

This International Student Edition is for use outside of the U.S.

Business Research Methods

fourteenth edition

**Mc
Graw
Hill**

Pamela S. Schindler

This International Student Edition is for use outside of the U.S.

Business Research Methods

fourteenth edition

Mc
Graw
Hill

Pamela S. Schindler

>businessresearchmethods

The McGraw Hill Series in Operations and Decision Sciences

SUPPLY CHAIN MANAGEMENT

Bowersox, Closs, Cooper, and Bowersox
Supply Chain Logistics Management
Fifth Edition

Johnson
Purchasing and Supply Management
Sixteenth Edition

Simchi-Levi, Kaminsky, and Simchi-Levi
Designing and Managing the Supply Chain: Concepts, Strategies, Case Studies
Fourth Edition

Stock and Manrodt
Fundamentals of Supply Chain Management

PROJECT MANAGEMENT

Larson and Gray
Project Management: The Managerial Process
Eighth Edition

SERVICE OPERATIONS MANAGEMENT

Bordoloi, Fitzsimmons and Fitzsimmons
Service Management: Operations, Strategy, Information Technology
Ninth Edition

MANAGEMENT SCIENCE

Hillier and Hillier
Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets
Sixth Edition

BUSINESS RESEARCH METHODS

Schindler
Business Research Methods
Fourteenth Edition

BUSINESS FORECASTING

Keating and Wilson
Forecasting and Predictive Analytics
Seventh Edition

BUSINESS SYSTEMS DYNAMICS

Sterman
Business Dynamics: Systems Thinking and Modeling for a Complex World

OPERATIONS MANAGEMENT

Cachon and Terwiesch
Operations Management
Second Edition

Cachon and Terwiesch
Matching Supply with Demand: An Introduction to Operations Management
Fourth Edition

Jacobs and Chase
Operations and Supply Chain Management
Sixteenth Edition

Jacobs and Chase
Operations and Supply Chain Management: The Core
Fifth Edition

Schroeder and Goldstein
Operations Management in the Supply Chain: Decisions and Cases
Eighth Edition

Stevenson
Operations Management
Fourteenth Edition

Swink, Melnyk, Cooper, and Hartley
Managing Operations Across the Supply Chain
Fourth Edition

BUSINESS STATISTICS

Bowerman, Drougas, Duckworth, Froelich, Hummel, Moninger, and Schur
Business Statistics and Analytics in Practice
Ninth Edition

Doane and Seward
Applied Statistics in Business and Economics
Seventh Edition

Doane and Seward
Essential Statistics in Business and Economics
Third Edition

Lind, Marchal, and Wathen
Basic Statistics for Business and Economics
Tenth Edition

Lind, Marchal, and Wathen
Statistical Techniques in Business and Economics
Eighteenth Edition

Jaggia and Kelly
Business Statistics: Communicating with Numbers
Fourth Edition

Jaggia and Kelly
Essentials of Business Statistics: Communicating with Numbers
Second Edition

BUSINESS ANALYTICS

Jaggia, Kelly, Lertwachara, and Chen
Business Analytics: Communicating with Numbers

BUSINESS MATH

Slater and Wittry
Practical Business Math Procedures
Thirteenth Edition

Slater and Wittry
Math for Business and Finance: An Algebraic Approach
Second Edition

>businessresearchmethods

Pamela S. Schindler

Wittenberg University

fourteenth edition





BUSINESS RESEARCH METHODS

Published by McGraw Hill LLC, 1325 Avenue of the Americas, New York, NY 10121. Copyright © 2022 by McGraw Hill LLC. All rights reserved. Printed in the United States of America. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of McGraw Hill LLC, including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning.

Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LWI 24 23 22 21

ISBN 978-1-264-70465-1

MHID 1-264-70465-8

Cover Image: *wavebreakmedia/Shutterstock*

All credits appearing on page or at the end of the book are considered to be an extension of the copyright page.

