Applying the Logic of Sample Surveys to Qualitative Case Studies: The Case Cluster Method•

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The differences between case study and sample survey strategies in the analysis of organizations reflect a broader distinction in the social sciences between qualitative and quantitative methods. While there are underlying similarities in logic — for example, both approaches recognize the need to control for threats to internal validity — it is the differences of method that are often emphasized (cf. Fienberg, 1977: 50). Qualitative methods are described as "thick" (Geertz, 1973: 6), "deep" (Sieber, 1973), and "holistic" (Rist, 1977: 44). By contrast quantitative approaches can be characterized as "thin" (Geertz, 1973: 6), "narrow" (Rist, 1977: 47), but generalizable (Sieber, 1973). These distinctions often extend to fundamental epistemological differences resulting in the mutual denial of validity to the data of the other approach. Without disputing that the differences in outlook and method are real, Zelditch's (1962: 567) question remains provoking: "What do you do if you prefer data that are real, deep, *and* hard . . .?"

One answer is to invent research designs that incorporate qualitative and quantitative strategies (cf. Yin and Heald, 1975), or as Warwick (1975: 187) has put it, ". . . to wed the qualitative and historically attuned case study with representative coverage and quantification." This is the spirit of the present analysis and is a message that has been sounded by others concerned with methodological advance in the social sciences (Cronbach, 1975; Proshansky, 1976).

In the sample survey, standardized measurement and sampling procedures are intended to (1) enhance the reliability of observation; (2) facilitate replication studies; and (3) permit statistical analysis of data and generalizations to larger populations. The goals of the qualitative case study are (1) to capture the frame of reference and definition of the situation of a given informant or participant and thus to avoid instrumentation artifacts of standardized measurement procedures, (2) to permit detailed examination of organizational process, (3) and to elucidate those factors peculiar to the case that may allow greater understanding of causality.[1]

Although each approach has advantages, the purpose of this paper is to describe how the logic and the method of survey research can improve qualitative case studies. There is no intention to diminish the significance of the case study method, and it would be just as valid to emphasize the means by which qualitative case studies could improve sample surveys of organizations (Myers, 1977; Stake, 1978). In fact, the method that we describe incorporates both strategies, and relies heavily on the use of informants, documents, and observational techniques — procedures that are commonly associated with case studies of organizations. It walks a line between the atheoretical encyclopedic case study and the standardized sample survey. It resembles each of these approaches to research as well as the middle ground methods that are theory-building, semistructured, informant-based inquiries of organizations. Yet it can be differentiated from traditional approaches because it incorporates the *potential* for moving back and forth between them. It forces the researcher to acknowledge methodological tradeoffs (Weick, 1979: 35) but creates opportunities to produce thick *and* generalizable analyses.

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This last distinction is blurred by the application of experimental design to sample surveys. Such designs reflect a special concern with internal validity, albeit one that employs different tactics than the qualitative case study.

OVERVIEW OF THE METHOD

The method essentially involves three features: (1) the definition, enumeration, and sampling of units of analysis within the case study that are theoretically meaningful and represent the phenomenology of informants; (2) stratified sampling of data sources based on theoretical grounds and on features of the case, crossed with a stratified sampling of units of analysis; and (3) the optional creation of a quantitative data set consisting of standardized codes for variables pertaining to each unit of analysis. Qualitative analyses are possible both for the entire case and at the level of the unit of analysis and, indeed, are strengthened by the use of different data sources for each unit of analysis. By forcing different perspectives on the same phenomenon the researcher will need to qualitatively portray divergent images that might emerge from each perspective.

Because the single case is treated as a cluster of heterogeneous units of analysis the term case cluster is used to designate this method. The rationale for describing the case as a cluster of units of analysis will be described in a later section.

Degrees of Freedom in the Case Study

Most pertinent to the development of the case cluster method is Campbell's (1975) discussion of how to create "degrees of freedom" in qualitative case studies.[2] In sharp contrast to his earlier treatment of the "one-shot case study" design (Campbell and Stanley, 1966: 6–7), Campbell argues for capitalizing on the richness of detail within a single case by looking for multiple implications of the theoretical ideas being tested. In this manner the single case becomes a set of diverse manifestations of theory. Each manifestation, rather than each case, can be thought of as a unit of analysis in which a particular effect might be present.

When looked at in the aggregate the single case has more observations than variables. This creates sufficient degrees of freedom for the statistical testing of hypotheses. Essentially Campbell is proposing that the researcher sample situations or other attributes of a system within a single case. It is therefore possible to apply some of the rigors of sampling theory, and if desired, quantified measurement to studies in which the case (that is, the organization) is still the overarching subject of interest. Such a method in no way restricts the use of data collection techniques that are common in case studies such as participant observation, interviewing informants, and archival analysis, though it does require systematic, documented, and replicable procedures.

