

Learning Module D

Research Methods in OB

As a future manager, you probably will be involved in developing or implementing programs for solving managerial problems. You may also be asked to assess recommendations derived from in-house research reports or judge the usefulness of management consulting proposals. These tasks might entail reading and evaluating research findings presented both in scientific and professional journal articles. Thus, it is important for managers to have a basic working knowledge of the research process. Moreover, such knowledge can help you critically evaluate research information encountered daily in Internet, newspaper, magazine, and television reports. These conclusions are all the more important when you consider them in light of results obtained from two studies. The first was a national survey about the extent to which Americans believe or accept poll results reported on TV or in a newspaper. Results revealed that 33% of adults generally believed in what they heard or read; 44% did not.¹ The second study, which was conducted by the National Science Foundation, indicated that most people could not tell good scientific studies from bad ones.² If people cannot judge the difference between good and bad research, then how do they know what to believe about research results pertaining to organizational, societal, or health problems? As a specific case in point, let us consider the issue of whether to wear rear-seat lap belts while riding in an automobile.

A study conducted by the National Transportation Safety Board (NTSB) concluded, “Instead of protecting people, rear-seat lap belts can cause serious or fatal internal injuries in the event of a head-on crash.”³ Despite previous recommendations to wear seat belts, do you now believe rear-seat lap belts are dangerous? To answer this question adequately, one needs to know more about how the NTSB’s study was conducted and what has been found in related studies. Before providing you with this information, however, this learning module presents a foundation for understanding the research process. Our purpose is not to make you a research scientist. The purpose is to make you a better consumer of research information, such as that provided by the NTSB.