The Internet addresses listed in the text were accurate at the time of publication. The inclusion of a website does not indicate an endorsement by the authors or McGraw Hill LLC, and McGraw Hill LLC does not guarantee the accuracy of the information presented at these sites.

mheducation.com/highered

To my husband Bill, for being such a great sounding board. And to my research industry collaborators, for their ideas and examples.

—*Pamela S. Schindler*

Walkthrough

In a world of disruption, students need a full research tool box.

Have you conducted research?
If not, peek behind the scenes.

>chapter 17
An Integrated Example

There is a story in data.
Do you know how to tell it?

>chapter 16
Stage 5: Research
Reports: Support Insights
and Recommendations

Data isn't ready when it's gathered.
Do you know how to prepare it?

>chapter 13
Stage 3: Collect, Prepare,
and Examine Data

The survey is a powerful method.
Do you know the others that are
equally important?

>chapter 9
Stage 2: Data Collection Design:
Survey Research

What if you need more info?
Do you know how to take a
deeper dive?

>chapter 6
Stage 2: Data Collection Design:
Qualitative Research

A wrong turn takes you nowhere.
Do you know how to ask the
right question?

>chapter 3
Stage 1: Clarify the Research Question

It's a new language.
Do you speak "research"?

>chapter 1
Research Foundations
and Fundamentals

••• >learning objectives

After reading this chapter, you should understand ...

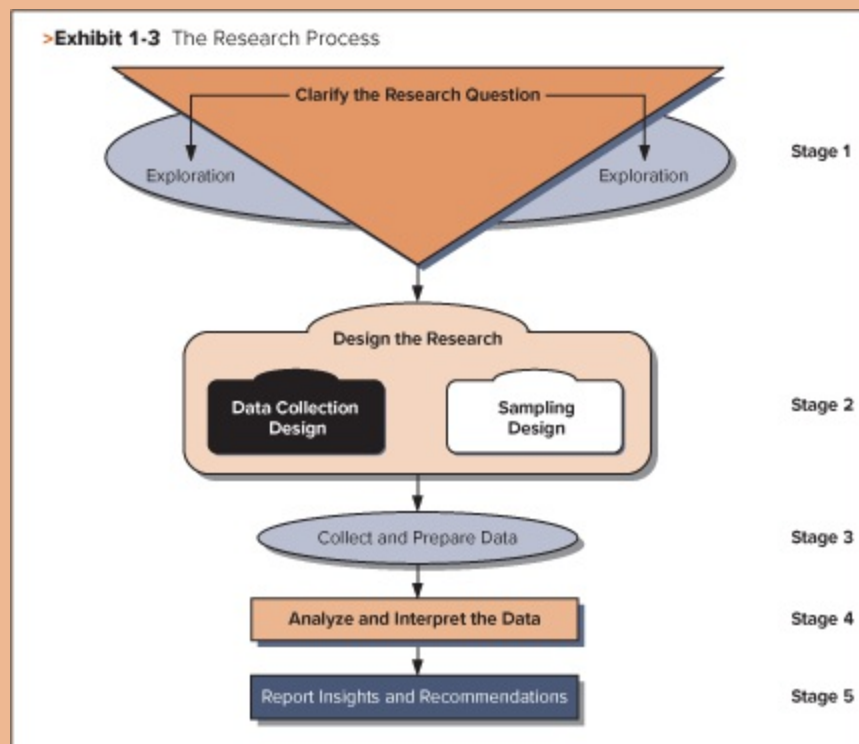
LO11 The relationship between research questions and data

LO12 The language of professional researchers

Students are Learning Differently.

Visual learners need pictures, diagrams, and graphs to clarify and reinforce.

31 fully integrated research process exhibits link concepts within stand-alone chapters.



Kinesthetic learners need active-learning experiences: problem-solving, discussion, and collaboration.

Each chapter's Instructor's Manual and PowerPoint are full of ideas and

aids for these new learners.

