources on case study and qualitative research offer suggestions to improve credibility of case study findings. Owens (1982) discusses six techniques that are "in harmony with the basic assumptions of naturalistic paradigms" (p. 14). They are:

1. Prolonged data-gathering on site.
2. Triangulation — using a variety of data sources.
3. Member checks — corroborating the interpretation of the data with those who provided the raw data.
4. Collect referential materials — needed "for a file of materials from the site that relate to findings and interpretation" (p. 18).
5. Develop thick description.
6. Engage in peer consultation (pp 14-15).

Consulting with peers or colleagues can be done informally or in a more structured mode. Foreman (1948) suggests using independent investigators "to establish validity through pooled judgment" (p. 413). This process is facilitated if the investigator has taken time to leave "a chain of evidence" (Yin, 1982, p. 91) that reveals to readers how conclusions were drawn from the data.

Guba and Lincoln (1981) call this an "audit trail." The trail should be detailed enough (1) to allow an external auditor to ascertain the credibility and reasonableness of the findings, and (2) to "make it possible to reproduce the study at another time" (Owens, 1982, p. 3).

Several sources point out that certain case study designs use standardized measurement and sampling procedures to enhance validity and reliability. Within a single case one can employ what McClintock, Brannon and Maynard-Moody (1974) call a case cluster method. Here a unit within a case — students within a program, for example — could be randomly sampled and that data treated quantitatively. The other possibility is to select many cases to study the same phenomenon. This is called a cross-site (Miles, 1977; James, 1981; Huberman and Crandall, 1982), or multiple case (Yin, 1981b; Burlingame and Geske, 1979) or case survey (Yin and Herals, 1975) design.

Overall, the literature squarely confronts issues of reliability and validity and suggests creative ways of insuring for both. Scrupulous attention to how the data are collected and analyzed and then verified underlies the various techniques discussed. In addition, most writers suggest that qualitative research should be judged as "credible" and "confirmable" rather than using traditional canons of validity and reliability (Miles, 1979).

The final issue to be discussed — the generalizability of case study findings — is the subject of much debate in the literature. The discussion centers on whether one *can* generalize from a single case, and if so, in what way? Some sources assume that one cannot generalize from a case study and count that fact as a limitation of the method. Other writers dismiss the notion of making generalizations as inappropriate to research in the social sciences and draw upon Cronbach's classic discussion of how generalizations break down or decay over time even in the "hard" sciences (Cronbach, 1975).

Easley (1982) compares the nature of generalization in social science with generalization in physical science. They are similar he writes, in that

> The person who does the research and the person who studies the research report carefully gain a kind of intuitive awareness of the interaction involved which they can use to recognize similar cases later. That is exactly what happens when one masters physics and learns Newton's laws and finds that there are tests of everyday applications of f = ma... that's the generality we want — the ability to see a particular process, mechanism, relation, or whatever in the world around us. (p. 200)

Most writers, however, choose to view generalization in naturalistic inquiry as something different from generalization from a sample to a population. Stake (1978) contrasts scientific generalization with what he calls "naturalistic generalization," which is "arrived at by recognizing the similarities of objects and issues in and out of context and by sensing the natural covariations of happenings.... They seldom take the form of prediction but led regularly to expectations. They guide action, in fact they are inseparable from action" (p. 6). Edgar and Billingsley (1974) propose a "logical rather than statistical basis for generalization" and write that "in many cases generalization may, in fact, be more readily made from N = 1 studies than from large N studies due to the opportunity for more accurate delineation and precise control of relevant S characteristics" (p. 153). As if in support of this position, Dukes (1965) in an interesting article titled "N = 1" gives numerous examples of how research involving only one individual has advanced the field of psychology. He also presents a convincing rationale for N = 1 investigations.

Two other writers (Wilson, 1979; Kennedy, 1979) approach the concept of generalization from the point of view of the user or reader of case study findings. Wilson proposes "a continuum of usefulness starting within the setting where the information was gathered and stretching to dissimi-

lar settings'' (p. 454) because ''generalizability is ultimately related to what the reader is trying to learn from the case study'' (p. 455). Kennedy feels that the researcher need not be concerned with generalizing — ''it would be made by those individuals who wish to apply the findings to their own situations'' (p. 672). She points out that leaving generalization up to the practitioner is a common practice in both law and medicine.

Thus there are several thoughtful discussions in the literature on the notion of generalizability and how it functions in naturalistic forms of inquiry such as the case study. The literature suggests that rather than transplanting statistical, quantitative notions of generalizability and thus finding qualitative research inadequate, it makes more sense to develop an understanding of generalization that is congruent with the basic characteristics of qualitative inquiry. If one also applies this rationale to questions of validity and reliability, the case study with its strengths and limitations becomes as viable a method of research as any other strategy.