Sampling, Quantification, and Units of Analysis

We extend Campbell's proposal in three significant ways. Most obvious is the use of survey sampling procedures and the optional addition of quantified measurement and multivariate statistical techniques to qualitative approaches for the analysis of data. Perhaps a more complex extension involves proposing a definition for units of analysis that corresponds to Campbell's idea of examining multiple implications of a theory within a single case. The key to defining units of

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Discussions of this problem in different research contexts may be found in Zelditch (1962: 567) and Fienberg (1977: 53–54).

analysis is theoretical guidance and phenomenological integrity for those informants who are providing observations.[3] Although units of analysis are typically defined as individuals, groups, or organizations, they could be almost any activity, process, feature, or dimension of organizational behavior. Even commonly accepted units of analysis such as individuals represent arbitrary divisions. It would often make more theoretical sense to view individuals as clusters of skills, motivations, tasks, interdependencies, and the like, and to representatively sample these attributes instead of the persons in which they may be unevenly distributed.

The trick is to arrive at a definition of units of analysis that is stable enough to sample and that lends itself to the possible application of standardized codes. The units of analysis that were used in our research were called planning events, choice situations, and tasks. The case cluster method requires informants to assist in the enumeration of a sampling frame, a procedure analogous to snowball sampling (Coleman, 1958–1959). This encourages the identification of units of analysis that represent informal activities as well as those that are formally designated as instances of the unit's definition. The researcher, however, maintains control over the definition and selection of units of analysis.

THREE EXAMPLES OF THE CASE CLUSTER METHOD

Planning Study

The first study using the case cluster method analyzed approaches to planning in public sector organizations (McClintock, 1978). It was different in two ways from the more refined uses of the method in the other studies. First, it was a completely qualitative study, largely because of its hypothesis-generating purposes and because the research team could not agree on a standard set of codes for all units of analysis. Secondly, it was not done on a single case and thus departs to some degree from the discussion so far. It represents, however, the sampling strategies and unit of analysis definition of the case cluster method. We will focus on the second phase of the study which involved the study of planning events in public sector human service organizations in eight states. A stratified sample of agencies, informants, and units of analysis was based on a theoretical model of organizational planning and on the structure of the human service planning and delivery system. While states and selected bureaucracies within them were the cases, the units of analysis were planning events. Planning events were enumerated based on formal designation and with the assistance of informants who identified processes that functionally served as planning events (e.g., budgeting procedures).

Choice Behavior Study

The central purpose of the Choice Behavior Study (Brannon, 1979) was to test the generalizability of the decision-making theories of Cohen, March, and Olsen (1972) and March and Olsen (1976) to a public welfare agency. Data were gathered through informant interviews, participant observation, and archival analyses. Informants were stratified by functional unit within the agency and they, in turn, assisted in

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This idea is similar to Bronfenbrenner's (1977) definition of "ecological validity" in which there is concordance between the meanings ascribed to a situation by the researcher and the subjects in the study.

enumerating units of analysis, called choice situations, in a stratification of settings.

Task Analysis Study

The previous two studies were concerned with organizational processes that were mainly interorganizational and interpersonal in nature. The Task Analysis Study (McClintock, 1979) took a more intrapersonal focus in an effort to understand variations in tasks in terms of their complexity and predictability. While there was a methodological purpose to the study in terms of developing generalizable procedures for multidimensionally measuring uncertainty in tasks, the research was a case study of a single organization, a university, focusing on patterns of loose and tight coupling (Weick, 1976) and modes of evaluation and organizational learning (Dornbusch and Scott, 1975; Hedberg, 1979). A stratified sample of informants based on job classification was followed by a stratified enumeration of tasks based on complexity and predictability. Tasks were the units of analysis.

The order of presentation for the case cluster method is somewhat arbitrary. While one would not enter the field without a definition for the boundaries of units of analysis, it is likely that such definitions would be altered through interactions with informants, since informants play an active role in identifying and selecting units of analysis. Likewise, if one intends to quantify variables the initial codes will evolve (although one would want to minimize this). The highly interactive nature of these processes distinguishes the case cluster method from the standard sample survey.