Snapshot: Personas are Key to Understanding Dog Ownership Journey



Mary: Multitasking Magician

"We need people to help out when things suddenly change or we make plans"

DEMOGRAPHICS:

- Female
- Has long-term partner and two children
- Full-time events manager
- Lives in Greenwich
- Lots of friends and social commitments
- Full social life (gym, music events etc.)
- Has to manage planning and execution of everything
- Very reactive, life can change quickly

SUPPORT NEEDS:

Education:	●●●●●
Entertainment:	●●●●●
Health:	●●●●●
Medical:	●●●●●
Social Interaction:	●●●●●

NEEDS STATE:

- Wants to feel that they have more control over the chaos of life
- Determined to "have it all" and balance everything
- Has established and effective routines and methods for day-to-day dog ownership
- Would love last-minute support that allows them to manage their dog when last-minute changes or unforeseen challenges occur

CUSTOMER JOURNEY:

Experienced dog owner or owned dog for more than 6 months. Requires breed-specific advice and/or medical aid.

TOUCHPOINTS:

Vets, friends and family, online content (blogs, videos), YouTube, Facebook support groups, Instagram



Copyright © 2022 by The McGraw-Hill Companies, Inc. All rights reserved.

16-36

Tono Balaguer/Shutterstock

Real Research is the Basis for Lively Class Discussions.

Snapshots are research examples from the researcher's perspective.

This edition is a collaboration with dozens of researchers.

How Nielsen Recruits Its TV Families

This fall I received a letter inviting my household to become a U.S. Nielsen TV Family. The Nielsen Company is one of the largest research companies in the world. The national and local U.S. TV ratings that Nielsen measures influence the advertising rates on television programming. The ratings and other measures also influence the programming we all have available to us. Nielsen uses a probability sample with distinct cells for various ages, ethnicities, and geographic locations.

The recruiting piece had three elements: an envelope, a letter from Nielsen's Chief Research Officer, and a half-sheet insert. The otherwise plain envelope shouts that "Nielsen has been producing TV ratings for 50 years." The half-sheet contains information about cost and privacy and is designed to reduce any anxiety and increase the recipient's desire to participate: "You have the opportunity to make your preferences known." The letter requests that the recipient make a phone call to set up an in-home appointment. It also provides a special website for more information.

When I explored the website, I realized that committing to be a Nielsen TV Family is very serious business. Each subsequent page of the website introduced me to new research terminology and provided comprehension quizzes as I acquired more knowledge. What the site doesn't explain, however, is how you will be sharing your TV viewing habits. As a researcher myself, I'm fairly familiar with some, if not all, of Nielsen's processes. Nielsen clearly wanted the how to be discussed by a Nielsen representative who would visit each prospective participant's home.

Nielsen's process screens out people who work for its company and its partners but did not initially exclude people who work in the research, advertising, or TV industries—like me. What excluded our household was my husband, who when told of the opportunity and what it might entail said an emphatic, "Not interested!" That wish not to participate led to an interesting part of the process. I called the number and offered my personal invitation code as provided in the letter, indicating I needed to decline. Their website had stressed how my household had been chosen and how important it was for my household to participate. From a sampling perspective, they now would need to replace my household with a household similar to mine. I live in a very ethnically diverse neighborhood, and one with very high levels of education. If they move just one household to the east, that household is headed by a single mom who by birth is from Columbia; she's a doctor. If they move one household to the west, that household is an older couple who own a business in St. Martin and who spend less than three months a year in the U.S. Across the street is a couple who own an engineering business, they are transplants from South Africa. I would have expected Nielsen to try harder to convince me to reconsider. But they just thanked me for calling and hung up. A week later I received another letter asking me to reconsider; it contained a newly printed \$1 bill.

What issues about sample recruiting does the Nielsen recruiting process raise for you?

www.nielsen.com



Ferit Shalpa/Shutterstock

PicProfiles use a visual to enhance the research concept described.