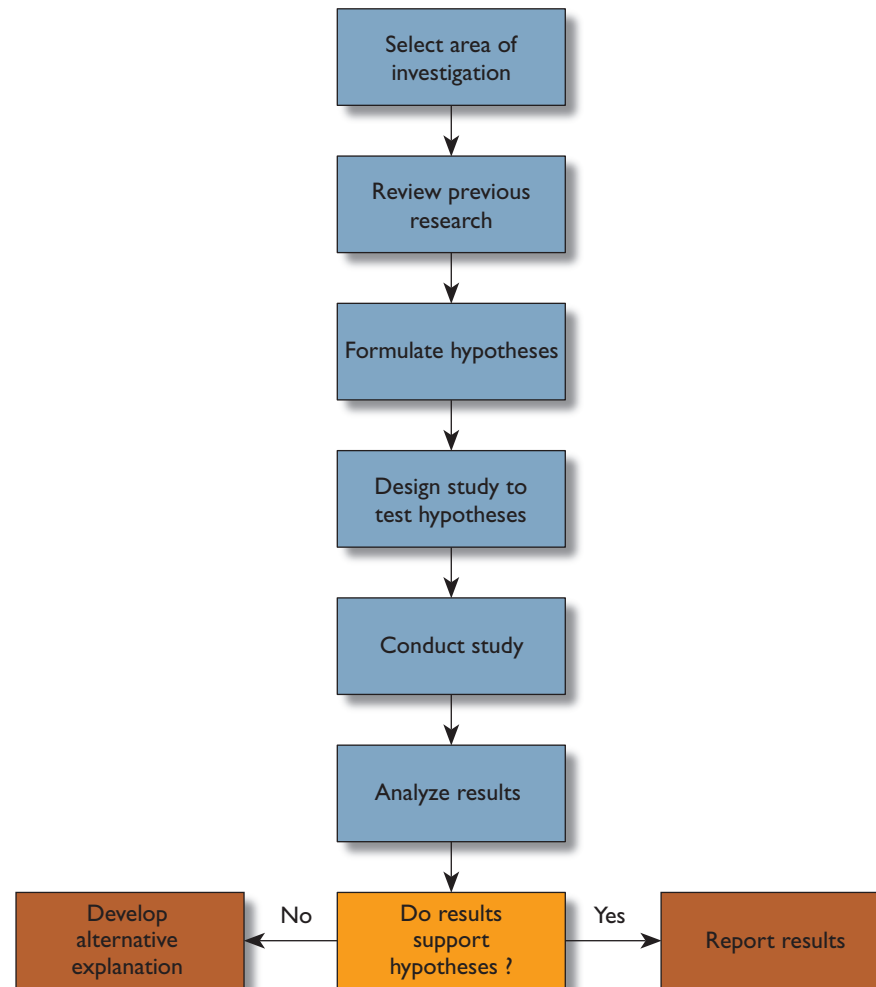
The Research Process

Research on organizational behavior is based on the scientific method. The *scientific method* is a formal process of using systematically gathered data to test hypotheses or to explain natural phenomena. To gain a better understanding of how to evaluate this process, we discuss a model of how research is conducted, explore how researchers measure organizationally relevant variables, highlight three ways to evaluate research methods, and provide a framework for evaluating research conclusions. We also discuss how to read a research article. Finally, we return to the NTSB study and evaluate its conclusions on the basis of lessons from this learning module.

A Model of the Research Process

A flowchart of the research process is presented in Figure D–1. Organizational research is conducted to solve problems. The problem may be one of current

Figure D-1 Model of the Research Process



SOURCE: V R Boehm, "Research in the 'Real World': A Conceptual Model," *Personnel Psychology*, Autumn 1980, p 496. Used with permission.

interest to an organization, such as absenteeism or low motivation, or may be derived from published research studies.⁴ In either case, properly identifying and attempting to solve the problem necessitates a familiarity with previous research on the topic. This familiarity contributes background knowledge and insights for formulating a hypothesis to solve the problem. Students who have written formal library-research papers are well-acquainted with this type of *secondary* research.

According to a respected researcher, "A *hypothesis* is a conjectural statement of the relation between two or more variables. Hypotheses are always in declarative form, and they relate, either generally or specifically, variables to variables."⁵ Regarding the problem of absenteeism, for instance, a manager might want to test the following hypothesis: Hourly employees who are dissatisfied with their pay are absent more often than those who are satisfied. Importantly, hypotheses should be theory-driven, thus anchoring them to a foundation of research insights. A respected behavioral scientist, Kurt Lewin, once said there is nothing as practical as a good theory. According to one management researcher, a **theory** is a story that

Theory
A story defining key terms, providing a conceptual framework, and explaining why something occurs.

explains *why*.⁶ Another calls well-constructed theories “disciplined imagination.”⁷ A good OB theory, then, is a story that effectively explains why individuals and groups behave as they do. Moreover, a good theoretical model

1. *Defines* key terms.
2. Constructs a *conceptual framework* that explains how important factors are interrelated. (Graphic models are often used to achieve this end.)
3. Provides a *departure point* for research and practical application.

Good theories are fundamental to developing scientific hypotheses for better understanding and managing organizational behavior.⁸ Hypothesis in hand, a researcher is prepared to design a study to test it.

There are two important, interrelated components to designing a study. The first consists of deciding how to measure independent and dependent variables. An *independent variable* is a variable that is hypothesized to affect or cause a certain state of events. For example, a study demonstrated that losing one’s job led to lower self-esteem and greater depression.⁹ In this case, losing one’s job, the independent variable, produced lower levels of self-esteem and higher levels of depression. A *dependent variable* is the variable being explained or predicted. Returning to the example, self-esteem and depression were the dependent variables (the variables being explained). In an everyday example, those who eat less (independent variable) are likely to lose weight (dependent variable). The second component of designing a study is to determine which research method to use (recall the discussion in Chapter 1). Criteria for evaluating the appropriateness of different research methods are discussed in a later section.

After a study is designed and completed, data are analyzed to determine whether the hypothesis is supported. Researchers look for alternative explanations of results when a hypothesis is not supported.¹⁰

Measurement and Data Collection

“In its broadest sense, measurement is the assignment of numerals to objects or events according to rules.”¹¹ Organizational researchers measure variables. Job satisfaction, turnover, performance, and perceived stress are variables typically measured in OB research. Valid measurement is one of the most critical components of any research study because research findings are open to conflicting interpretations when variables are poorly measured.¹² Poor measurement reduces the confidence one has in applying research findings. Four techniques are frequently used to collect data: (1) direct observation, (2) questionnaires, (3) interviews, and (4) indirect methods.