THREE FEATURES OF THE CASE CLUSTER METHOD

1. Defining, Enumerating, and Sampling Units of Analysis.

Advocates of qualitative research willingly sacrifice breadth for depth. Participant observation, in-depth interviewing, and repeated contacts with informants give researchers intimate knowledge of the social forces they are studying. This intimacy informs the selection of significant and representative features but it can be time consuming and restricts attention to a small number of cases. The extreme situation where there is only a single case is especially troublesome. Inferential statistical procedures require that the number of cases studied be equal to or greater than the number of variables that are being tested. While most qualitative researchers would claim to be unconcerned with statistical inferences, a more important problem is that a small *N* provides a tenuous foundation for generalizations. Single examples do not illustrate patterns (Bateson, 1979: 27–30). Finally, and perhaps most importantly, where there is a single data source with an *N* of 1, the effects of measurement and of the features of the case are confounded. Thus, it is necessary to develop multiple cases and use multiple data sources or methods of observation, following the multitrait-multimethod logic of Campbell and Fiske (1959), in order to reduce threats to internal validity.

Theory-based units of analysis. Despite these methodological problems, a single case study is desirable for many reasons such as opportunity, unusual events, cost limitations,

needs for hypothesis development, and so on. On the other hand, in addition to methodological problems, there are theoretical and practical reasons why it may make little sense to use the entire case or individuals within the case as units of analysis in studying organizations. Several of the major streams of organizational theory describe organizations as heterogeneous aggregates of something: of decisions (March and Simon, 1958), technological processes (Woodward, 1965), functional subsystems (Katz and Kahn, 1966), patterns of loose and tight coupling (Weick, 1976), and organization-environment interactions (Aldrich, 1979). Such dimensions of organizational behavior provide the analytic framework for many case studies and may better serve as units of analysis if they are recognized and operationalized before the data are collected rather than as ex-post facto analytic guides.

This is one distinguishing feature of the case cluster method. The researcher brings to the case study a clearly articulated, although not immutable, analytic framework. This contrasts sharply with Lofland's (1976: 64) advocacy for studying social situations without any preconceived definitions. We disagree with this approach because it does not provide generalizable bases for intercase comparisons and because one cannot get a sense of the relative frequency of events. Our concern is similar to Weick's (1976) about the need to understand what is not happening as well as what is obvious. Only with preconceived expectations can nonevents be identified. Moreover, regardless of one's epistemological preferences, perception is itself a prestructured and organizing process (Neisser, 1976). It is impossible to enter a situation without a theory of some sort, and the case cluster method formalizes this process in its search for relevant units of analysis, multiple data sources, and common variables.

On the practical side, using individuals as units of analysis may not be a solution to an *N* of 1, either because the case contains too few individuals (e.g., a small R&D unit; Hunt, 1970) or too many (e.g., a large public bureaucracy; Warwick, 1975). In the first instance the researcher needs a unit of analysis that is more numerous than staff size (e.g., opportunities for innovation in the R&D unit) in order to thoroughly understand the case and to test hypotheses. In the latter case the requirement is for a unit of analysis that is less numerous than staff size (e.g., organizational planning processes) for manageability of the research.

The case as a cluster of units of analysis. The problem in the single case study is how to identify and sample a reasonable number of theoretically meaningful units of analysis within the case. Accomplishing this task will strengthen case studies in three ways. First, it allows one to treat the case as a cluster of dimensions of interest. The term cluster is borrowed from sampling theory. Cluster sampling is a procedure in which the units of analysis are selected first in groups rather than individually. There may be several stages of clustering and stratification before the final selection of units of analysis, as in the Task Analysis Study.

In case studies involving a single organization one tries to select a case with maximum within-case variance and as

little between-case variance as possible. This is an extreme form of cluster sampling in which the researcher relies on the single cluster for generalizations to a larger population. Ideally the single case constitutes a complete miniature of the population, though this would be very unusual in practice. Still, if the researcher can demonstrate that heterogeneity in the cluster is similar to that in the population then generalizations are more secure. For example, Rist's (1970) study of stereotyping in the classroom would have been strengthened with evidence showing the similarity of the case to other schools in terms of characteristics of students, teachers, class procedures, social structure, and so on (Fienberg, 1977). Treating the case as a cluster and quantitatively measuring its relevant dimensions allow one to systematically compare it with other cases, and therefore to address the external validity problems that are common to the single case study design (Stake, 1978: 7).[4]

A second benefit that derives from formally sampling units of analysis within a case cluster, is the possibility for cross-stratification with different data sources in order to sort out the effects of measurement or perspective. For example, in the Planning Study we factorially crossed types of informants with types of planning events.

Finally, by creating formal and replicable sampling designs the researcher is in a good position to create quantitative data sets if so desired. Quantification within the case is not feasible where standardized units of analysis have not been identified.

Units of analysis in the Planning Study. The definition of units of analysis in the Planning Study, planning events, reflected a desire to be able to describe planning processes, products or traces of those processes, and the contextual features of the entire planning event. It was soon discovered that limiting the focus only to planning that yielded formal plans as products would not result in a sample of units that truly reflected planning activities. For example, many planning processes were often tied closely to program management or budget preparation and plans per se were not intended as products. At the same time it was necessary to have some tangible output from the planning process that could serve as the basis for analysis and evaluation of successful planning.