>picprofile

Some concepts need operating definitions to get accurate responses in research. In the Food and Drug Administration's National Youth Tobacco Survey, researchers needed to distinguish between any tobacco use and e-cigarette use. "Any tobacco product use" was defined as "use of one or more of the following tobacco products on ≥ 1 day in the past 30 days: cigarettes, cigars (defined as cigars, cigarillos, or little cigars), smokeless tobacco (defined as chewing tobacco, snuff, or dip), e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and bids." www.fda.gov

PICTURE BY SCHIRAZI/GETTY IMAGES

concepts—many of which will be quite abstract. Highly abstract constructs can be inferred only from the data; these are presumed to exist but must await further testing and definition. Heather will have the beginning of a **conceptual scheme** if research shows the concepts and constructs in this example to be interrelated and if their connections can be supported. In graphic form, the conceptual scheme depicts the relationships among the knowledge and skill requirements necessary to clarify the job redesign effort.

Operational Definitions

Confusion about the meaning of constructs or concepts can destroy a research study's value without the knowledge of the researcher or its sponsor. Definitions are one way to reduce this danger.

Researchers distinguish between dictionary definitions and operational definitions. In the more familiar dictionary definition, a concept is defined with a synonym. For example, a customer is defined as a patron; a patron, in turn, is defined as a customer or client of an establishment; a client is defined as one who employs the services of any organization or a patron of any shop.¹⁴ These circular definitions may be adequate for general communication but not for research. In research, we measure concepts and constructs, and this requires more rigorous operational definitions.

An **operational definition** is a definition stated in terms of specific criteria for measurement or testing. We must be able to count, measure, or in some other way gather the information through our senses. Whether the object to be defined is physical (e.g., a can of soup) or highly abstract (e.g., achievement motivation), the definition must specify the characteristics and how they are to be observed. The specifications and procedures must be so clear that any competent person using them would classify the object in the same way.

To do this, you need operational definitions. Operational definitions may vary, depending on your purpose and the way you choose to measure them. College undergraduates are grouped by *class*. No one has much trouble understanding such terms as *senior*, *junior*, *sophomore*, and so forth. But the task may not be that simple if you must determine which students comprise each class. Here are two different situations involving a survey among students where we want to classify their answers by their class level. Each uses a different definition of the same concept:

1. You ask them to report their class status and you record it. In this case, class is freshman, sophomore, junior, or senior; you accept the answer each respondent gives as correct. The operational definition for class: how the student themselves classify their class.

A Closeup offers a more in-depth example.

Measuring Human Emotion with Facial Coding

Emotions play a big role in consumers' decision-making processes. However, a rational-based decision-making model still dominates the testing of creative ad concepts for large-ticket items. Cleveland-based advertising agency Marcus Thomas LLC needed a research design that could reveal a means to enhance its client's success among purchasers of outdoor power equipment (OPE). Its standard approach—a survey—would provide important information, but Marcus Thomas was convinced that to check Troy-Bilt, needed to make an emotional connection. A survey alone wouldn't be enough to reveal which of the three ad concepts would resonate the strongest emotionally with participants, since revealing opportunities to strengthen creative messaging and ad cues. "How a person feels about a product or service in the moment affects reactions and triggers behavior that influence their rational responses—whether they buy a product, talk about it with others or recommend it," shared Jennifer Pitt-Murdoch, partner and director of research at Marcus Thomas LLC. "In the way, emotions not only drive human behavior, but they impact business as well." Marcus Thomas decided to conduct

a multiple methodology study that combined the measurement of human emotions using web-based facial coding with the more traditional online survey to reveal the "why" behind the emotions. Most consumers who are aware of Troy-Bilt view it as a good brand of outdoor equipment. It has spent more than 75 years helping homeowners care for their lawns and gardens, power wash decks and patios, and remove snow from walkways and driveways. Marcus Thomas and Troy-Bilt partnered with Reckeye, a U.K.-based firm that specializes in measuring emotion using a facial-coding platform powered by artificial intelligence (AI). Reckeye recruited participants who shared access to their webcam and smartphone cameras. Marcus Thomas provided three animations to test.

