The Case Study Crisis: Some Answers•

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In his *ASQ* article entitled "Qualitative data as an attractive nuisance," Matthew Miles (1979) has written a disarmingly candid rendition of the perils of qualitative analysis. Unfortunately, his candor in admitting the existence of these perils was matched by few suggestions for overcoming them. As a result, his article, based on a four-year study of six public schools, leaves the reader with a sense that qualitative analysis — and its implicit companion, the case study — cannot yet be regarded a rational, much less scientific venture.

Miles' principal problems were that: (a) within-case analysis was "essentially intuitive, primitive, and unmanageable" (1979: 597), (b) cross-case analysis was "even less well formulated than within-site analysis" (1979: 599), and (c) respondents objected to case study results much more frequently than to survey results, either threatening the research team with legal suit or attempting to rewrite history in order to appear more favorably in the case study (1979: 597). In conclusion, Miles states that, without renewed efforts at methodological inquiry, "qualitative research on organizations cannot be expected to transcend story-telling" (1979: 600).

The Miles article cannot be taken lightly. A well-respected researcher, frequently cited for one of the earliest contributions to the study of organizational innovation, Miles (1964) has indicated that there are grave problems with our craft. Furthermore, he leaves little hope for the immediate future, because the needed methodological research could require a decade or two (or three). Under these circumstances, what are the students of case study research to think? Indeed, what are the *funders* of social science research to think as they review new proposals for case studies? If Miles is correct, why should there be any further support for case studies as a research and development activity? These are the questions that raise the spectre of a case study crisis, and these are the questions that require some answers.

The purpose of this reply is to reaffirm the role of the case study as a systematic research tool. Although major improvements in case study research are still to be made, the goal is to show that an acceptable craft has already emerged.

What is a Case Study?

Miles began with a discussion of the advantages and disadvantages of *qualitative data.* However, about one-third of the way into the article, the fact that the research involved *case studies* emerged (1979: 592). Thereafter, the discussion intermingled the two topics and is an example of a frequent confusion regarding types of evidence (e.g., qualitative data), types of data collection methods (e.g., ethnography), and research strategies (e.g., case studies).

First, the case study does not imply the use of a particular type of evidence. Case studies can be done by using either qualitative or quantitative evidence. The evidence may come from fieldwork, archival records, verbal reports, observations, or any combination of these. An example of an organizational case study that combines qualitative with quantitative evidence is the research of Gross et al. (1971); in other examples, case studies have even relied solely on quantitative data, as in

0001-8392/81/2601-0058$00.75

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This material is based in part upon work supported by the National Science Foundation under Grant No. PRA 79–20580.

studies of the economic development of urban areas (e.g., Vietorisz and Harrison, 1970).

Nor does the case study imply the use of a particular data collection method. A common misconception is that case studies are solely the result of ethnographies or of participant-observation, yet it should be quickly evident that numerous case studies have been done without using these methods (e.g., Allison, 1971). Conversely, using these methods does not always lead to the production of case studies (e.g., the ethnographic and observational research on police behavior by Reiss, 1971; Rubenstein, 1973; and Van Maanen, 1979; none of which had typically been designed as case studies).

What the case study does represent is a research strategy, to be likened to an experiment, a history, or a simulation, which may be considered alternative research strategies. None of these other strategies is linked to a particular type of evidence or method of data collection, either. To cite two contrasting examples, there are some experiments — e.g., in biology and neuroanatomy — that use qualitative evidence and for which statistical analysis is irrelevant; at the same time, the field of history has been increasing its use of quantitative indicators (e.g., Furet, 1971). As a research strategy, *the distinguishing characteristic of the case study is that it attempts to examine:* (a) a contemporary phenomenon in its real-life context, especially when (b) the boundaries between phenomenon and context are not clearly evident. Experiments differ from this in that they deliberately divorce a phenomenon from its context. Histories differ in that they are limited to phenomena of the past, where relevant informants may be unavailable for interview and relevant events unavailable for direct observation.

These distinctions among type of evidence, data collection method, and research strategy are critical in defining case studies. Related clarifications also need to be discussed but can only be enumerated here: (1) The different types of case studies that are possible (exploratory, descriptive, and explanatory), (2) The types of research questions best addressed by case studies as opposed to other research strategies (explanations rather than incidence questions); and (3) The types of case study designs (all must cope with the essential problem that, because the context is part of the study, there will always be too many "variables" for the number of observations to be made, thus making standard experimental and survey designs[1] irrelevant).

How Can Within-Case Evidence be Analyzed?