The operational definition of planning stated that it was any activity directed to the preparation of information and decision alternatives for policy development, resource allocation, and program operation for specified human services to a defined population over some span of time. Such a definition led to analysis of an often diffuse set of processes that merged with management, budgetary, and service delivery functions. While this made interviewing and analysis more challenging, it resulted in a more valid representation of the activities that informants called planning, and allowed us to more accurately examine the links between planning and related organizational processes.[5]

Units of analysis in the Choice Behavior Study. The units of analysis in the Choice Behavior Study, choice situations, were defined as circumstances in which the potential for a

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In case studies where there are two or more organizations one normally stratifies first and then selects one case cluster from each stratum. This is done when it is obvious that some variables of central interest to the study cannot be fully represented in a single case. The researcher would then stratify the selection of cases along the dimensions of theoretical interest. Common examples would include the following: public-private, service-manufacturing, young-old, large-small.

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It is interesting to note that organizations would have been no less difficult to define as units of analysis in this study. This was due to the fact that planning was often interdivisional and interorganizational in nature, thus it was unrealistic to identify a process of planning as representing organization X and not organization Y.

decision existed. Three dimensions of situations identified by Lofland (1976) provided the definitional guidelines for the units of analysis: the human population, the space inhabited, and the time occupied. First, choice situations were limited to those activities that involved the population of direct service workers, supervisory staff, and administrators in the performance of their work. Situations as small as encounters between two people and as large as organization-wide were considered. Secondly, in terms of organizational space, the choices had to be program-relevant rather than task-specific; for example, a decision to record a client interview now or later was not included, whereas a decision about what action to take as a result of the interview, which was in the realm of organizational policy interpretation, was included. Finally, the choice situations studied could occupy any amount of time within the duration of the research. If it was anticipated that the issue would not be "deactivated" (that is, terminated but not necessarily resolved; March and Olsen, 1976) during this time, the choice situation was excluded since it would not have been possible to observe the outcome.

A choice situation included the time from when an issue or problem was articulated, verbally or in writing, until at least temporary deactivation was observed, or in other words, the dependent variable was scored. It should be noted that although some choices were continuously reactivated, for purposes of this study, choice situations included only the time span between the first observable articulation of the issue and the first observable deactivation. It was also assumed that a choice situation involved at least two competing values, though these may not have been clearly articulated. These criteria were similar to those Steinbruner (1974) used to identify complex decisions in his case study analysis of NATO negotiations.

Units of analysis in the Task Analysis Study. In the Task Analysis Study several guidelines were provided on the definition of the unit of analysis. First, tasks were identified by informants in terms of what they customarily defined as a task. The focus was on the activities and behavior, not goals or larger purposes, that informants considered as separable tasks. The questions centered around four topic areas having to do with uncertainty about task inputs, transformation processes, outputs, and feedback/evaluation processes.

Secondly, informants were guided by having the researcher identify upper and lower limits of specificity. It was explained that the researchers were not interested in tasks at a level so broad that specific questions about how the task was performed could not be meaningfully answered. Thus, for example, the task of "doing research" was too general. A specific research project was more reasonable. At the other end of the spectrum, a definition of task that was so narrow that one could not cover the range of factors described above in any detail was not useful. Thus, the task of making coffee was too limited although maintaining office supplies was acceptable. Examples of other units of analysis are budgeting, typing, chairing a meeting, writing articles, repairing equipment, doing payroll, and making policy decisions.

2. Stratified Sampling of Data Sources

Informant interviews, participant observation, and archival analysis are the primary sources of data in qualitative research. The problem is how to apply replicable procedures for selecting data sources that simultaneously satisfy methodological, theoretical, and practical criteria. Sampling strategies should also provide for the stratified allocation of different data sources and/or observational methods across units of analysis within the case. We will concentrate on ways of sampling informants, since the research in which the case cluster method has been tried has relied mainly, though not exclusively, on this source of data.

The virtues of using informants in case studies of organizations are that they can think in terms of the organization as a whole as well as various settings within it, they can be used to keep researchers in continuous contact with the setting, and, assuming certain levels of motivations and articulateness, small numbers of them can be used repeatedly to gather data about a broad range of events (Scott, 1965; Seidler, 1974: 816–817). These advantages do not, however, eliminate two of the fundamental methodological problems in using informants. It is important to select informants who are knowledgeable and to know if what informants say is accurate (Hyman, Levine, and Wright, 1967: 12). The problem is not that bias exists but how to control it in the research design. Salamone (1977: 121) argues that even lies, when identified as such, are useful sources of information: "Lies, in short, are a form of communication, not its negation." Moreover lies, incomplete perceptions, and ulterior motives are not random features of a setting, and it is possible to strategically select informants who represent desired variation in perspective.