An animation is a video created from a storyboard—drawings of scenes of a TV ad—usually accompanied by a soundtrack (dialogue, sound effects and music). It is a preproduction step before an ad is created.



Concept of Business

The three animations were shown online to more than 800 adults, ages 18 and older, who were responsible for OPE purchase decisions. To eliminate order bias, the three videos were rotated so each video was seen first by about one third (100+) of the participants. Using a participant's webcam, the Reckeye platform tracked facial expressions in real time using key points on the viewer's face to recognize emotions.

Emotions are detected by Facial Action Coding System (FACS), a methodology developed for the identification and classification of human facial expressions. Long-standing research has established six universal human emotions: disgust, sadness, happiness, fear, anger, and surprise.

"We wanted the participants' spontaneous, genuine reactions—second by second, as they watched each video—rather than basing our decisions solely on their stated behavior," explained Rebecca Wullock, research manager at Marcus Thomas LLC. "Our

experience, consumers may not fully understand their emotion or how to articulate it. Or, they may describe what they saw or why they liked it, but not how they *felt* about it."

After viewing the animation, each participant was presented an online questionnaire containing 18 questions. The questions covered a range of topics, including their familiarity with and ownership of OPE brands; what role for OPE brands they could recall; and brands they would consider for their next OPE purchase. Then questions dug deeper about the Troy-Bilt animation they watched: the main idea in the animation; what in the animation made them think about that main idea; their feelings about the Troy-Bilt brand; whether they would consider Troy-Bilt if they made an OPE purchase and why; whether they thought the animation was appropriate for Troy-Bilt and different from other OPE ads they've seen; and whether Troy-Bilt OPE was "for them." Finally, they were given a series of words/phrases and asked whether they accurately matched Troy-Bilt as it was depicted in the animation. They repeated this process with all three animations.

Research analysts combined the emotional measure data with data from survey research (e.g., pre- and post-exposure purchase consideration, brand favorability, etc.). For the most comprehensive results, multiple cross-tabulations were run in SPSS, looking for patterns by gender, brand ownership, emotional engagement, and so on.

All three animations performed well and quite similarly on several metrics: emotion recall, brand consideration (30 after exposure), brand attitude associations, and concept relevance, distinctiveness and brand linkage, and main ideation/usage. However, one animation garnered the highest positive emotional reaction. "We didn't just want people to think of Troy-Bilt as reliable, as capable of getting the job done," shared Wullock, as that rational motivation wouldn't be sufficient to keep Troy-Bilt as a OPE shopper's consideration set. "We needed them to have a happy emotion associated with using Troy-Bilt products that any subsequent ad based on that winning emotion could evoke."

Using facial-coding results, along with supporting survey responses, Marcus Thomas and Troy-Bilt moved forward with production of the winning concept. Using the selected concept, it designed to keep Troy-Bilt high in top-of-mind awareness, encouraging those considering outdoor power equipment purchases to consider Troy-Bilt. Measuring the emotion with facial recognition and animation proved to be a good way to identify the ad concept that was likely to resonate most with consumers before incurring more costly ad production costs.



Reckeye

marcusonthomasllc.com, reckeye.com, www.troybilt.com

Images serve as visual cues that anchor concepts in memory.

>picprofile



Qualitative data may require different data visualization techniques as the researcher is using data that represents words or images. A word cloud depicts the frequencies of different words in a given data set containing text so that words that appear more frequently are larger in the cloud than those that appear less frequently. This visualization tool clearly reveals the main topics and themes in the text and can reveal systematic patterns. Developing a word cloud from raw text that is unformatted may have redundant information, which could add noise to the final result. For this reason, it will be necessary to clean the text before generating a word cloud. Word clouds are easily and inexpensively generated. Check out these Internet-based options: Wordcloud.com, Jaonword.com, wordart.com to try making a word cloud of your own.

