Part II

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The Design of Business Research
Chapter 6
Research Design: An Overview

Learning Objectives
After reading this chapter, you should understand . . .

1. The basic stages of research design.
2. The major descriptors of research design.
3. The major types of research designs.
4. The relationships that exist between variables in research design and the steps for evaluating those relationships.

Most human beings and most companies don't like to make choices. And they particularly don't like to make a few choices that they really have to live with.

Alan Lafley, former president and chairman of the board, Procter & Gamble
“So what has you frowning at the coffee pot so early on this beautiful morning,” greets Jason Henry, as he encounters his partner Sara Arens staring at the coffee machine. “I believe the statisticians have confirmed that ‘A watched pot never boils.’”

“I’m just debating whether I need another cup before joining you for the debriefing on our new project,” shares Sara. “My mind has been running on overdrive since yesterday.” Sara pours herself a generous cup and tops off Jason’s cup as well. “Let’s move to the conference room. I have lots of information to share with you.”

“The meeting didn’t turn out quite like we expected. Not just another project from a former client. What I faced yesterday was, well, a syndicate of businesses—representatives from Sun Microsystems, Best Buy, AT&T, even some major health institutions were in the group, to name just a few. In a nutshell, they want us to design and conduct the definitive study on the effectiveness of work-life balance employee programs,” exclaims Sara, grinning widely.

“Work-life balance programs—those are the ones that track employee performance, but not their time on the job, that give employees a lot more control over when and where they work, right?” asks Jason. “Weren’t you just talking about these programs being profiled in the article you read last week in . . .”

“. . . in BusinessWeek,” interrupts Sara. “The exciting thing about the study is that they are so open on methodology. They want us to design the ultimate study. We will have access to data from those organizations that have implemented such programs—possibly enabling ex post facto studies. There were retailers, hospitals, manufacturers, high-technology companies present, almost every type of organization you could want in such a ground-breaking study.

Several of the companies are real believers in work-life balance initiatives and are rolling out implementation of programs from division to division. As a result, they have some divisions in which the programs are not yet implemented. And these organizations cross continental boundaries. We’ll have to work with cross-cultural issues as well as workplace culture issues. And several other organizations within the syndicate are interested in implementing such work-life balance initiatives but have agreed not to implement programs until the research is in place to monitor changes in attitudes, perceptions, and behaviors.”

“Ah, so that work we did in Europe and China last year, where the workplace cultures had such a significantly different impact, will pay dividends on this next project. So you are thinking control studies?” questions Jason.

“Well, we certainly have the opportunity to set up such field experiments,” claimed Sara. “But initially I’m thinking a multiphase descriptive communication study, too, maybe combining qualitative research to get at deeper feelings and motivations for work environment change with surveys to generate statistical measures of pre- and postattitudes, but also some longitudinal monitoring studies— and some of these could be observation research. We have so many options that we will need some exploratory work to help us focus. Some of the companies had done some preimplementation descriptive research on morale and some longitudinal measures on performance changes. I think we should digest those reports before we make any decisions about design. They promised to overnight the reports—we may have some this morning, but we should have the bulk of them tomorrow.”

“We could start our interns on a literature search now,” suggested Jason.
> What Is Research Design?

The topics covered by the term research design are wide-ranging, as depicted in Exhibit 6-1. This chapter introduces a classification of research designs and provides an overview of the most important design types (exploratory, descriptive, and causal). We refer you to subsequent chapters for a more thorough coverage of the unique features of qualitative studies, observational studies, surveys, and experiments. Our objective here is not for you to acquire the details of research design in one reading.
but for you to understand its scope and to get a glimpse of the available options for tailoring a design to an organization's particular research needs.

There are many definitions of research design, but no single definition imparts the full range of important aspects.

- Research design constitutes the blueprint for the collection, measurement, and analysis of data.
- Research design aids the researcher in the allocation of limited resources by posing crucial choices in methodology.
- Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research. It includes an outline of what the investigator will do from writing hypotheses and their operational implications to the final analysis of data.
- Research design expresses both the structure of the research problem—the framework, organization, or configuration of the relationships among variables of a study—and the plan of investigation used to obtain empirical evidence on those relationships.

