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# *The Case Study as a Serious Research Strategy*

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*The common stereotype* of the “case study” is that this way of doing research: (1) should be used at the exploratory stages, (2) leads only to unconfirmable conclusions, and (3) is really a method of last resort. This stereotype has been reinforced by virtually every textbook in social science methods.<sup>1</sup>

In spite of the stereotype, case studies paradoxically seem to be appearing with increased frequency. Typical case study topics include: organizational decision-making, community studies, innovative projects, family and individual life histories, economic development, and housing structures and markets.<sup>2</sup> Case studies are even quite commonly found among program evaluation studies (e.g., Kennedy, 1979), even though the standard folklore—again represented by nearly every textbook on program evaluation—would claim such studies to be the sole province of quasi-experimentation.<sup>3</sup> Does this continuing use of case studies mean that we are exploring more, or that we are having to use our last resort more frequently? Or, could it possibly mean that the common stereotype of the case study has been misleading?

Close examination of case study research, including two original investigations of knowledge utilization (Yin and Gwaltney, 1981a), strongly suggests that the stereotype is in fact wrong. Although case studies indeed can be used for exploratory purposes, the approach also

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**AUTHOR'S NOTE:** Requests for reprints should be sent to the author at The Case Study Institute, 1527 New Hampshire Ave. N.W., Washington, D.C. 20036.

*Knowledge: Creation, Diffusion, Utilization, Vol. 3 No. 1, Sept. 1981 97-114*  
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may be used for either descriptive or explanatory purposes as well—i.e. to describe a situation (e.g., a case history), or to test explanations for why specific events have occurred. In the explanatory function, the case study can therefore be used to make causal inferences. To demonstrate this application, the present article describes two recent investigations on knowledge utilization, although the rationale and lessons are applicable to other topics as well (Yin, 1981).

## ***Defining the Case Study***

### ***Case Studies: A Separate Research Strategy***

The need to use case studies arises whenever:

- an empirical inquiry must examine a contemporary phenomenon in its real-life context, especially when
- the boundaries between phenomenon and context are not clearly evident (Yin, 1981).

In contrast, other research strategies have other strengths. An experiment, for instance, deliberately divorces a phenomenon from its context, so that attention can be focused on a few variables. A history, as another example, has special ways of verifying documents and artifacts in dealing with noncontemporary events—i.e., when on-site observations, direct measurements, or interviews cannot be used as corroboratory evidence.

In short, one should consider the repertoire of empirical research strategies from a pluralistic rather than a hierarchical perspective. Each strategy is best suited to a different set of conditions, and each strategy is therefore likely to be favored whenever such conditions prevail. Similarly, each strategy can be used for exploratory, descriptive, or explanatory purposes.

Although the peculiar strength of the case study is its ability to cover both a contemporary phenomenon and its context, this characteristic also creates a special difficulty: once the context has been incorporated into a study, the number of variables of interest will inevitably be an order of magnitude greater than the number of data points (i.e., the number of cases). This means that few, if any, statistics will be relevant for analyzing the data.<sup>4</sup> Not surprisingly, investigators are just beginning

to deal with this problem of analyzing case study data (e.g., Campbell, 1975, and McClintock et al., 1979). Even though the problem has not been resolved, this does not undermine the definition of case studies as a separate research strategy. The challenge for future methodological research is simply to make case studies a more robust and effective

tion of case studies also reveals the inappropriateness of several definitions which have prevailed in the past. For example, case studies are often confused with a specific type of data collection technique: participant-observation. Yet a quick perusal will show that not all case studies are based on this technique, nor does participant-observation always result in a case study. Similarly, case studies have been incorrectly associated with the use of only one kind of evidence: qualitative data. Yet case studies can be done with quantitative as well as qualitative data, as in those of economic markets.<sup>5</sup> Finally, and most important, case studies have often been confused with a particular type of experimental design: the one-group, post-test-only design (Campbell and Stanley, 1966). Although this position has been modified in a more recent text (Cook and Campbell, 1979: 96), most texts still fail to recognize that the case study is a research strategy with its own set of designs, and not just one of several experimental designs.