Art History/istock.com

Presenting Findings

The purpose of presenting findings is to support insights and recommendations. While a variety of support materials should be used in a research report to connect with different members of the audience, facts and statistics remain the core of many reports and deserve special attention. The presentation of statistics in research reports is a special challenge for researchers. There are three basic ways to present findings: (1) words/text, (2) tables, or (3) graphs.²⁸

Words/Text

When there are a small number of statistics to present, words work well. Words can be phrases, sentences or paragraphs, lists, bullet points, or some combination.

Wal-Mart reported its number-1 rank in the Fortune 500 due to its strong sales performance (11% increase \$37.1 billion). Although Wal-Mart surpassed number-2-seller ExxonMobil in sales, Wal-Mart's profitability (87.2 billion) was far below the oil giant (\$99.6 billion).

OR

Wal-Mart is the second largest business in the Fortune 500 with revenues up by 8 percent but with profits down by 4.2 percent.

The drawback to using words is that the statistics are somewhat buried in prose. Thus, the researcher must highlight the relevant statistic in some way. During an oral presentation, the researcher might literally pull out the statistic on a single slide or enlarge it, change its color, or bold it and talk around it. In a written report, the researcher might stylistically bold the statistic or use a pull-quote, separating the statistic in a box alongside the prose much as a newspaper article does to highlight a quote. Words also are most often used to report insights and recommendations (as seen later in Exhibits 16-16 and 16-17).



Review Prepares. Discussion Cements.

Review and Discussion Questions tie to learning objectives and come in four types.

review & discussion questions

Terms in Review

- 1 Explain how each of the five evaluation factors for a secondary source influences its management decision-making value.
 - a. Purpose
 - b. Scope
 - c. Authority
 - d. Audience
 - e. Format
- 2 Define the distinctions among primary, secondary, and tertiary sources in a secondary search.
- 3 What problems of secondary data quality might researchers face? How can they deal with them?

Making Research Decisions

- 4 T.J. Co., the parent company of T.J. Maxx and other retailers, announced in a Securities and Exchange Commission filing that more than 45 million credit and debit card numbers had been stolen from its IT systems. The company had taken some measures over a period of a few years to protect customer data through obfuscation and encryption. But T.J. didn't apply these policies uniformly across its IT systems. As a result, it still had no idea of the extent of the damage caused by the data breach. If you were T.J.C, what internal sources could you use to evaluate the safety of your customer's personal data?
 - 5 Confounded by low sales, the president of Oaks International Inc. asks a research company to study the activities of the customer relations department in the corporation. What are some of the important reasons that this research project may fail to make an adequate contribution to the solution of management problems?
 - 6 You have been approached by the editor of *Destiny's Magazine* to carry out a research study. The magazine has been unsuccessful in attracting shoe manufacturers as advertisers because men's clothing stores are a small and dying segment of their business. *Destiny's Magazine* is distributed chiefly through men's clothing stores; the manufacturers
 - 7 How might you use replication using internal sources if you were a human resources officer or a supervising manager trying to increase compliance with safety policies?
 - 8 When Oreo cookies turned 100, Nabisco celebrated with a limited-edition flavor release called Birthday Cake Oreos, with the taste of Funetti cake and rainbow sprinkles with in the filling center. According to *Vanity Fair*, this Oreo is a very sweet smell and taste experience. Oreos are the number one packaged cookie brand, selling more than \$778.2 million each year. Oreo comes in more than 30 flavor versions, including original, Gobble, Double Stuff, and Oreo Twix. If you were deciding whether to introduce a new Oreo as part of the celebration, how would you frame the question hierarchy?