These definitions differ in detail, but together they give the essentials of research design:

- An activity- and time-based plan.
- A plan always based on the research question.
- A guide for selecting sources and types of information.
- A framework for specifying the relationships among the study's variables.
- A procedural outline for every research activity.

At its core, research is a project and project management tools such as critical path method (CPM) can be used to depict sequential and simultaneous steps and estimate scheduling and timetables for each activity or phase of the research, as is done in Exhibit 6-2. The pathway from start to end that takes the longest time to complete is called the critical path. Any delay in an activity along this path will delay the end of the entire project. We introduced you to an alternative scheduling tool, the Gantt chart, in Chapter 5 (see Exhibit 5-11). Before you develop a schedule, however, you need to know precisely what research you plan to do.

Exhibit 6-2 CPM Schedule of Research Design.
Classification of Designs

Early in any research study, one faces the task of selecting the specific design to use. A number of different design dimensions exist, but, unfortunately, no simple classification system defines all the variations that must be considered. Exhibit 6-3 groups research design issues using eight different descriptors. A brief discussion of these descriptors illustrates their nature and contribution to research.

Degree of Research Question Crystallization

A study may be viewed as exploratory or formal. The essential distinctions between these two options are the degree of structure and the immediate objective of the study. Exploratory studies tend toward loose structures with the objective of discovering future research tasks. The immediate purpose of exploration is usually to develop hypotheses or questions for further research. The formal study begins where the exploration leaves off—it begins with a hypothesis or research question and involves precise procedures and data source specifications. The goal of a formal research design is to test the hypotheses or answer the research questions posed.

The exploratory–formal study dichotomy is less precise than some other classifications. All studies have elements of exploration in them, and few studies are completely uncharted. The sequence discussed in Chapter 4 (see Exhibit 4-1 and the model on the inside front cover) suggests that more formalized studies contain at least an element of exploration before the final choice of design. More detailed consideration of exploratory research is found later in this chapter.
Method of Data Collection

This classification distinguishes between monitoring and communication processes. We use the term communication to contrast with monitoring because collecting data by questioning encompasses more than the survey method. Monitoring includes studies in which the researcher inspects the activities of a subject or the nature of some material without attempting to elicit responses from anyone. Traffic counts at an intersection, license plates recorded in a restaurant parking lot, a search of the library collection, an observation of the actions of a group of decision makers, the State Farm Dangerous Intersection Study—all are examples of monitoring. In each case the researcher notes and records the information available from observations. Monitoring for MindWriter might include “following” a computer through the repair process, documenting each activity or interaction between CompleteCare and call center employees and the damaged laptop.

In the communication study, the researcher questions the subjects and collects their responses by personal or impersonal means. The collected data may result from (1) interview or telephone conversations, (2) self-administered or self-reported instruments sent through the mail, left in convenient locations, or transmitted electronically or by other means, or (3) instruments presented before and/or after a treatment or stimulus condition in an experiment. Sara and Jason propose a communication study, using a response card inserted in the packaging of laptops returned after CompleteCare servicing.

Researcher Control of Variables

In terms of the researcher’s ability to manipulate variables, we differentiate between experimental and ex post facto designs. In an experiment, the researcher attempts to control and/or manipulate the variables in the study. It is enough that we can cause variables to be changed or held constant in keeping with our research objectives. Experimental design is appropriate when one wishes to discover whether certain variables produce effects in other variables. Experimentation provides the most powerful support possible for a hypothesis of causation.

With an ex post facto design, investigators have no control over the variables in the sense of being able to manipulate them. They can only report what has happened or what is happening. It is important that the researchers using this design not influence the variables; to do so introduces bias. The researcher is limited to holding factors constant by judicious selection of subjects according to strict sampling procedures and by statistical manipulation of findings. MindWriter is planning an ex post facto design.