### *Case Studies Applied to Knowledge Utilization*

Case studies are relevant for studying knowledge utilization, because the topic covers a phenomenon that seems to be inseparable from its context. Thus, as with numerous inquiries on decision-making behavior (Greenberg et al., 1977), knowledge utilization shares the following characteristics:

- a series of decisions that occur over a long period of time, with no clear beginning or end points (i.e., not sharply delineated from their temporal context);
- outcomes whose direct and indirect implications are too complex for single factor theories;
- a large number of relevant participants; and
- situations that are special in terms of agency context, historical moment in time, and other key elements.

At the same time, isolated aspects of knowledge utilization can be investigated without using case studies. A complementary approach might be to conduct a survey in order to establish the frequency or incidence with which different kinds of knowledge have been used (e.g., Weiss and Bucuvalas, 1980; Rothman, 1980). However, if one is desirous of answering "how" and "why" questions instead of or in addition to questions of frequency, case studies are the more appropriate strategy.<sup>6</sup> In short, the use of case studies allows one to examine the knowledge utilization process, and ultimately to recommend and design appropriate policy interventions.

The present research covered two separate studies of knowledge utilization.<sup>7</sup> The findings have been reported in a previous article (Yin and Gwaltney, 1981a). The first study involved a series of three inter-organizational arrangements in education; the purpose of the study was to develop generalizations about how knowledge is used when organizations have to collaborate. The second study involved a set of three research projects in the field of aging; the purpose of the study was to show how research information is used by service providers who deal with the elderly. The findings from the two studies were similar: social networking among knowledge-producers and knowledge-users was a prominent explanation for utilization. The more that networking occurred, the more likely that utilization would follow. How the use of case studies allowed this finding to emerge is described in the remainder of this article. Each section first describes the pertinent case study principles, and then shows how these were applied to the two studies of knowledge utilization.

## ***Case Study Design***

### ***Selection of Case Studies***

Two basic types of designs are possible when using case studies for explanatory purposes. The first is a single-case design. Such designs can be used to test theory, especially in a disconfirming role (e.g., Neale and Liebert, 1980: 56-62). In the field of education, a prominent example of such a study is that of Gross et al. (1971), who selected a single school as the subject of a case study. The school had an established and documented history of previous innovations, yet the case study showed that a new innovation failed. Among other conclusions, the case was

used to dispel the then popular notion of “barriers to innovation” as reasons for failure; this single case showed that such barriers did not exist. Instead, the case was among the first to suggest that the implementation process could heavily affect the outcome of an innovative experience. Single-case designs, in brief, may provide valid tests in the same sense as can critical experiments (Stouffer, 1941).

The second type of design is a multiple-case design, in which conclusions are drawn from a group of cases. Multiple-case designs are appropriate when the same phenomenon is thought to exist in a variety of situations. Under these circumstances, each individual case study still must be rigorously conducted, but the collection of several case studies on the same topic is intended to be the basis for replicating or confirming the results.

Both of the present studies of knowledge utilization used a multiple-case design. The specific cases selected for study were known, through prior contact, to have had successful knowledge utilization experiences. In this sense, the two designs followed the strategy of selecting extreme or exemplary (and not representative) cases (Patton, 1980: 101). Such a strategy was warranted because the overall goal of the investigations was to explain how and why knowledge utilization occurred, and exemplary instances were the ones needed to document this process fully. A subsequent step, undertaken in one of the studies, was then to select nonexemplary cases, and to confirm predictions that could be made about them based on the exemplary cases.<sup>8</sup>

### *Specific Multiple-Case Designs*

In general, multiple-case designs can be considered similar to those used in “small n” experimental designs, where a particular phenomenon may be too difficult (e.g., certain surgical lesions in animals) or too rare (e.g., certain personality syndromes) to assemble the experimental and control “groups” needed to employ the more traditional experimental designs. To deal with these situations, a whole array of small-n experimental designs has been developed and documented (e.g., Hersen and Barlow, 1976; Kratochwill, 1978). Unfortunately, this problem of small-n experimental designs has been obscured by the ambiguous notation used in designs: an “X” or an “O” can stand for a group of observations or a single observation. Where a single observation is being represented, as in Donald Campbell’s famous example about Connecticut traffic law (1969), the existing textbooks offer no guidelines

concerning the ensuing statistical strategies (a single data point has no mean or variance).<sup>9</sup>