Miles used two strategies to analyze within-case evidence, both of which met with difficulties. First, qualitative data were assembled into traditional narratives, but Miles found this to be a burdensome and unrewarding activity for his fieldworkers (1979: 593). Second, quantitative data were tabulated into 202 categories. Of this experience, Miles reported (1979: 593–594):

> At the beginning we developed an elaborate coding scheme. . . . Fieldworkers, including the coding specialist, hated the job. [Eventually]. . . the coding stopped, and the cards were not used for analysis.

Miles' experiences are typical of those encountered in many case study efforts. Although no easy formula exists, there are

1 McClintock, Brannon, and Maynard-Moody (1979) are correct, however, in noting that these designs may be used for some subportions of a case study.

three ways in which these problems of within-case analysis can be reduced.

Distinguishing Note-taking from Narrative-writing. At the outset of any case study, there is an unfortunate tendency for the initial "write-ups" to be based on the *data elements* in the study. Thus, a common occurrence is for analysts to develop well-polished narratives for such items as individual interviews, specific meetings or other major events, logs of daily or weekly activities, and summaries of individual documents or reports.

The pitfall is in spending the inordinate time and effort to construct readable narratives for such data elements,[2] unless a study specifically calls for publishing these materials. Instead, any narrative accounts should be organized around the substantive topics of the case study. Each narrative portion should integrate evidence from different data elements, which therefore still need to be recorded precisely, but in the form of notes rather than narratives.

Two new problems now emerge. Around what topics should a narrative be organized and how should evidence be integrated? Although case studies may often begin with little conceptual framework, the narrative must nevertheless be organized around specific propositions, questions, or activities, with flexibility provided for modifying these topics as analysis progresses. As for integrating evidence, quantitative and qualitative data that address the same topic should be assembled together; similarly, interview segments from different respondents but on the same topic should be integrated (e.g., Jick, 1979; Yin, 1980).[3]

Both of these problems were surmounted in an organizational study that produced over 40 case studies of community organizations (National Commission on Neighborhoods, 1979).[4] The key to organizing the case studies, both in conducting the field inquiry and in writing the final report, was the initial enumeration of about 60 open-ended questions. The fieldworkers had to answer these questions by integrating the evidence they had collected, writing two or three paragraphs in response to each question. Thus, the final case studies resembled comprehensive examinations rather than term papers, and these products were written easily and within the constraints imposed by the commission's small budget.[5]

Tabulating Meaningful Events. A second technique deals with the problems of analyzing quantitative data. Although such data should be integrated with qualitative data throughout a case study narrative, the quantitative data themselves may first need to be coded and tabulated.

The major pitfalls occur when investigators use categories that are too small and too numerous. This situation creates difficulties for the case study analyst, who has neither the training nor the inclination to serve as a mechanical recording device. Thus, one would not code all the elements of a Bales social interaction scale for every person attending organizational meetings, especially where such meetings were only one aspect of a case study. Similarly, many case studies begin with the naive assumption that "anything might be relevant, so one ought to observe and code everything." Indeed, there are phases in the research where such openness is warranted; but these phases

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In fact, some textbooks mislead researchers by asking them to precede the construction of a case study by first writing, in acceptable narrative form, a full "case record" (e.g., Patton, 1980: 303).

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Much more detailed advice needs to be given, but for now the reader is again referred to Gross, Giacquinta, and Bernstein (1971) as one of the best examples of this type of topic-by-topic integration of evidence.

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The author designed the protocols and field guides for the commission's effort.

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Miles does note, in passing, that his project turned to the use of "site summaries" and "site updates," which the field team found more pleasant to produce. One suspects that these documents were organized around integrating themes rather than data elements.

should *precede* any formal coding effort, which would be initiated only when the scope of the study had been scaled down.

Instead, the quantitative data should reflect "meaningful events" in a case study. In one organizational study, for instance, life histories of innovations were the topics of 19 case studies (Yin, 1981). The quantitative data were based on tabulations of different organizational events, which were coded for each case study. Similarly, Pressman and Wildavsky's well-regarded study of implementation (1973) contains one dramatic set of quantitative information: the tabulation of the number of decisions needed to implement a policy. This information was used to support the major thesis of the entire study. Obviously, the determination of what is "meaningful" requires some sense of what the case study is all about. This does not imply a rigid conceptual framework, but the central questions of the case study do need to be identified beforehand. If, during the course of a case study, dramatically different conceptualizations arise, these should then lead to central questions for a new phase of the study, but new evidence may have to be collected.