The Purpose of the Study

The essential difference between the various studies in this grouping—reporting, descriptive, and causal-explanatory or causal-predictive—lies in their objectives. A reporting study provides a summation of data, often recasting data to achieve a deeper understanding or to generate statistics for comparison. In a study of crime, for example, a reporting study might tally the number of employee thefts that take place in shopping malls versus free-standing stores. If the research is concerned with finding out who, what, where, when, or how much, then the study is descriptive. Descriptive research on employee theft would measure the types of theft committed (clothing vs. electronics vs. housewares), how often, when (time of year, time of day, day of week), where (receiving dock, stockroom, sales floor), and by whom (gender, age, years of service, departmental assignment). If a study is concerned with learning why—that is, how one variable produces changes in another—it is causal-explanatory. In a causal-explanatory study, we try to explain relationships among variables—for instance, why the crime rate is higher in mall A than in mall B or why male employees steal more than female employees. A causal-predictive study attempts to predict an effect on one variable by manipulating another variable while holding all other variables constant. In our crime example, researchers using a causal-predictive study might be interested in whether installation of video surveillance cameras on the receiving dock and in stockrooms would reduce employee theft in mall stores. At the outset, the MindWriter project is descriptive, although subsequent studies might be causal.
The Time Dimension

Cross-sectional studies are carried out once and represent a snapshot of one point in time. Longitudinal studies are repeated over an extended period. The advantage of a longitudinal study is that it can track changes over time. Jason and Sara’s proposal describes a longitudinal study, with satisfaction measurements taken continuously over several months and reported monthly.

In longitudinal studies of the panel variety, the researcher may study the same people over time. In marketing, panels are set up to report consumption data on a variety of products. These data, collected from national samples, provide a major data bank on relative market share, consumer response to new products, and new promotional methods. Other longitudinal studies, such as cohort groups, use different subjects for each sequenced measurement. The service industry might have looked at the needs of aging baby boomers by sampling 40- to 45-year-olds in 1990 and 50- to 55-year-olds in 2000. Although each sample would be different, the population of 1945 to 1950 cohort survivors would remain the same.

Some types of information once collected cannot be collected a second time from the same person without the risk of bias. The study of public awareness of an advertising campaign over a six-month period would require different samples for each measurement.

While longitudinal research is important, the constraints of budget and time impose the need for cross-sectional analysis. Some benefits of a longitudinal study can be revealed in a cross-sectional study by adroit questioning about past attitudes, history, and future expectations. Responses to these kinds of questions should be interpreted with care, however.

The Topical Scope

The statistical study differs from the case study in several ways. Statistical studies are designed for breadth rather than depth. They attempt to capture a population’s characteristics by making inferences from a sample’s characteristics. Hypotheses are tested quantitatively. Generalizations about findings are presented based on the representativeness of the sample and the validity of the design. MindWriter plans a statistical study.

Case studies place more emphasis on a full contextual analysis of fewer events or conditions and their interrelations. Although hypotheses are often used, the reliance on qualitative data makes support or rejection more difficult. An emphasis on detail provides valuable insight for problem solving, evaluation, and strategy. This detail is secured from multiple sources of information. It allows evidence to be verified and avoids missing data. Remember the proposed monitoring study for MindWriter? If MindWriter tracked one or more laptops, this could serve as a case study of the CompleteCare program.

Although case studies have been maligned as “scientifically worthless” because they do not meet minimal design requirements for comparison,” they have a significant scientific role. It is known that “important scientific propositions have the form of universals, and a universal can be falsified by a single counterinstance.” Thus, a single, well-designed case study can provide a major challenge to a theory and provide a source of new hypotheses and constructs simultaneously. Discovering new hypotheses to correct postservice complaints would be the major advantage of tracking a given number of damaged MindWriter laptops through the case study design.

The Research Environment

Designs also differ as to whether they occur under actual environmental conditions (field conditions) or under staged or manipulated conditions (laboratory conditions).