The most common multiple-case design analogous to these small-*n* experimental designs is a direct replication design (Hersen and Barlow, 1976: 327-356). For such a design, the use of three or four cases has been found sufficient; once a phenomenon has been shown to occur in all cases, the concluding step is to develop a general explanation or synthesis across the cases. The results may later lead to the selection of further cases which establish the variability of conditions (external validity) under which the predicted phenomenon occurs, and such a design may be considered a systematic replication design (Hersen and Barlow, 1976).

The two present studies used the direct replication design, but with slight modifications. One study (interorganizational arrangements in education) followed a two-wave, direct replication design. Thus, two rounds of data collection were purposely planned for each case study. All of the case studies were drafted after the first round, and the findings for each case were compared. Where data collection had been augmented in one case, thereby creating gaps in the other cases, specific notations were made to check these situations further during the second round of data collection. This second round was therefore designed specifically to fill information gaps and not for any longitudinal reasons. The final case studies were only written after the second round, with the remaining disparities attributed to actual substantive differences rather than noncomparable data searches.

The other study (research projects in aging) followed a sequential, direct replication design. In this design, an entire case study was completed before the next one was started. Although parallel methodologies were used, each subsequent case was able to build upon and modify (if necessary) the findings from the previous case(s). Occasionally, the subsequent cases even led to a reinterpretation of the information from the earlier cases. Typically, the earlier cases had produced certain facts whose full significance was only realized after a subsequent case had been completed; thus, such reinterpretations were still consistent with the facts of the earlier cases, but facilitated the emergence of a more general explanation across all of the cases.

These two designs illustrate only two specific types of multiple-case designs, indicating how the choices in timing and sequence of multiple-case studies can be used, an option that generally has been overlooked by previous investigators.<sup>10</sup> The further articulation of a full set of multi-

case designs, as well as the exploration of the advantages and disadvantages of these designs, is part of an ongoing research project.<sup>11</sup>

### *Within-Case Design*

The successful use of case studies requires that individual ones, whether part of a multiple-case design or not, also follow an explicit design. At a minimum, this design should specify the main topics to be covered by the study, the type of individuals (or their roles) from whom information might be obtained, and the unit of analysis at the case level as well as within each case, if relevant.

The lack of such designs has been a major weakness of much case study research. Most commonly, investigators fail to specify a clear protocol or within-case design before data collection begins. Then, the problem is further avoided because the investigator undertakes a large effort in summarizing the data elements for each case—e.g., writing full and separate narratives for each interview.<sup>12</sup> The “structure” of the case only emerges in some unpredictable fashion as these data elements are sorted, and the final within-case design becomes synonymous with the final case study narrative. The process is unpredictable and susceptible to bias.

In contrast, in both of the present studies of knowledge utilization, the within-case designs were similar and were articulated at the outset. This was necessary because both studies were intended to test competing explanations of the knowledge utilization process. The within-case design called for coverage of three basic topics (and a number of subtopics): (1) the nature of the knowledge-producing unit (in one study, an interorganizational arrangement, in the other study, a research project); (2) documentation of the types of uses of the knowledge produced (but not a survey of the extent of use); and (3) an assembling of facts to compare alternative explanations of why utilization occurred. (This last topic was a key to the subsequent case study analysis, and is described further under “Case Study Analysis.”)

In addition to this sequence of topics, which was used to guide data collection, the within-case design also included an explicit consideration of the unit of analysis for each case. For the education cases, the unit of analysis was complex and not easily distinguished from the context: an interorganizational arrangement with linkages among at least three different kinds of organizations. For the cases in aging, the initial unit of analysis was a research product—e.g., a report, a handbook, or a

manual. However, early inquiries indicated that utilization could involve communications other than specific products, an insight that later became very important in drawing conclusions about the networking process (Yin and Gwaltney, 1981a). The unit of analysis therefore gradually shifted to the entire research project, which included its products as well as other communications activities (e.g., sponsorship of conferences, reply to specific inquiries, and establishment of different types of interpersonal contacts).