Building Explanations. A third technique is relevant where case studies attempt to explain a phenomenon. An explanatory case study consists of: (a) an accurate rendition of the facts of the case, (b) some consideration of alternative explanations of these facts, and (c) a conclusion based on the single explanation that appears most congruent with the facts. Some of the best-known case studies in organizational research are of the explanatory variety (e.g., Allison, 1971; Gross, Giacquinta, and Bernstein, 1971; Pressman and Wildavsky, 1973). Thus, Allison's (1971) three models of foreign policy constituted alternative explanations for the facts of the Cuban missile crisis, and one of the models was found more satisfactory than the other two. Similarly, recent case studies of why research is useful (e.g., Yin and Heinsohn, 1980) attempted to compare the facts of a case against several competing models of the research utilization process.

There are no fixed recipes for building or comparing explanations. An analogous situation may be found in doing detective work, where a detective must construct an explanation for a crime.[6] Presented with the scene of a crime, its description, and possible reports from eye-witnesses, the detective must constantly make decisions regarding the relevance of various data. Some facts of the case will turn out to be unrelated to the crime; other clues must be recognized as such and pursued vigorously. The adequate explanation for the crime then becomes a plausible rendition of a motive, opportunity, and method that more fully accounts for the facts than do alternative explanations.

One of the few descriptions of the comparable research task may be found in Campbell (1975), which defends one-shot case studies, a research design that had previously been discredited (Campbell and Stanley, 1966). According to Campbell, the search for an explanation is a kind of pattern-matching process. The process can be applied even if there is only a single case because the pattern must fit multiple implications derived from an explanation or theory.[7] Thus, it is incorrect to judge this situation by the norms of experimental design, which would

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Several social scientists have called attention to this analogy. See, for instance, Truzzi (1976); and Cook and Campbell (1979: 97–98).

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Technically, Campbell claims that the multiple implications from a single pattern (or explanation) create multiple degrees of freedom. This differs from the interpretation of McClintock, Brannon, and Maynard-Moody (1979), who claim that Campbell's goal was to identify micro-units within a single case, for which multiple data points could be assessed. The two views, though different, are not incompatible.

stipulate that a single case study (or even a small group of cases) could never provide a compelling rationale for establishing the importance of a single factor (or variable). An explanation, and not a single variable or factor, is what is being tested, and this accounts for the frequent outcome where:

> Even in a single qualitative case study the conscientious social scientist often finds no explanation that seems satisfactory. Such an outcome would be impossible if [single factors were being tested]—there would instead be a surfeit of subjectively compelling explanations. (Campbell, 1975: 182)

This interpretation may account for the later statement in Cook and Campbell (1979), in which the authors acknowledge that the one-group post-test-only design (still correctly regarded as an inadequate experimental design) is not to be considered synonymous with the one-shot case study (1979: 96). No explanation is offered for that statement, but our hunch is that the authors were beginning to recognize (but could not articulate) that a case study is not a data point that represents only a single observation. In fact, case studies as analytic units should be regarded on par with *whole* experiments, a realization that provides an important insight for cross-case analysis.

How Can Cross-Case Evidence be Analyzed?

Miles complains that there are few guidelines for conducting cross-case analysis. The analyst is caught in ". . . the steady tension between the unique, contextually specific nature of single sites, and the need to make sense across a number of sites" (1979:599). Under such conditions, Miles notes that accurate but thin generalizations across cases are likely to be the only result.

There are two potential approaches to cross-case analysis, though neither is so well-developed to serve as the formal set of rules whose need has been described by Kennedy (1979). The two approaches are a case-survey approach and a case-comparison approach.

The case-survey approach requires two conditions that cannot always be satisfied. First, isolated factors within particular case studies must be worthy of substantive attention; second, the number of case studies must be large enough to warrant cross-case tabulations. When these conditions exist, cross-case comparisons can be made by coding the single factors and establishing cross-case patterns. Illustrative applications have involved aggregations of 269 case studies of urban decentralization (Yin and Heald, 1975), of 140 case studies of urban innovations (Yin, Bingham, and Heald, 1976), and of 25 case studies of research utilization (DiMaggio and Useem, 1979). The Miles project itself attempted to follow this approach, but the results were difficult to interpret because there were only six cases (1979: 598).

In the long run, however, this approach may not be the most desirable. First, the number of factors worthy of examination is often large relative to the number of case studies available, producing a shortage of sampling points for identifying any statistical interaction effects. Second, the extraction of single factors from a case study unduly simplifies the phenomenon being studied. Third, the approach treats case studies as if they were data points, with each case yielding an observation to be

tabulated. For these reasons, the case-survey method should be used in highly selective situations, where, for instance, a critical factor or two appear to be of enormous importance. In contrast, the case-comparison approach is relatively new but is likely to prove more fruitful for cross-case analysis.