Procedures for controlling bias rely on an interplay of methodological and theoretical guidance and center around replicable sampling methods. These methods are not incompatible with qualitative case studies, but they are seldom used or highlighted as significant methodological guides (Scott, 1965: 286–296). There are at least two sources of informant bias in studies of organizations that can be controlled through sampling and statistical procedures; proximity to events (Barker, 1968: 49–52) and position in the organizational structure (Seidler, 1974).

Sample designs for selecting informants would normally use nonprobability procedures due to the nature of the informant role and the often small number of individuals who qualify for that role. Such designs, referred to as dimensional (Arnold, 1970), strategic (Hunt, 1970), or purposive (Warwick and Lininger, 1975) samples, ensure better representation across dimensions of theoretical or applied interest to the researcher. While they are nonprobability samples, they are to be distinguished from haphazard sampling. They rely on systematic and replicable selection procedures that depend on theoretical expectations about sources of bias in the sample. For example, Seidler (1974) presented a method for correcting the biases of informants that involved stratified sampling and the creation of error variables. Based on theories of power and conflict in organizations, he anticipated that factors such as position in the hierarchy, age, and

political orientation would affect informants' protectiveness of church officials in describing the amount of dissent in the church. The sample of informants was then stratified according to position, and bias scores were created for statistical analysis. Similar procedures could be based on proximity of the informant to the event studied.

In the case cluster method these sampling ideas are extended by proposing a full or partial factorial sampling design that incorporates stratified sampling of informants (or other data sources) crossed with stratified sampling of units of analysis. Hunt (1970) discusses the practical benefits of having a respondent provide data on multiple units of analysis in organizational studies where staff size is too small to yield sufficient degrees of freedom for statistical analysis. To do this one must create units of analysis that represent attributes or roles of the respondents, or settings and processes in the organization. Since each respondent provides data on multiple units of analysis, the role becomes more like that of an informant. When informants are strategically sampled to represent specific categories of perspective and this stratum is crossed with a stratum of categories of units of analysis, one begins to approximate a multimethod-multitrait design (Campbell and Fiske, 1959).[6]

The Planning Study Design. An example of this design from the Planning Study is shown in Figure 1. Informants were defined in terms of their roles vis-à-vis the practice of planning. The three categories of informants were: (1) planners whose primary work involved the preparation of planning outputs; (2) managers who requested and/or consumed the products of planning; and (3) externals who were not part of the direct planner-manager relationship, but who observed and occasionally interacted with it. Some individuals provided information from several roles if they were qualified. The units of analysis — planning events — were defined so as to reflect the spectrum of activities and products that could legitimately be called planning. An informant

[6] This design treats informants who represent different perspectives as different measurement methods. In one sense this is incorrect since informant interviewing is the method. To fully operationalize the multimethod approach one would need to stratify again across such data sources as archival analysis, participant observation, interviewing, questionnaires, and so on.

UNITS OF ANALYSIS

Type of Planning Event*

Type of Informant	Cross Domain	Client Group	Department Wide	Program	Special Issue
Planners					
Managers					
Externals					

*Within some of the categories of Type of Planning Event a further stratification was performed to reflect variation across specific functional areas (e.g., health, welfare, employment) and client groups (e.g., elderly, developmentally disabled).

Figure 1. Stratified sampling design for informants and planning events in the Planning Study.

UNITS OF ANALYSIS

Type of Choice Situation

Type of Informant	Managerial	Service Delivery
Income Maintenance		
Services		
Administration		

Figure 2. Stratified sampling design for informants and choice situations.

might provide observations on several categories of planning events. A unit of analysis might have observations from several informants.

If this study had been quantitative, the presence of multiple observations on single units of analysis would create complications where discrepant judgments were given. One could treat the data quantitatively in several ways by creating parallel variables for different categories of informant or other data source, by having the researcher exercise a judgment in resolving differences, or by creating new variables that reflected the presence of discrepancies which could then be introduced as control factors in the analysis.

On the other hand, the presence of discrepancies signals a point of merger between quantitative and qualitative analysis. If single codes were used in the quantitative data set, the variance from different observational sources could be reflected qualitatively. By encouraging the researcher to gather multiple measurements on each unit of analysis, the case cluster method provides specific points of intertwining between quantitative and qualitative approaches.