To simulate is to replicate the essence of a system or process. Simulations are increasingly used in research, especially in operations research. The major characteristics of various conditions and relationships in actual situations are often represented in mathematical models. Role-playing and other behavioral activities may also be viewed as simulations. A simulation for MindWriter might involve an arbitrarily damaged laptop being tracked through the call center and the CompleteCare program, monitoring results at each workstation. Another popularly used simulation is the retail service study involving “mystery shoppers.”
Participants' Perceptual Awareness

The usefulness of a design may be reduced due to a participant's perceptual awareness when people in a disguised study perceive that research is being conducted. Participants' perceptual awareness influences the outcomes of the research in subtle ways or more dramatically as we learned from the pivotal Hawthorne studies of the late 1920s. Although there is no widespread evidence of attempts by participants or respondents to please researchers through successful hypothesis guessing or evidence of the prevalence of sabotage, when participants believe that something out of the ordinary is happening, they may behave less naturally. There are three levels of perception:

1. Participants perceive no deviations from everyday routines.
2. Participants perceive deviations, but as unrelated to the researcher.
3. Participants perceive deviations as researcher-induced.7

The "mystery shopper" scenario is the perfect example of the final level of perceptual awareness noted in the preceding list. If a retail sales associate knows she is being observed and evaluated—with consequences in future compensation, scheduling, or work assignment—she is likely to change her performance. In all research environments and control situations, researchers need to be vigilant to effects that may alter their conclusions. Participants' perceptions serve as a reminder to classify one's study by type, to examine validation strengths and weaknesses, and to be prepared to qualify results accordingly.

> Exploratory Studies

Exploration is particularly useful when researchers lack a clear idea of the problems they will meet during the study. Through exploration researchers develop concepts more clearly, establish priorities, develop operational definitions, and improve the final research design. Exploration may also save time and money. If the problem is not as important as first thought, more formal studies can be canceled.

Exploration serves other purposes as well. The area of investigation may be so new or so vague that a researcher needs to do an exploration just to learn something about the dilemma facing the manager. Important variables may not be known or thoroughly defined. Hypotheses for the research may be needed. Also, the researcher may explore to be sure it is practical to do a formal study in the area. A federal government agency, the Office of Industry Analysis, proposed that research be done on how executives in a given industry made decisions about raw material purchases. Questions were planned asking how (and at what price spreads) one raw material was substituted for another in certain manufactured products. An exploration to discover if industry executives would divulge adequate information about their decision making on this topic was essential for the study's success.

Despite its obvious value, researchers and managers alike give exploration less attention than it deserves. There are strong pressures for quick answers. Moreover, exploration is sometimes linked to old biases about qualitative research: subjectiveness, nonrepresentativeness, and nonsystematic design. More realistically, exploration saves time and money and should not be slighted.

Qualitative Techniques

The objectives of exploration may be accomplished with different techniques. Both qualitative and quantitative techniques are applicable, although exploration relies more heavily on qualitative techniques. One author creates a verbal picture to differentiate the two:

Quality is the essential character or nature of something; quantity is the amount. Quality is the what; quantity the how much. Qualitative refers to the meaning, the definition or analogy or model or metaphor characterizing something, while quantitative assumes the meaning and refers to a measure of it... The difference lies in Steinbeck's [1941] description of the Mexican Sierra, a fish from the Sea of Cortez. One can count the spines on the dorsal fin of a pickled Sierra, 17 plus 16 plus 9. "But," says Steinbeck, "if the Sierra strikes hard on the line so that our hands are burned, if the fish
All great research starts with a question. When Pepsi, GM, and Purple Moon needed a realistic and strategic understanding of the teen population to help guide product development and communications strategies, they turned to Cheskin. A 50-year-old consulting and strategic research firm, Cheskin designed a research approach that looks at teens the way they look at themselves.

- Cheskin sends cameras out to hundreds of teens, asking them to photograph their lives as they really are.
- Cheskin researchers interview friends together, asking them about their dreams, fears, cares, and concerns.
- Cheskin interviews experts who have built careers on understanding teen psyche.
- Cheskin researchers visit common teen hangouts, observing how teens act when away from adults.

As a result, Cheskin identified five main types of teenagers. Then the researchers designed a new model that tracks the relative influence of these teen types over time, to accurately predict how trends move through the teen population. "We identify youth by their social cliques instead of by demographic constructs, and create portraits you'll recognize in the street." This project is now an annual study of teen culture and behavior.