This shift in the unit of analysis in one of the studies is typical of the serendipitous changes that can occur during the conduct of case studies, and whose importance would probably be overlooked if other research strategies were used. For the knowledge utilization process, the important insight which resulted was the realization that research investigators themselves can be synthesizers of research and transmitters of information; if one only defines knowledge utilization in terms of the usefulness of specific products—i.e., research reports (Weiss and Bucuvalas, 1980; Rothman, 1980)—one largely misses this critical aspect of the knowledge utilization process. The clue in the present case studies came when it was found that users were familiar with the name of the investigator (and had discussed matters with him), but could not necessarily name any specific report from the project.

## ***Data Collection Procedures***

### ***Convergence of Evidence***

The data collection procedures followed the major prescriptions by existing textbooks in doing fieldwork (e.g., Fiedler, 1978). The most challenging aspect of case study research, however, is that a variety of sources of evidence are relevant, and the investigators must be trained to deal with this variety. These sources include:

- face-to-face interviews with key informants;
- telephone interviews with other informants;
- agency records (including local statistical information);
- project documents and memoranda;
- illustrative materials (e.g., newsletters and other publications that form part of an organization's history); and
- on-site observations.

Because of this diversity of sources, data collection must be guided by some type of protocol. Such a protocol indicates the topics to be studied and alerts the investigators to the types of evidence that may be relevant. The protocol may also specify a minimum amount of data collection in operational terms—e.g., the types of people that must be interviewed, documents that must be analyzed, or observations that must be made—to help assure that similar procedures are carried out from one case to another.<sup>13</sup>

Given this array of evidence, the case study investigator's main task is to ascertain whether evidence from different sources converges on a similar set of facts (e.g., Jick, 1979). To this extent, the investigator is also doing analysis during the data collection process, and this is a major reason why mechanically trained research assistants are not suitable for doing case studies, a situation that is the reverse for experiments and surveys.<sup>14</sup>

For the two present studies, nearly all of the various types of evidence were relevant. Typical convergent information occurred in the following manner. First, an informant would happen to mention the importance of certain kinds of conferences or workshops, held during the early part of the knowledge production process. These interactions were then confirmed by searching for the historical records of such workshops—e.g., agendas, minutes, and other written summaries. These records revealed the names of participants, who in turn could be contacted by telephone, to ascertain another set of reactions to the workshops. Ultimately, these workshops were found to be a critical part of the networking process; even though the researchers were not ready to transmit specific information to be utilized, the workshops became one basis for establishing a dialogue between knowledge producers and potential users, and for creating what has previously been called a “marketplace for ideas.”

To take but another example, serendipitous on-site observations in the education study led to an important finding about the type of knowledge being disseminated. In this case, the focus of inquiry was an information retrieval service, used by teachers to obtain curriculum information. Whereas most services of this type disseminate abstracts, research reports, and bibliographies, and hence are amenable to computer searches, the particular service in this case study seemed to draw a constant and active flow of in-person visitors to a large set of steeldrawerred (i.e., manual) files. Subsequent examination of the files revealed that they contained the usual types of information, but that they also contained samples of materials that could actually be used

in a classroom—e.g., illustrative report cards from other school districts, instructional kits to be given to students, or test formats that had been used by other teachers. This finding—only made possible by an on-site presence—added further to an important conclusion about the rule of “usable materials” in the utilization process. That is, knowledge is more readily used in practice situations when the ideas have been translated into practitioner “tools” rather than simply having been reported in some document (e.g., a research report).