The Choice Behavior Study Design. In the Choice Behavior Study informants were stratified by functional unit within the agency; income maintenance, services, and administration (Figure 2). They were primarily supervisory personnel who were asked to assist in identifying units of analysis — choice situations — in two major settings, managerial and service delivery activities.

In addition to interview information from at least one informant on each choice situation, the researcher collected observation and archival data on some of the units of analysis. While the researcher synthesized these data sources into a single code for each variable, the multiple data sources created the occasion for qualitative analysis in order to fully represent the richness of the evidence.

The Task Analysis Study design. The Task Analysis Study used a two-stage stratified cluster sampling design that required different selection procedures at each stage. Individual employees were selected from the staff directory of

UNITS OF ANALYSIS

Type of Task

Type of Informant		Simple	Complex
Administrative	Predictable (P)	1	2
	Unpredictable (U)	3	4
Faculty	P		
	U		
Nonfaculty Professional	P		
	U		
Clerical/ Maintenance	P		
	U		

Figure 3. Stratified sampling design for informants and task clusters.

the university and then grouped into strata that consisted of four job categories (Figure 3). Each selected employee described various tasks that he or she performed on the job, and as in the previous two studies, only motivated and articulate informants were chosen. It was expected that job category would be correlated with the key variables of interest in the study, the types of uncertainty associated with tasks. This design made possible comparisons among job categories, the factors that influenced complexity and predictability, and the distribution of task uncertainty throughout the organization.

The second stage of sampling involved the enumeration and selection of tasks. Each informant was viewed as someone who could comment on a cluster of tasks. Informants were asked to identify the range of tasks associated with their jobs. The interviewer then explained the concepts of complexity and predictability and had the informant sort the tasks into groups representing the four combinations of these bilevel factors. A task was selected from each group based on the interviewer's judgment of its applicability to the content of data collection. The informant also exercised some discretion in cases where the motivation to discuss certain tasks varied. Finally, a subset of the sample was selected for collecting observation data. The combination of stratified sampling and judgmental selection highlights the interplay of quantitative and qualitative methods.

3. Creating Quantitative Data Sets

A problem with qualitative methods in general, and case studies in particular, is the limitations that are placed on the possibilities for statistical analysis, replication, and secondary

analysis of the data. One could implement the case cluster method without quantifying data and still have a set of systematic and replicable procedures which are essential to the scientific method. If desired, however, the addition of quantified codes could result in the application of statistical procedures for assisting in the process of causal inference. Like the purely quantitative investigator, ". . . when push comes to shove [qualitative researchers] wish to make proper inferences from data" (Fienberg, 1977: 51). The use of multivariate statistics for categorial variables (e.g., Bishop, Fienberg, and Holland, 1975) could be of substantial benefit to the qualitative case study that employed the case cluster method.

The term secondary analysis has several meanings each of which poses difficulties in qualitative case studies. Secondary analysis may consist of the reanalysis of data sets within a single organization, for example Parsons' (1974) reinterpretation of the Hawthorne effect studies. Reanalysis of qualitative data is a more complex and costly process due to the

Table

Summary of Case Cluster Method and Its Applications

Feature:	Issue Addressed	Planning Study	Choice Behavior Study	Task Analysis Survey
1. Defining, sampling, enumerating and units of analysis	a. Theoretically meaningful units b. Methodological problem of $N=1$ for inference from data c. Practical problem of adequate yet manageable number of units of analysis	a. Planning events were interdivisional and interorganizational b. $N>p$ (p=number of variables) c. Decreased number by not defining individuals as units of analysis. Made a multisetting case study feasible	a. Choice situations, not decision makers, provided best theoretical fit b. $N>p$ c. Sample size determined by analysis requirements and resources available	a. Tasks, not positions or subunits, were units of interest for measuring uncertainty b. $N>p$ c. Staff size too large for manageable data collection
2. Stratified sampling of data sources crossed with units of analysis	a. The selection of knowledgeable informants b. Define and control data source bias	a. Informants sampled by role; planners, managers, and externals b. Multiple informants from different perspectives per planning events, document analysis	a. Informants sampled by job: administrators and service providers b. Multiple informants per choice situation, observations, document analysis	a. Informants sampled by job; administration, faculty, technical nonfaculty, and secretarial/maintenance b. Measured between and within informant effects, sample of observations
3. Quantitative data sets	a. Statistical analysis b. Secondary analysis	a. Not used b. Qualitative data set	a. Able to use multivariate statistics b. Mixed data set. Judgments are reinforced by quantitative measures of uncertainty. Also judgments were carefully defined so that replication is possible	a. Able to use multivariate statistics b. Mixed data set. Standardized interviews and questionnaires supported by structured observation

inability to engage in data reduction and to the difficulties of organizing and manipulating the information in order to test alternative explanations for the findings, or of even validating what the findings were (Becker, 1958). The case cluster method, because of its sampling and potential quantification procedures alleviates this problem.