Case Study Literature — Concluding Observations

Despite its long history of usage in many fields, as yet there is no full-length treatment of the case study as a research methodology, nor has there been much written about its applicability to education. Several recent books on qualitative research or naturalistic inquiry offer detailed discussions of the assumptions underlying qualitative research and appropriate data gathering techniques. Such sources would be most helpful to anyone considering using a case study approach. These texts do not, however, adequately, if at all, differentiate case study from ethnography, grounded theory, qualitative evaluation, or participant observation.

Articles and reports that address the case study as a research methodology are widely scattered and often discipline-specific. This review does not pretend to be inclusive with regard to these articles. An effort was made to focus on those articles that dealt with the case study in education. Education-focused articles are either case studies of particular programs, or, as in adult education, issue specific (Rockhill, 1982; Fingeret 1983). Thus, if the literature available is any indication, case study in education does not yet have a strong identity separate from other qualitative or naturalistic forms of research. This lack of identity may be due to several reasons: (1) qualitative research approaches are relatively new to the field of education; (2) case study is not associated with one particular field such as ethnography is with anthropology and so not well developed; (3) as yet there is no single definitive work on the topic in contrast to other methodologies Glaser and Strauss' book (1967) on grounded theory, for example.

To conclude, several observations can be made about the resources on case study that were reviewed for this article:

— There are some excellent discussions of the philosophical assumptions underlying the case study. There are also numerous sources one can read for detailed descriptions of the three primary data collection techniques of interviewing, observation, and document analysis. A few articles touch upon the integration of these three techniques such as surveys (Louis, 1982b; Louis, 1982a; Yin and Herald, 1975; Jick, 1979; Milley, 1979).

— The literature on case study falls short in offering guidelines for analyzing, coding, and interpreting data, perhaps because the process is, by its very nature, idiosyncratic. Likewise, it is not clear from the literature how one *writes* a case study. Questions of length, audience, ethics, and the balance between description and analysis need more thought and discussion.

— There is little consensus as to how to deal with questions of validity, reliability, and generalizability. Writers assume postures from apologist to the scientific world, to defender of new ways of interpreting these questions.

— The risks and payoffs of case study as compared to other methodologies have not been investigated.

— Criteria need to be developed by which to measure the impact of this type of research upon practice.

While more discussion of the above issues needs to be undertaken, and better resources and guidelines need to be developed, it is this writer's opinion that the available literature provides an adequate base for those interested in using the case study. The sources discussed in the "Mechanics of Conducting a Case Study" section of this review if used in conjunction with the examples of actual case study narratives would provide at least a starting point for someone new to this type of research. It seems clear, however, that the process of conducting a case study is perhaps more art than skill, the success of which is somewhat dependent upon the sensitivity, tolerance, and flexibility of the investigator. Apprenticeship may in fact be the best way to learn how to do a case study, which is perhaps why the literature as yet does not have highly systemitized procedures for a novice to follow. Reactions to a first experience with the case study methodology typically range between frustration and delight as attested to in the following:

> Despite intensive preparation for the study, I was surprised by a number of my reactions to the methodology. One was my conviction about the accuracy and validity of the results; in other words, my belief that any other researcher could confirm or authenticate the findings. Other unexpected reactions related to the tremendous memory load and the constant demand to record the manifold aspects of each observation session, interview, and experience. In addition, I struggled with a variety of personal responses that were contained in the 'insider/outsider' conflict: the agony of trying so hard to 'see as others see' that those perceptions became a part of you; the loneliness of denying yourself response by personal contribution and therefore missing a genuine sense of sharing; the distastefulness (to me) and the strain of forever manipulating people and strategizing to obtain new information or to confirm ideas and interpretations that are already suspected. (Malcolm and Welch, 1981, p. 67-68)

Even though case study methodology suffers from definitional problems and is not always clearly distinguishable from other qualitative research, it nevertheless offers a means of investigating questions important to education. The growing interest in using case study in educational research reflects the need on the part of practitioners and researchers alike to deal with questions of meaning and process that can best be answered by understanding the context in which they exist. Continued use and increasing familiarity with case study methodology should lead to future clarification of some of the issues that now characterize the literature.

Résumé

On s'intéresse de plus en plus à l'étude de cas comme méthode de travail en recherche pédagogique dès qu'il devient difficile d'apporter des réponses à des questions de signification et de processus sans se référer aux situations dans lesquelles elles se posent. Malheureusement, la plupart des cours en recherche ne traitent pas de cette méthode de façon systématique. Les chercheurs qui songent à l'utiliser doivent donc se mettre en apprentissage auprès de quelqu'un qui en fait l'expérience ou chercher des écrits qui les éclaireront sur son utilisation. Le présent article a comme objet de faire une recension de matériaux choisis sur

l'étude de cas afin de diriger les lecteurs vers les sources les plus pertinentes à leurs besoins. La recension aborde trois sujets: (1) les caractéristiques de la méthode en cause et sa philosophie sous-jacente; (2) comment mener une étude de cas; et (3) des questions touchant la fiabilité et la validité de cette méthode et la possibilité d'en généraliser les résultats.

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