When we consider the scope of qualitative research, several approaches are adaptable for exploratory investigations of management questions:

- Individual depth interviews (usually conversational rather than structured).
- Participant observation (to perceive firsthand what participants in the setting experience).
- Films, photographs, and videotape (to capture the life of the group under study).
- Projective techniques and psychological testing (such as a Thematic Apperception Test, projective measures, games, or role-playing).
- Case studies (for an in-depth contextual analysis of a few events or conditions).
- Street ethnography (to discover how a cultural subgroup describes and structures its world at the street level).
- Elite or expert interviewing (for information from influential or well-informed people in an organization or community).
- Document analysis (to evaluate historical or contemporary confidential or public records, reports, government documents, and opinions).
- Proxemics and kinesics (to study the use of space and body-motion communication, respectively).
As part of the negotiated settlement in the landmark sexual harassment suit brought against Smith Barney by 25 current and former employees (Martens et al. v. Smith Barney (S.D.N.Y., 96 Civ 3779)), the financial services firm was charged with conducting research to assess underlying perceptions contributing to the illegal behavior. Catalyst, a New York firm committed to advancing women in business, conducted the multistage study ordered by Judge Constance Barker-Motley. Nine focus groups (eight single-gender, one mixed-gender) were used to help define various concepts and constructs, followed by a mail survey of 838 men and women employed in seven firms in the financial services industry. Catalyst conducted in-depth interviews with six women who left lucrative jobs in the financial services industry to start their own firms, in addition to identifying exemplary policies and programs—"best practices"—currently used in the industry. While the study revealed some similarities, it reinforced that statistically significant differences exist between men and women on key variables that define job performance and job satisfaction. To learn more about this benchmark study, see "The Catalyst for Women in Financial Services" in the Cases section of this text.

www.catalystwomen.org; www.salomonsmithbarney.com

When these approaches are combined, four exploratory techniques emerge with wide applicability for the management researcher:

1. Secondary data analysis.
2. Experience surveys.
3. Focus groups.
4. Two-stage designs.

Secondary Data Analysis

The first step in an exploratory study is a search of the secondary literature. Studies made by others for their own purposes represent secondary data. It is inefficient to discover anew through the collection of primary data or original research what has already been done and reported at a level sufficient for management to make a decision.

Within secondary data exploration, a researcher should start first with an organization's own data archives. Reports of prior research studies often reveal an extensive amount of historical data or decision-making patterns. By reviewing prior studies, you can identify methodologies that proved successful and unsuccessful. Solutions that didn't receive attention in the past due to different environmental circumstances are revealed as potential subjects for further study. The researcher needs to avoid duplication in instances when prior collected data can provide sufficient information for resolving the current decision-making dilemma. While MindWriter's CompleteCare program is newly introduced, it is likely that one or more studies of the previous servicing practices and policies revealed customer attitudes on which MindWriter based the design of the current program.

The second source of secondary data is published documents prepared by authors outside the sponsor organization. There are tens of thousands of periodicals and hundreds of thousands of books on all aspects of business. Data from secondary sources help us decide what needs to be done and can be a rich source of hypotheses. Special catalogs, subject guides, and electronic indexes—available in most libraries—will help in this search. In many cases you can conduct a secondary search from your home or office using a computer, an online service, or an Internet gateway. Regarding MindWriter, thousands of articles have been written on customer service, and an Internet search using the keyword customer service reveals tens of thousands of hits.

If one is creative, a search of secondary sources will supply excellent background information as well as many good leads. Yet if we confine the investigation to obvious subjects in bibliographic
sources, we will often miss much of the best information. Suppose the Copper Industry Association is interested in estimating the outlook for the copper industry over the next 10 years. We could search through the literature under the headings “copper production” and “copper consumption.” However, a search restricted to these two topics would miss more than it finds. When a creative search of the copper industry is undertaken, useful information turns up under the following reference headings: mines and minerals; nonferrous metals; forecasting; planning; econometrics; consuming industries such as automotive and communications; countries where copper is produced, such as Chile; and companies prominent in the industry, such as Anaconda and Kennecott.