Another strategy for secondary analysis involves merging all or parts of quantitative data sets from different studies that center around a relatively well-defined topic. Light and Smith (1971) and Hyman (1972) have elaborated a series of secondary analysis designs for this circumstance. Lazar and Darlington's (1978) longitudinal study of 14 early childhood intervention programs is a good example of this type of secondary analysis. Had each of the original investigations been a qualitative case study, then merging their data and collecting similar data at a later point in time would have been impossible. On the other hand, the absence of rich qualitative descriptions of the organizational features of the intervention programs made it difficult to explain some of the anomalies of the quantitative analyses. This suggests that research on single cases that incorporates a combination of qualitative and quantitative approaches would be optimal for secondary analysis and direct comparison with other cases. Since the case cluster method involves procedures for sampling data sources and units of analysis it is a conceptually straightforward subsequent task to create quantitative codes for variables, assuming sufficient consensus on their meaning.

The Table summarizes the features of the case cluster method, the issues they address, and the examples from the three studies.

COMPARISONS WITH OTHER METHODS

Case Studies

Some case studies explore special events such as the birth (Redman, 1973) and death (Hall, 1976) of organizations, or, to take a much less public event, the fate of an effort to debureaucratize a public sector organization (Warwick, 1975). The case cluster method is distinguished in different ways from each of these studies. In contrast to Redman's story of the Congressional origins of the National Health Service Corps, the case cluster method requires the use of theory for a priori definition of a slice of the action (that is, units of analysis and data sources) that will be systematically examined and compared with other organizational births.

While the case cluster method could be applied to longitudinal designs such as Hall's study of the *Saturday Evening Post,* it would differ from this study by using informants or other data sources that would be strategically selected to provide alternative perspectives on the process of decline and birth. If data were quantified then multiple data sets could be generated, organized by perspective, and contrasted with each other to assess multiple models of the *Post's* decision-making processes. The result would be a thicker description perhaps at the expense of as much longitudinal data.

The case cluster method could be applied to Warwick's

study without a great deal of change in the way his results were presented, but with the addition of more systematic comparisons and a sharper sense of external validity. The central purpose of Warwick's analysis of the State Department was to explain how bureaucratic forms were created and sustained in a public sector organization through an examination of forces internal and external to his single case. The methodology consisted of an examination of critical settings in which the seeds of vertical and horizontal differentiation were nourished by such factors as political pressure from Congress, technological and product uncertainties in the tasks of the State Department, personalities of Department personnel, historical patterns of career opportunities and status within the Foreign Service, and so on. By recasting this case study as a set of systematic observations across units of analysis, that one might label "bureaucratic seedbeds," the case cluster method emerges. It is a short conceptual leap to see how these units could have a standardized set of questions applied to them. Each question, or combination thereof, would constitute a potential explanation or predictor for the central dependent variable of interest, bureaucratic growth.

Particular data sources, such as a type of informant or set of documents, might be used to provide information on several units of analysis to which they could speak. In fact, it is likely that Warwick followed such a procedure although there is no evidence in his book that he applied the logic of sampling theory to selection of informants and other data sources, or to the selection of settings (i.e., units of analysis) in which to observe the effects of forces that produce bureaucratic forms of organization.

Sample Surveys

The major distinctions between the case cluster method and sample surveys of organizations are in the definition of units of analysis and the treatment of data from different classes of informants. Typically a respondent survey asks the individual to report on events and conditions in general within some boundary such as the organization, the workgroup, or a time frame (e.g., Lawrence and Lorsch, 1967; Comstock and Scott, 1977). Individuals or their aggregated forms are the units of analysis. One potential problem with this approach is that respondents are more likely to give overly-rationalized descriptions and to focus on the events that typically receive attention rather than on elusive but important phenomena that are not normally the topic of conversation. Thus, if the important theoretical concepts are not individuals or structural units, and we would argue that they often are not, then one needs to seek units of analysis that represent the events, attributes, and activities of theoretical interest, and to focus multiple perspectives on these units.

Aggregating the responses of individuals into subunit or organizational scores, whether weighted or not, is an attempt to average perceptions and resolve discrepancies. This aggregating process is contrary to the philosophy behind the case cluster method. We propose exploiting the differences in data provided by different classes of informant or other data sources. While the researcher may make summary

judgments for purposes of quantification or final interpretation, there is an explicit attempt to contrast different perspectives on each unit of analysis. The qualitative portrayal of different perspectives is one way of creating context for the case and for comparing it to other cases in which particular perspectives can be identified (Cronbach, 1975).