### *Validation of Evidence*

When all of the evidence has been reviewed, and after an initial case study narrative has been produced, a final part of the data collection procedures is to have the factual portions of the case studies reviewed by the major informants. Thus, such review, rather than serving only as a courtesy to those who have cooperated with the research team, should be seen as a minimal procedure for validating the data collection process (Schatzman and Strauss, 1973: 134). Though the informants may disagree with the interpretations in the case study, they should not find that the basic facts have been misconstrued. Moreover, the informants should find that the presentation of facts and interpretations is balanced—i.e., reflects the different perspectives of the participants in the case. Often, poor case study research is that which assumes only a single perspective, and the use of informants in this review role is one way of minimizing such biases.

In the two present studies, the individual cases were reviewed twice by the key informants (and at least once by external reviewers and other pertinent readers). The informants helped to correct specific facts, and also alerted us to places where our choice of words betrayed potential biases. By and large, however, the informants were highly pleased with the results. Because of the complexity of the cases, some informants even felt that gaps in their own knowledge of the case had been filled, leading to a better understanding of the course of events. (As an afterword, it should be pointed out that these informants have become vigorous disseminators of the final case studies.)

### *Case Study Analysis*

No step is so vexing in case study research as the analysis step. This is because analytic techniques generally have been ignored and underde-

veloped (e.g., Miles, 1979). The present work, which is described below, is intended as but the initial step in developing the needed techniques.

### *Single-Case Analysis*

For explanatory case studies, the construction and testing of an explanation must be seen as the primary objective. Though it is difficult to specify the characteristics of an “explanation,” the term implies a complex rendition of causal links, far beyond the cope of a single hypothesis.

Fortunately, prevailing theories of knowledge utilization provided excellent examples of suitable explanations.<sup>15</sup> For the case studies on aging, there existed a summary of these theories that Carol Weiss (1979) had developed. She had enumerated seven models of utilization, and three were deemed most relevant for the present research:

- the knowledge-driven model (good basic research eventually leads to practical applications);
- the problem-solving model (utilization depends upon the prior identification of a problem, followed by the commissioning of specific research); and
- the interactive model (utilization occurs because knowledge-producers and knowledge-users are in continual communication with each other, thereby affecting each other's ideas).

Each of these models constitutes an explanation for why utilization occurs in a practice<sup>16</sup> setting. Furthermore, each model predicts the occurrence of a complex sequence of events, and not merely the testing of a narrow hypothesis. Finally, the models tend to conflict with one another—i.e., each model predicts a mutually exclusive sequence of events—and therefore represents an alternative explanation for utilization.

The case study analysis consisted of an integration of the facts of the case around these alternative models.<sup>17</sup> The major finding was that the interactive model was most congruent with the actual facts of the case (in all three case studies), and that the knowledge-driven and problem-solving models were only partially applicable, leading to major conclusions about the role of social networking (Yin and Gwaltney, 1981a). In other words, the within-case analysis for each of the studies consisted of the consideration of alternative explanations for why utilization occurred (for the interorganizational arrangements, different

theoretical models were appropriate and were used). Within each single case, a model-by-model discussion of the predicted course or combination of events was presented, along with the similarities or discrepancies that were actually found among the facts of the case. This approach is one example of what Campbell (1975) has called "pattern-matching," in which data from a single case can be used to test a theory (i.e., a pattern), as long as contrary theories are also compared.<sup>18</sup> The analytic approach is also analogous to the craft of doing detective work, where the sleuth's goal is to arrive at a singular explanation for a crime, and to rule out competing explanations (Yin, 1981).

### *Cross-Case Analysis*

When there are numerous case studies available for synthesis, and when an inquiry has identified one or a few critical "factors," cross-case analysis can consist of quantitative tabulations, as if one were "surveying" the case studies (Yin and Heald, 1975; Yin et al., 1976). The ensuing case survey results can take advantage of statistical techniques because of the large number of cases relative to the factors of interest.

In situations where these conditions do not prevail, an alternative approach must be used, which may be called a case-comparison method (Yin, 1981). In this method, the entire explanation from each case is taken and compared with the explanation from another case. To the extent that the explanations are similar, the basis for a more general explanation can be established.