We provide a detailed list of secondary sources on the text website.

Experience Survey

While published data are a valuable resource, it is seldom that more than a fraction of the existing knowledge in a field is put into writing. A significant portion of what is known on a topic, while in writing, may be proprietary to a given organization and thus unavailable to an outside searcher. Also, internal data archives are rarely well organized, making secondary sources, even when known, difficult to locate. Thus, we will profit by seeking information from persons experienced in the area of study, tapping into their collective memories and experiences.

When we interview persons in an experience survey, we should seek their ideas about important issues or aspects of the subject and discover what is important across the subject’s range of knowledge. The investigative format we use should be flexible enough so that we can explore various avenues that emerge during the interview.

- What is being done?
- What has been tried in the past without success? With success?
- How have things changed?
- What are the change-producing elements of the situation?
- Who is involved in decisions and what role does each person play?
- What problem areas and barriers can be seen?
- What are the costs of the processes under study?
- Whom can we count on to assist and/or participate in the research?
- What are the priority areas?

The product of such questioning may be a new hypothesis, the discarding of an old one, or information about the practicality of doing the study. Probing may show whether certain facilities are available, what factors need to be controlled and how, and who will cooperate in the study.

Discovery is more easily carried out if the researcher can analyze cases that provide special insight. Typical of exploration, we are less interested in getting a representative cross section than in getting information from sources that might be insightful. Assume we study StarAuto’s automobile assembly plant. It has a history of declining productivity, increasing costs, and growing numbers of quality defects. People who might provide insightful information include:

- Newcomers to the scene—employees or personnel who may have been recently transferred to this plant from similar plants.
- Marginal or peripheral individuals—persons whose jobs place them on the margin between contending groups. First-line supervisors and lead workers are often neither management nor worker but something in between.
- Individuals in transition—recently promoted employees who have been transferred to new departments.
• *Deviants and isolates*—those in a given group who hold a different position from the majority, as well as workers who are happy with the present situation, highly productive departments and workers, and loners of one sort or another.

• "*Pure*" cases or cases that show extreme examples of the conditions under study—the most unproductive departments, the most antagonistic workers, and so forth.

• *Those who fit well and those who do not*—the workers who are well established in their organizations versus those who are not, those executives who fully reflect management views and those who do not.

• *Those who represent different positions in the system*—unskilled workers, assemblers, superintendents, and so forth.

Jason and Sara plan to interview three managers during the early phase of their research for MindWriter: the managers of (1) the service facility, (2) the call center, and (3) the contract courier service. Their emphasis should be not only on finding out what has been done in the past but also on discovering the parameters of feasible change. They might want to expand their interviews to include long-term employees of the various departments, as their views are likely to be different from those of their managers. Because postpurchase service problems might be directly related to product design, expanding their experience survey to individuals associated with engineering and production should also be considered.

**Focus Groups**

Focus groups became widely used in research during the 1980s and are used for increasingly diverse research applications today. A *focus group* is a group of people (typically 6 to 10 participants), led by a trained moderator, who meet for 90 minutes to 2 hours. The facilitator or moderator uses group dynamics principles to focus or guide the group in an exchange of ideas, feelings, and experiences on a specific topic.

One topical objective of a focus group might be a new product or product concept, a new employee motivation program, or improved production-line organization. The basic output of the session is a list of ideas and behavioral observations, with recommendations by the moderator. These ideas and observations are often used for later quantitative testing. In exploratory research, the qualitative data that focus groups produce may be used for enriching all levels of research questions and hypotheses and comparing the effectiveness of design options. The most common application of focus group research continues to be in the consumer arena. However, corporations are using focus group results for diverse exploratory applications.