Observation This technique consists of recording the number of times a pre-specified behavior is exhibited. For example, psychologist Judith Komaki developed and validated an observational categorization of supervisory behavior. She then used the instrument to identify behavior differences between effective and ineffective managers from a large medical insurance firm. Managerial effectiveness was based on superior ratings. Results indicated that effective managers spent more time monitoring their employees’ performance than did ineffective managers. Komaki more recently applied the same instrument to examine the performance of sailboat captains competing in a race. Similar to the managerial study, skippers finished higher in the overall race standings when they monitored and rewarded their crews.¹³ There are few “valid” observational schemes for use in OB research outside of Komaki’s taxonomy.

Questionnaires Questionnaires ask respondents for their opinions or feelings about work-related issues. They generally contain previously developed and validated instruments and are self-administered. Given their impersonal nature, poorly designed questionnaires are susceptible to rater bias. Nevertheless, a well-developed survey can be an accurate and economical way to collect large quantities of data.¹⁴

Interviews Interviews rely on either face-to-face or telephone interactions to ask respondents questions of interest. In a *structured* interview, interviewees are asked the same questions in the same order. *Unstructured* interviews do not require interviewers to use the same questions or format. Unstructured interviews are more spontaneous. Structured interviews are the better of the two because they permit consistent comparisons among people. Accordingly, human resource management experts strongly recommend structured interviews during the hiring process to permit candidate-to-candidate comparisons.¹⁵

Indirect Methods These techniques obtain data without any direct contact with respondents. This approach may entail observing someone without his or her knowledge. Other examples include searching existing records, such as personnel files, for data on variables such as absenteeism, turnover, and output. This method reduces rater error and generally is used in combination with one of the previously discussed techniques. Privacy issues can arise with indirect data collection.

Evaluating Research Methods

All research methods can be evaluated from three perspectives: (1) generalizability, (2) precision in control and measurement, and (3) realism of the context.¹⁶ *Generalizability*, which also is referred to as external validity, reflects the extent to which results from one study are generalizable to other individuals, groups, or situations. *Precision in control and measurement* pertains to the level of accuracy in manipulating or measuring variables. A *realistic context* is one that naturally exists for the individuals participating in the research study. In other words, realism implies that the context is not an artificial situation contrived for purposes of conducting the study. Table D-1 presents an evaluation of the five most frequently used research methods in terms of these three perspectives.

Table D-1 *Assessment of Frequently Used Research Methods*

METHOD	GENERALIZABILITY	PRECISION IN CONTROL AND MEASUREMENT	REALISTIC CONTEXT
Case study	Low	Low	High
Sample survey	High	Low	Low
Field study	Moderate	Moderate	High
Laboratory experiment	Low	High	Low
Field experiment	Moderate	Moderate	Moderate

SOURCE: Adapted in part from J E McGrath, J Martin, and R A Kulka, *Judgment Calls in Research* (Beverly Hills: Sage Publications, 1982).

In summary, there is no one best research method. Choosing a method depends on the purpose of the specific study.¹⁷ For example, if high control is necessary, as in testing for potential radiation leaks in pipes that will be used at a nuclear power plant, a laboratory experiment is appropriate (see Table D-1). In contrast, sample surveys would be useful if a company wanted to know the generalizable impact of a television commercial for light beer.

Evaluating Research Conclusions

There are several issues to consider when evaluating the quality of a research study.¹⁸ The first is whether results from the specific study are consistent with those from past research. If not, it is helpful to determine why discrepancies exist. For instance, it is insightful to compare the samples, research methods, measurement of variables, statistical analyses, and general research procedures across the discrepant studies. Extreme differences suggest that future research may be needed to reconcile the inconsistent results. In the meantime, however, we need to be cautious in applying research findings from one study that are inconsistent with those from a larger number of studies.

The type of research method used is the second consideration. Does the method have generalizability (see Table D-1)? If not, check the characteristics of the sample. If the sample's characteristics are different from the characteristics of your work group, conclusions may not be relevant for your organization. Sample characteristics are very important in evaluating results from both field studies and experiments.

The level of precision in control and measurement is the third factor to consider. It is important to determine whether valid measures were used in the study. This can be done by reading the original study and examining descriptions of how variables were measured. Variables have questionable validity when they are measured with one-item scales or ad-hoc instruments developed by the authors. In contrast, standardized scales tend to be more valid because they are typically developed and validated in previous research studies. We have more confidence in results when they are based on analyses using standardized scales. As a general rule, validity in measurement begets confidence in applying research findings.