For the two present studies, the cross-case analysis followed this latter approach, but in a slightly different way for each study. In the study of interorganizational arrangements, a separate synthesis was written and presented (Yin and Gwaltney, 1981b). In the study of research projects in aging, the synthesis was incorporated into the individual case studies; that is, because the case studies were done sequentially, the second case study (Yin and Heinsohn, 1980b) contained a discussion summarizing the similarities between the first two cases, and the third case study (Cronin and Heinsohn, 1981) gives a synthesis of all three cases.<sup>19</sup> Each subsequent case study therefore elaborates on the previous explanation. For example, the first two case studies had concluded that interpersonal relationships were a critical aspect of the networking process. The third case study found that national associations could substitute for the interpersonal roles; the subsequent synthesis was thus more general but still consistent with each individual case.

The general primitiveness of this approach should not be overlooked, and further refinement and improvement in the case-comparison method is certainly needed. Nevertheless, investigators should not be so critical of the state-of-the-art that they inappropriately use the case survey method when there are too few cases (e.g., Miles, 1979; DiMaggio and Useem, 1979). Moreover, the relatively primitive state-of-the-art is no worse than the comparable step in experimental science—i.e., synthesizing results across experiments. There is not yet a “science” of cross-experiment aggregation and synthesis, either, though we do know that an inappropriate approach is to “tabulate” the experiments. Nevertheless, cross-experiment synthesis plays an essential role in the building of knowledge based on experimental science. Typically, the most acceptable findings are those based on “planned variations”<sup>20</sup> of experiments done by the same investigator, or on a synthesis of experiments done by different investigators. Because rigorous techniques for this step have not emerged in experimental science, one should not be surprised that cross-case techniques have the same current shortcoming.

## ***Summary: The Usefulness of Case Studies***

### ***Learning About Knowledge Utilization***

In the end, the major advantage of applying the case study approach to the present research was twofold. First, the research depicted the actual knowledge utilization process as it occurred in two service settings—one in education and the other in social services for the elderly. As a result, the research contains concrete examples of how interorganizational arrangements work, or how research projects work, to produce knowledge that is useful to service providers.

Second, the studies went one significant step further. The case study approach permitted a test and comparison of existing theories of knowledge utilization. And, the research was able to extend these theories. Thus, one study created some puzzlement regarding the structural and functional differences among the interorganizational arrangements; only after the case studies were completed was it realized that some of the interorganizational functions had to do with knowledge utilization, but others had to do with intergovernmental affairs. The distinction between these two types of functions may begin to explain the complexities

of relationships between federal, state, and local agencies in education (Yin and Gwaltney, 1981b). The other study also contained a surprise finding: that the final report from a research project was not necessarily the primary vehicle of utilization—that other products (handbooks, manuals, questionnaires, and other usable materials) as well as the investigators themselves were often more important (Yin and Heinsohn, 1980a,b). Finally, both studies identified the importance of early networking activities, even when such activities were seemingly not focused on specific problems.

In this sense, the present case studies were far different from the stereotypic, exploratory case study. Rather than building theory from scratch (e.g., Glaser and Strauss, 1967), a set of theories already existed, could be tested, and could be elaborated upon. This explanatory use of case studies is not necessarily better or more preferable than the exploratory or descriptive uses. The main point is that case studies can be used for all three purposes, depending upon the investigator's objectives and the existing state-of-the-art on a given topic.

### *Improving Future Case Studies*

These experiences also revealed the work that is still needed to improve the case study as a research strategy:

- The full array of case study designs has not been articulated or investigated.
- Data collection procedures must cope with the constant tension between the need for comparable procedures and the need to allow discretion to the investigator.
- Finally, case study analysis is still in its infancy.

One may remain optimistic, however, that such improvements will occur in the long run. This is because case study research will continue to be needed to investigate certain topics, and researchers will eventually gain more experience in using them. Improvements will be facilitated further if investigators adequately record and analyze their own methodological experiences. Unfortunately, up to now, the stereotype of the case study as merely an exploratory device has probably discouraged such recording and analysis, because investigators have been unaware that they have been using a serious method in the first place. The realization promoted in this article—that case studies are a full-blown research strategy, applicable to all phases of scientific inquiry (from exploratory to explanatory)—should encourage more methodological documentation and research in the future.