MindWriter could use focus groups involving employees (of the call center and service departments) to determine changes and provide an analysis of change ideas. It may want focus groups with customers (both dissatisfied and satisfied) to uncover what has occurred in their different experiences. In another application, when a large title insurance company was developing a computerized help system, it ran focus groups with...
The Ohio Lottery Initiates a Two-Stage Study

What motivates a lottery player to play? What is the understanding of the payout or odds and how relevant is this understanding to making a purchase? Are purchases of lottery tickets routine or impulsive? Are purchases perceived as recreation or gambling? How is winning defined? What is the influence of in-store promotion and signage? Is playing perceived as chance or skill? What is the significance of the dollar value of the ticket?

In 2005, the Ohio Lottery sponsored a study conducted by Marcus Thomas LLC with the services of MRSI. The first phase was a detailed, online survey taking approximately 39 minutes. The questions developed for the survey were drawn from the experience with the MET interviews. All 1,505 (1,305 players and 200 nonplayers) participants completed the survey by accessing a secure website between July 22 and July 31, 2005. The quantitative study verified the lessons from the MET analysis—that messaging should emphasize fun, the rush experienced while learning whether the dream of the win will come true, and the low-risk nature of the entertainment. Detailed analysis of the data also enabled the Ohio Lottery to understand the segments of lottery players.

To learn more about this study, and see sample questions and data displays, read the case Ohio Lottery: Innovative Research Design Drives Winning on your text CD.


Two-Stage Design

A useful way to design a research study is as a two-stage design. With this approach, exploration becomes a separate first stage with limited objectives: (1) clearly defining the research question and (2) developing the research design.

In arguing for a two-stage approach, we recognize that much about the problem is not known but should be known before effort and resources are committed. In these circumstances, one is operating in unknown areas, where it is difficult to predict the problems and costs of the study. Proposals that acknowledge the practicality of this approach are particularly useful when the research budget is inflexible. A limited exploration for a specific, modest cost carries little risk for both sponsor and researcher and often uncovers information that reduces the total research cost.

An exploratory study is finished when the researchers have achieved the following:

- Established the major dimensions of the research task.
- Defined a set of subsidiary investigative questions that can be used as guides to a detailed research design.
- Developed several hypotheses about possible causes of a management dilemma.
- Learned that certain other hypotheses are such remote possibilities that they can be safely ignored in any subsequent study.
- Concluded additional research is not needed or is not feasible.
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*Wildcat Survey—Problem or Opportunity?*

A wildcat survey is executed when business managers bypass their internal research departments and, using online survey software, launch their own survey. This is a growing phenomenon, according to Ruth Stanat, president and CEO of SIS International Research, and is most frequently done "to control costs and gain immediate feedback."

But there are drawbacks, most notably loss of control of internal sample panels; duplication of contact and sample fatigue; and insufficient training in question development and data analysis, leading to poor data quality and weak data insights. "If [sample respondents] feel bombarded by our surveys," shared Sharon Starr, director of market research for IPC Inc., "they will start to ignore surveys at best, or resent the company for wasting their time at worst. The company's image will suffer if the company looks disunified and out of control."

The availability of seemingly simple survey solutions from firms like Zoomerang and SurveyMonkey has magnified the problem. Jeffrey C. Adler, president of Centrac DC Marketing Research, likens it to trying to fix a broken switch on his own furnace. "I could have gone to Home Depot and purchased the switch myself, theoretically saving a lot of money. However, I was smart enough to recognize that changing the switch was not my area of expertise. How big would the savings have been if I wired the thing myself and caused damage to the furnace or burned down the house?" Adler argues that when end-users work through research departments or specialists, they are paying for expertise in using the tools. He laments that managers recognize this readily with an electrician or a surgeon, but fail to recognize this with research specialists.

Some in the industry think research specialists have, in part, created the problem by not providing knowledge and insights to the manager about the practice of research itself. By not educating that manager about how research is done, that manager is less able to distinguish greater from lesser quality research. If research buyers or sponsors understood the real challenges of research in a specific project, it is argued, they would have a greater appreciation for the art and science of research.