Finally, it is helpful to brainstorm alternative explanations for the research results. This helps to identify potential problems within research procedures.

Reading a Scientific Journal Article

Research is published in scientific journals and professional magazines. *Journal of Applied Psychology* and *Academy of Management Journal* are examples of scientific journals reporting OB research. *Harvard Business Review* and *HR Magazine* are professional magazines that sometimes report research findings in general terms. Table D-2 contains a list of 50 highly regarded management journals and magazines. You may find this list to be a useful source of information when writing term papers.

Scientific journal articles report results from empirical research studies, overall reviews of research on a specific topic, and theoretical articles. To help you obtain relevant information from scientific articles, let us consider the content and structure of these three types of articles.¹⁹

Empirical Research Studies

Reports of these studies contain summaries of original research. They typically comprise four distinct sections consistent with the logical steps of the research

Table D-2 *A List of Highly Regarded Management Journals and Magazines*

1. <i>Administrative Science Quarterly</i>	26. <i>Journal of Occupational Behavior</i>
2. <i>Journal of Applied Psychology</i>	27. <i>Public Administration Quarterly</i>
3. <i>Organizational Behavior and Human Decision Processes</i>	28. <i>Journal of Organizational Behavior Management</i>
4. <i>Academy of Management Journal</i>	29. <i>Organizational Dynamics</i>
5. <i>Psychological Bulletin</i>	30. <i>Monthly Labor Review</i>
6. <i>Industrial and Labor Relations Review</i>	31. <i>Journal of World Business</i>
7. <i>Journal of Personality and Social Psychology</i>	32. <i>Journal of Business Research</i>
8. <i>Academy of Management Review</i>	33. <i>Group & Organization Management</i>
9. <i>Industrial Relations</i>	34. <i>Human Resource Planning</i>
10. <i>Journal of Labor Economics</i>	35. <i>Journal of Management Studies</i>
11. <i>Personnel Psychology</i>	36. <i>Administration and Society</i>
12. <i>American Psychologist</i>	37. <i>Negotiation Journal</i>
13. <i>Journal of Labor Research</i>	38. <i>Arbitration Journal</i>
14. <i>Journal of Vocational Labor</i>	39. <i>Compensation & Benefits Review</i>
15. <i>Journal of Applied Behavioral Science</i>	40. <i>Journal of Collective Negotiations in the Public Sector</i>
16. <i>Occupational Psychology</i>	41. <i>Public Personnel Management</i>
17. <i>Sloan Management Review</i>	42. <i>Journal of Management Education*</i>
18. <i>Journal of Conflict Resolution</i>	43. <i>Review of Business and Economic Research</i>
19. <i>Human Relations</i>	44. <i>Workforce Management**</i>
20. <i>Journal of Human Resources</i>	45. <i>Journal of Small Business Management</i>
21. <i>Labor Law Journal</i>	46. <i>SAM Advanced Management Journal</i>
22. <i>Harvard Business Review</i>	47. <i>Business Horizons</i>
23. <i>Social Forces</i>	48. <i>Business and Public Affairs</i>
24. <i>Journal of Management</i>	49. <i>HR Magazine***</i>
25. <i>California Management Review</i>	50. <i>Training & Development****</i>

*Formerly *Organizational Behavior Teaching Review*.

**Formerly *Personnel Journal*

***Formerly *Personnel Administrator*.

****Formerly *Training and Development Journal*.

SOURCE: Adapted from M M Extejt and J E Smith, "The Behavior Sciences and Management: An Evaluation of Relevant Journals," *Journal of Management*, September 1990, p 545. Copyright © 1990 Sage Publications. Reprinted by permission of Sage Publications.

process model shown in Figure D-1. These sections are as follows:

- *Introduction.* This section identifies the problem being investigated and the purpose of the study. Previous research pertaining to the problem is reviewed and sometimes critiqued.
- *Method.* This section discusses the method used to conduct the study. Characteristics of the sample or subjects, procedures followed, materials used, measurement of variables, and analytic procedures typically are discussed.
- *Results.* A detailed description of the documented results is presented.
- *Discussion.* This section provides an interpretation, discussion, and implications of results.