Finally, the case cluster method is to be distinguished from simple time-sampling procedures. Units of analysis are defined in terms of multiple attributes that might include time but would also stress location, activity, function, and so on. Sampling could be done without considering time at all.

The case survey method proposed by Yin and Heald (1975) comes closer operationally to the case cluster approach. The case survey is a way of quantifying and aggregating findings of conceptually related but methodologically separate case studies. It incorporates the use of an analyst-observer who codes data in standardized formats based on informant interviews and document analysis. In some ways it faces the same problems as the case cluster method, in particular the sometimes ambiguous definitions of the boundaries for units of analysis. Thus deciding which events, individuals, and observations to include within a single case may be problematic. Where multiple sources of evidence are used, there is also the potential problem of conflicting or ambiguous answers on a given variable. While this may require procedures for improving the reliability of measurement there are instances in which resolving differences would violate validity requirements. The remedy then involves the qualitative exploration of the varying findings on a single variable, the creation of confidence variables or elimination of the unit of analysis from the sample.

The central purpose of the case survey method is to aggregate across cases. Each case is a separate unit of analysis. In this sense there is a significant difference from the case cluster method. Where the researcher's focus is on a single case, however defined, the case survey method is not appropriate, but the case cluster method would be.

Strategies for Analysis and Methodological Tradeoffs

The case cluster method is a hybrid that can be used to steer a research project among the three goals of generalizability, accuracy, and simplicity. Weick (1979: 35–42) argues that a given research strategy can only achieve two of the three goals at a time and therefore must face methodological tradeoffs. Case studies and laboratory experiments are relatively simple and accurate but they are not generalizable. Sample surveys may be general and simple (in the sense of standardized questions) but they lose nuance and accuracy by collapsing different frames of reference.

In general, Weick is correct about the necessity of acknowledging tradeoffs. However, the case cluster method combines features of both case studies and sample surveys, thus it is possible to achieve various combinations of generalizability, accuracy, and simplicity within a single study rather than a series of studies by shifting the strategy or focus of analysis. One could qualitatively speculate on the case by reviewing the perceptions of informants who had

different perspectives. On the other hand, by collecting comparable data on a set of units of analysis within the case it would be possible to quantitatively describe and compare it to other cases. One would have moved from a thick and accurate analysis to a thin but generalizable description within the same study. In this sense the case cluster method presents a contingency approach for organizational research that can be tuned to the conditions and ambiguities of a research setting.

PROBLEMS AND PROSPECTS IN THE CASE CLUSTER METHOD

The case cluster method is in a formative stage of development and there is potential for refinement and extension of it both conceptually and operationally. In studying single organizations it may be a more satisfactory approach to hypothesis testing in terms of the theoretical adequacy of the units of analysis and the cost effectiveness of data analysis.

There are three central difficulties in using the case cluster approach. The problem of setting boundaries for units of analysis is critical and is similar in some ways to Weick's (1976) discussion of identifying the elements in studies of loose coupling in organizations. The researcher must exercise some discretion in rejecting units that are too narrow or too broad in range for the purposes of the study. The best guidance to use in this process is to examine the fit between the features of the potential unit of analysis and the kinds of questions or observations that one intends to use. It is necessary within upper and lower bounds to allow informants latitude for definition in order to maximize phenomenological integrity. Units of analysis may differ on dimensions of scope of activities, duration, number of participants, and so on, but they will be tied together by the fact that they have identifiable boundaries, they are within the same case, and that a common set of questions or codes is applied to them. Longitudinal studies pose a special problem since units of analysis may disappear over time. This was noted often in the Planning Study, and in the Choice Behavior Study it was expected that choice situations would dissolve (perhaps to reappear) after some form of decision outcome was observed. The problem of sample attrition is endemic to all forms of research, however, and can best be dealt with by having formal sampling procedures that allow one to gauge the resultant bias.

The case cluster method deliberately violates the requirement of some statistical tests that observations on units of analysis be independent. Certainly this is a feature of any measurement procedure in which the same observer, interviewer, or experimenter records observations, standardized or not, across a set of units of analysis or time periods. In sample surveys of individuals it is expected that members of families, social groups, neighborhoods, cities, regions, and so on will have higher correlations among them than with individuals outside those groupings. While the problem is real it is mainly a matter of degree when the case cluster method is compared with standard sample survey or experimental designs.

The strength of the case cluster method lies in the potential for creating units of analysis that are based on theory and that have meaning for the actors and observers of the case. In addition, while preserving the distinctive features of the case it employs replicable sampling and, if desired, quantitative measurement procedures to complement qualitative analysis. For these reasons it is a promising method for improving qualitative studies of organizations.

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