## Notes

1. For instance, see the discussion of "formulative or exploratory studies," in one of the most widely used texts, Selltitz et al., 1976: 91-101.

2. For an analysis of 11 investigations, all using case studies on one or another of these topics, but all focusing on the problem of implementation, see Yin, forthcoming.

3. This application of case studies has in fact become so prevalent that Robert Herriott (Herriott and Gross, 1979) is currently conducting a secondary analysis of the prominent methodological features (personal communication).

4. When such a situation occurs in other types of research, cluster or factor analyses typically are used to reduce the number of variables. For case studies, however, the procedure is possible but not desirable because the role of the context, rather than being incidental to a study, is assumed to be more critical and dynamic than the static computations (essentially, gross measures of association) underlying cluster or factor analyses.

5. An ongoing, major study by the Rand Corporation, for instance, involves extensive quantitative analysis of two housing markets, one in South Bend, Indiana, and the other in Green Bay, Wisconsin (see Fourth Annual Report, 1978, and Rydell, 1980). Yet the main generalizations about market behavior must in fact be considered to be observations about only two markets, and the conclusions are similar to those that one would draw from two case studies. For another example, see Vietorisz and Harrison, 1970.

6. Naturally, an investigation could include both a survey and a case study component, because of the complementarity of these approaches. The observation of this type of complementarity (e.g., Sieber, 1973) further reinforces the notion of the case study as a separate research strategy.

7. The first study was supported under Contract 400-79-0062 from the National Institute of Education. The second study was supported under award 90-AR-2173 from the Administration on Aging. The author is grateful for this funding support, but the findings and conclusions are not to be taken as the official position of either agency.

8. In this way, causal inferences can be confirmed further. However, the inquiry into the nonexemplary cases can be highly targeted and limited to critical points; a full case study narrative need not be written of these nonexemplary cases, either.

9. In ongoing research, we are currently exploring the possibility that case study designs share the same problem, and that some of the single-n experimental designs may be appropriate to case study research.

10. For example, these aspects of the research design are omitted in the brief methodological discussions of such multiple-case studies as Patton, 1978, and Berman and McLaughlin, 1974-1978. Alkin et al., 1979, and Miles, 1979, go into greater detail about their methods, but still fail to cover this topic.

11. This project involves the analysis of designs and methods used in case studies of local innovations, under grant PRA 79-20580 from the National Science Foundation.

12. Unfortunately, some methodologies have encouraged others into this trap by calling for the assembling of a case record, consisting of these data elements in narrative form (Patton, 1980: 303). The author sees no reason why such efforts should be made; the major narrative writing should be about the case itself.

13. Because of its sequential design, the case studies on aging did not need to start out with such a protocol. Once adequate documentation of the procedures used in the first case study had been achieved, these same procedures could be followed in subsequent cases.

14. In experiments and surveys, such assistants are highly suitable. In those strategies, the investigator's discretion is minimized during data collection—even to the point that body language and expressive behavior are to be controlled. The opposite, however, is true

of case study research, where the investigator must retain judgment and discretion throughout the data collection process.

15. In this sense, the knowledge utilization topic is ripe for explanatory, and not merely exploratory or descriptive, investigations.

16. One supposes that utilization in "policy" settings follows a different course, and that the other models are more appropriate in those situations. However, the present case studies were entirely of applications of knowledge in practice settings.

17. Another example is Graham Allison's well-known case study (1971) of the Cuban missile crisis, where the same set of facts is compared to three alternative models of foreign policy-making.

18. Cook and Campbell (1979: 118) offer one possible operational definition of pattern-matching: the nonequivalent dependent variables design. Their rendition of this design is replete with idiosyncratic notations, suggesting that the design does not fit well with their methodological framework, yet the authors do not explain why this might be so. One suspicion is this: close inspection of this design will reveal that it has a direct counterpart as a case study design.

19. The first case study (Yin and Heinsohn, 1980a), of course, contains no cross-case synthesis.

20. Note that the acceptable research designs for these planned variations have not been investigated or documented, either.

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