Review Articles

These articles, including meta-analyses, are critical evaluations of material that has already been published. By organizing, integrating, and evaluating previously published material, the author of a review article considers the progress of current research toward clarifying a problem.”²⁰ Although the structure of these articles is not as clear-cut as reports of empirical studies, the general format is as follows:

- A statement of the problem.
- A summary or review of previous research that attempts to provide the reader with the state of current knowledge about the problem (meta-analysis frequently is used to summarize past research).
- Identification of shortcomings, limitations, and inconsistencies in past research.
- Recommendations for future research to solve the problem.

Theoretical Articles

These articles draw on past research to propose revisions to existing theoretical models or to develop new theories and models. The structure is similar to that of review articles.

Back to the NTSB Study

This module was introduced with a National Transportation Safety Board study that suggested it is not safe to wear rear-seat lap belts while riding in an automobile. Given what we have just discussed, take a few minutes now to jot down any potential explanations for why the NTSB findings conflict with past research supporting the positive benefits of rear-seat lap belts. Now compare your thoughts with an evaluation presented in the *University of California, Berkeley, Wellness Letter*:

Critics claim that the NTSB study paints a misleadingly scary picture by focusing on 26 unrepresentative accidents, all unusually serious and all but one frontal. The National Highway Traffic Safety Administration has strongly disputed the board's findings, citing five earlier studies of thousands of crashes showing that safety belts—including lap belts—are instrumental in preventing death and injury. And a new study of 37,000 crashes in North Carolina shows that rear-seat lap belts reduce the incidence of serious injury and death by about 40% . . .

In the meantime, most evidence indicates that you should continue to use rear-seat lap belts. You can minimize the risk of injury by wearing them as low across the hips as possible and keeping them tight.²¹

The NTSB findings were based on a set of unrepresentative serious frontal accidents. In other words, the NTSB's sample was not reflective of the typical automobile accident. Thus, the generalizability of the NTSB results is very limited. Buckle up!

LEARNING MODULE D Endnotes

¹ Data from “Do Americans Trust Media Polls?” *USA Today*, May 18, 1999, p 1A. Also see S Begley, “Bring on the ‘Reality-Based Community,’” *Newsweek*, November 17, 2008, pp 35–36.

² This study is discussed in A Finkbeiner, “Some Science Is Baloney; Learn to Tell the Difference,” *USA Today*, September 11, 1997, p 15A. Also see S Begley, “Just Say No—To Bad Science,” *Newsweek*, May 7, 2007, p 57; C Arnst, “Take Two Sugar Pills and Call Me in the Morning,” *BusinessWeek*, January 7, 2008, p 93; S Sternberg, “Reports: Data on Vioxx Misused,” *USA Today*, April 16, 2008, p 1A; and J Carey, “Smarter Patients, Cheaper Care?” *BusinessWeek*, June 22, 2009, pp 22–23.

³ “Buckle Up in the Rear Seat?” *University of California, Berkeley, Wellness Letter*, August 1987, p 1. For typical reports of health-related research, see T Parker-Pope, “A Tale of Two Studies: Cutting through the Confusion on Virtual Colonoscopies,” *The Wall Street Journal*, April 27, 2004, p D1; C Arnst, “Smoking: A Vaccine for Quitters,” *BusinessWeek*, May 30, 2005, p 91; and N Hellmich, “Got Milk—and Got Controversy,” *USA Today*, March 9, 2006, p 9D.

⁴ See J M Bartunek, S L Rynes, and R D Ireland, “What Makes Management Research Interesting, and Why Does It Matter?” *Academy of Management Journal*, February 2006, pp 9–15; A H Van de Ven and P E Johnson, “Knowledge for Theory and Practice,” *Academy of Management Review*, October 2006, pp 802–21; J Simons, “12 Peak Performers: Scientist—Make Failure Work For You,” *Fortune*, October 30, 2006, p 110; T Hinkin, B C Holtom, and M Klag, “Collaborative Research: Developing Mutually Beneficial Relationships between Researchers and Organizations,” *Organizational Dynamics*, no. 1, 2007, pp 105–18; and J Pfeffer and R I Sutton, “Suppose We Took Evidence-Based Management Seriously: Implications for Reading and Writing Management,” *Academy of Management Learning and Education*, March 2007, pp 153–55.