The craft of detective work again provides an analogous example. Assume that a detective has already produced a tentative explanation for a single crime (within-case analysis). Now the detective is confronted with another case, where the relevant conditions appear to be similar to those of the first case, and where the detective may be able to use the first explanation and establish that both crimes were committed by the same person. Modification may be necessary in applying the explanation to the second case, and the detective must learn to ignore irrelevant variations from case to case. How the detective carries out this work in (a) constructing an adequate explanation for each case singly, and (b) knowing the acceptable levels of modification in the original explanation as new cases are encountered, may be considered analogous to what confronts the researcher in doing cross-case analysis.

The successful application of this approach is not unlike more generalized theory-building. Thus, for instance, Martha Derthick (1972) reported on seven case studies, each of which was a site in a prominent federal program. When the lessons from each case study were compared, a common explanation emerged, which was used to characterize the problems of federal program implementation. Similarly, a study of 19 life histories of innovations was used to develop a more general model of the institutionalization process (Yin, 1981). In neither of these nor other potential illustrative studies, however, has the case-comparison approach been sufficiently documented to produce a specific set of guidelines for future researchers.

Premature criticism of the case-comparison approach should, however, be tempered by one important observation. In experimental science, the comparable analytic step — i.e., cross-experiment generalizations — has also not yet been reduced to an operational formula. On any number of occasions, an experimenter will conduct multiple experiments on the same topic. These experiments do not necessarily vary by single variables (otherwise they would be "groups" within the same experiment), but may differ along totally different and multiple dimensions (e.g., Latané and Darley, 1969). If we assume that an experiment is equivalent, as a unit of analysis, to a case study, the logic used to bring together a string of experiments is the same as that used to connect a string of case studies. At this time, neither logic has been specified in precise terms. Note, however, that whatever the approach, one does not tabulate the experiments in developing a general explanation or theory; neither should one tabulate the case studies.

Whether the case-survey or case-comparison approach is used, the case study researcher must preserve a *chain of evidence* as each analytic step is conducted. The chain of evidence consists of the explicit citation of particular pieces of evidence, as one shifts from data collection to within-case analysis to cross-case analysis and to overall findings and conclusions (Yin, 1979: *xii*). Most case study research has failed

to establish an explicit chain, and critics can rightfully question how specific conclusions were reached.

How Can Case Studies be Reported?

The typical case study report is a lengthy narrative that follows no predictable structure and is hard to write and hard to read. This pitfall may be avoided if a study is built on a clear conceptual framework. Furthermore, a case study narrative may be replaced by a series of answers to a set of open-ended questions, as previously noted in the Neighborhood Commission study. This is easier to produce, and the reader can usually find the desired information or skim the entire text without difficulty. Or, where cross-case analysis is the major goal of the research, there may be no need for *any* single-case report; such a study might consist of brief summaries of individual cases, followed by the cross-case analysis.

One problem raised by Miles concerned the reactions of informants to case study results. Some informants disagreed with these reports, an outcome that Miles asserts does not occur when respondents are confronted with survey results. This problem, however, should not be attributed to the use of case studies. On the contrary, Miles' example confuses the reactions to individual versus aggregate evidence. In actuality, when survey respondents are given the results of their *own* interview and shown how these results have been interpreted by the researcher, similarly hostile reactions may also occur. Respondents may complain that they were forced to give oversimplified answers because questions were closed-ended, or that the researcher simply misinterpreted the answers. Conversely, reactions by informants may be minimal when they are asked to review cross-case results where case studies have been done. In summary, people are likely to react adversely whenever they are confronted with individualized data, but are likely to be more tolerant when confronted with aggregate data; this set of reactions occurs whether case studies, surveys, or other research strategies are used.

Future Work

This reply to Miles' article has attempted to show that case studies can be conducted systematically. No doubt, much further improvement in case study research is also needed. It is true, too, as Miles found (1979: 595), that the available methodological textbooks emphasize fieldwork and not case study design or analysis, although the most useful text was not cited by Miles: Barzun and Graff's *Modern Researcher* (1977). That text, though directed toward historians, contains some key guidelines for case study researchers. Its main shortcoming is that the emphasis is on historical and not contemporary events, and certain essential analytic steps are not covered. In all, the state of the art is not as impoverished as one might at first think, and case study practice can be dramatically improved by applying what is already known.

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