"There is an opportunity for research departments to extend an olive branch to other parts of the business by providing best practices, templates, and even resources for self-executed projects," suggests Josh Mendelsohn, vice president of Chadwick Martin Bailey Inc. "I certainly wish everyone had the time/budget to do full-fledged research projects in every case, but sometimes the business need doesn’t justify the cost/time it takes to do something the right way. By providing assistance, the validity issues are likely to go away and redundancies are going to be less. And research [divisions] then become more of a business partner to be consulted than an internal vendor to be battled with."

WWW.sismarketresearch.com; www.ipc.org; www.centracdc.com; www.cminfo.com

**Descriptive Studies**

In contrast to exploratory studies, more formalized studies are typically structured with clearly stated hypotheses or investigative questions. Formal studies serve a variety of research objectives:

1. Descriptions of phenomena or characteristics associated with a subject population (the *who, what, when, where, and how of a topic*).
2. Estimates of the proportions of a population that have these characteristics.
3. Discovery of associations among different variables.

The third study objective is sometimes labeled a *correlational study*, a subset of descriptive studies. A descriptive study may be simple or complex; it may be done in many settings. Whatever the form, a descriptive study can be just as demanding of research skills as the causal study, and we should insist on the same high standards for design and execution.

The simplest descriptive study concerns a univariate question or hypothesis in which we ask about, or state something about, the size, form, distribution, or existence of a variable. In the account analysis at BankChoice (introduced in Chapters 4 and 5) we might be interested in developing a profile of savers. We first may want to locate them in relation to the main office. The question might be, What percentage of the savers live within a two-mile radius of the office? Using the hypothesis format, we might predict, 60 percent or more of the savers live within a two-mile radius of the office.

We may also be interested in securing information about other variables, such as the relative size of accounts, the number of accounts for minors, the number of accounts opened within the last six
shows no common job, department, demographic, or personal characteristics (A, B, D, and E). However, membership in a camping club (C) is common across both groups. The conclusion is that club membership is associated with high absenteeism (Z).

The method of agreement helps rule out some variables as irrelevant. In Exhibit 6-3, A, B, D, and E are unlikely to be causes of Z. However, there is an implicit assumption that there are no variables to consider other than A, B, C, D, and E. One can never accept this supposition with certainty because the number of potential variables is infinite. In addition, while C may be the cause, it may instead function only in the presence of some other variable not included.

The negative canon of agreement states that where the absence of C is associated with the absence of Z, there is evidence of a causal relationship between C and Z. Together with the method of agreement, this forms the basis for the method of difference: "If there are two or more cases, and in one of them observation Z can be made, while in the other it cannot; and if variable C occurs when observation Z is made, and does not occur when observation Z is not made; then it can be asserted that there is a causal relationship between C and Z."^14

Using our MindWriter example, if Jason and Sara were to discover that a particular servicing problem repeatedly occurred only when a single employee was involved in the servicing of customers' laptops and never when that employee was absent, an assumption of causation might be made. The method of difference is illustrated in Exhibit 6-5. Although these methods neither ensure discovery of all relevant variables nor provide certain proof of causation, they help advance our understanding of causality by eliminating inadequate causal arguments.15

While no one can ever be certain that variable A causes variable B to occur, one can gather some evidence that increases the belief that A leads to B. In testing causal hypotheses, we seek three types of evidence:

1. Covariation between A and B.
   - Do we find that A and B occur together in the way hypothesized (symmetrical relationship)?
   - When A does not occur, is there also an absence of B?
   - When there is more or less of A, does one also find more or less of B?
2. Time order of events moving in the hypothesized direction.
   - Does A occur before B?
3. No other possible causes of B.
   - Can one determine that C, D, and E do not covary with B in a way that suggests possible causal connections?

In addition to these three conditions, successful inference-making from experimental designs must meet two other requirements. The first is referred to as control. All factors, with the exception of the independent variable, must be held constant and not confounded with another variable that is not part of the study. Second, each person in the study must have an equal chance for exposure to each level of the independent variable. This is random assignment of subjects to groups.

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*Exhibit 6-5* Mill's Method of Difference

<table>
<thead>
<tr>
<th>Descriptive Factors</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td>B</td>
</tr>
</tbody>
</table>

Therefore

C → Z