⁵ F N Kerlinger, *Foundations of Behavioral Research* (New York: Holt, Rinehart & Winston, 1973), p 18 (emphasis added).

⁶ See R L Daft, “Learning the Craft of Organizational Research,” *Academy of Management Review*, October 1983, pp 539–46.

⁷ See K E Weick, “Theory Construction as Disciplined Imagination,” *Academy of Management Review*, October 1989, pp 516–31. Also see C C Lundberg, “Is There Really Nothing So Practical as a Good Theory?” *Business Horizons*, September–October 2004, pp 7–14; and J P Cornelissen, “Making Sense of Theory Construction: Metaphor and Disciplined Imagination,” *Organization Studies*, November 2006, pp 1579–97.

⁸ See R Suddaby, “From the Editors: What Grounded Theory Is Not,” *Academy of Management Journal*, August 2006, pp 633–42; K M Eisenhardt and M E Graebner, “Theory Building from Cases: Opportunities and Challenges,” *Academy of Management Journal*, February 2007, pp 25–32; and J P Davis, K M Eisenhardt, and C B Bingham, “Developing Theory through Simulation Methods,” *Academy of Management Review*, April 2007, pp 480–99.

⁹ See A H Winefield and M Tiggemann, “Employment Status and Psychological Well-Being: A Longitudinal Study,” *Journal of Applied Psychology*, August 1990, pp 455–59.

¹⁰ See P J Frost and R E Stablein, eds, *Doing Exemplary Research* (Newbury Park, CA: Sage, 1992); and S Begley, “The Meaning of Junk,” *Newsweek*, March 22, 1993, pp 62–64.

¹¹ S S Stevens, “Mathematics, Measurement, and Psychophysics,” in *Handbook of Experimental Psychology*, ed S S Stevens (New York: John Wiley & Sons, 1951), p 1.

¹² A thorough discussion of the importance of measurement is provided by D P Schwab, “Construct Validity in Organizational Behavior,” in *Research in Organizational Behavior*, eds B M Staw and L L Cummings (Greenwich, CT: JAI Press, 1980), pp 3–43. For a contemporary example, see S Jayson, “Cheating about Cheating,” *USA Today*, November 17, 2008, p 7D.

¹³ See J L Komaki, “Toward Effective Supervision: An Operant Analysis and Comparison of Managers at Work,” *Journal of Applied Psychology*, May 1986, pp 270–79. Results from the sailing study can be found in J L Komaki, M L Desselles, and E D Bowman, “Definitely Not a Breeze: Extending an Operant Model of Effective Supervision to Teams,” *Journal of Applied Psychology*, June 1989, pp 522–29.

¹⁴ A thorough discussion of the pros and cons of using surveys or questionnaires is provided by J A Krosnick, “Survey Research,” in *Annual Review of Psychology*, eds J T Spence, J M Darley, and D J Foss (Palo Alto, CA: 1999), pp 537–67.

¹⁵ See F L Schmidt and M Rader, “Exploring the Boundary Conditions for Interview Validity: Meta-Analytic Validity Findings for a New Interview Type,” *Personnel Psychology*, Summer 1999, pp 445–64; and M A McDaniel, D Whetzel, F L Schmidt, and S Maurer, “The Validity of Employment Interviews: A Comprehensive Review and Meta-Analysis,” *Journal of Applied Psychology*, August 1994, pp 599–616.

¹⁶ A complete discussion of research methods is provided by T D Cook and D T Campbell, *Quasi-Experimentation: Design and Analysis Issues for Field Settings* (Chicago: Rand-McNally, 1979).

¹⁷ Ibid.

¹⁸ For a thorough discussion of the guidelines for conducting good research, see L Wilkinson, "Statistical Methods in Psychology Journals," *American Psychologist*, August 1999, pp 594–604.

¹⁹ This discussion is based on material presented in the *Publication Manual of the American Psychological Association*, 4th ed (Washington, DC: American Psychological Association, 1994).

²⁰ Ibid., p 5.

²¹ "Buckle Up in the Rear Seat?" Also see L Copeland, "Advocates Seek More Seat Belt Use," *USA Today*, June 15, 2009, p 3A.