From Concept to Practice

 - 9 Develop the management research question hierarchy (Exhibit 3-2, 3-3) citing the management question, research questions, and investigative questions for each management dilemma below:
 - a. A home health care services firm is experiencing an increasing number of complaints regarding health care service quality.
 - b. An auto manufacturer is experiencing low growth of stock value causing investors to sell off its stock.
 - c. A major city newspaper is experiencing declining advertising sales, especially compared to the previous year.
 - 10 At a BMW staff meeting, employees were told "We're in the midst of an electric assault," referring to electric cars introduced by Mercedes, Porsche, Jaguar, and most notably, Tesla. A fund manager at Union Investment panicked the conference, "BMW is falling behind in electric." Develop an exhibit similar to Exhibit 3-4 for this management dilemma.

From the Headlines

 - 11 Loyalty programs are in the headlines frequently. Hotels, like Hilton and Marriott, or coffee powerhouses, like Starbucks, are constantly reworking

Key terms are a valuable refresher of concepts covered in each chapter.

>keyterms

3-D graph 470	facts 459	pie graph 468
actionable insights 446	findings nondisclosure 474	prepositions 451
analogy 460	geograph 468	report framework 457
anchoring bias 451	graph 463	research report 445
area graph 466	infographic 453	research reporting 445
audience analysis 449	information 446	report structure 452
audience-centric planning 448	insight 446	right to quality 474
auditory learners 459	jargon 471	scope 465
bar graph 468	kinesthetic learners 459	statistics 460
confirmation bias 451	language level 471	story 460
conformity bias 451	limitations 456	support materials 458
data 446	line graph 464	survivorship bias 451
data-centric planning 448	logos 459	table 463
data clarity 463	loss-aversion bias 451	technical report 453
data visualization 446, 458	management report 453	testimony/expert opinion 460
demonstration 460	metaphor 460	tone 472
desired audience effect 448	pathos 459	visual learners 459
ethos 459	performance anxiety 473	whitespace 470
executive summary 455	pictograph 468	

Glossary reinforces the language of research.

For each term, it summarizes information from all chapters.

consensus questions measurement questions that ask participant for agreement/disagreement on multiple scale items; scores are tallied to determine the most discriminating scale items; both using a cumulative scale.

consensus scale a scale development technique in which scale items are tested based on a scoring system, and agreement with one extreme scale item results also in endorsement of all other items that take a less extreme position.

custom-designed measurement questions measurement questions formulated specifically for a particular research project.

data raw, unprocessed facts in the form of numbers, text, pictures or video collected by either quantitative or qualitative means.

data analysis the process of editing and reducing accumulated data to a manageable size, developing summaries, looking for patterns, and applying statistical techniques.

data blending a process for combining data from separate data files and querying that composite data file to help make decisions.

data-centric planning a research report orientation whose focus is on delivering as much data and insights as was discovered; the resulting presentation is factual and statistical.

data catalog creates and maintains an inventory of data assets through the discovery, description, and organization of distributed data.

data clarity visuals that meet the highest standard for providing an accurate visual impression of data and information, as well as being easily understood.

data collection the collective actions that field a measurement instrument.

data collection design the blueprint for collecting data; involves how, when, how often, and where data will be collected.

data collection protocols procedures to be used to collect data in a research study; include procedures for observations, interviews, and those performing experiments; influence training.

data-driven organization an organization where each decision in the business benefits from data in a consistent, organization-

wide and are NOT dependent on another variable in the data record.

data preparation the processes that ensure the accuracy of data and their conversion from raw form into categories appropriate for analysis; includes postcollection coding of data and editing data.

data record a set of data fields from one case (all a participant's responses to all measurement questions).

data saturation the point at which no new information is forthcoming and no new insights seem feasible.

data silo a collection of data or information in an organization that is isolated from and not accessible by other parts of the organization.

data validation a process that attempts to verify that research protocols that avoid data errors were followed and that data are real, by identifying fake or inaccurate data.

data visualization the process of developing a research report's textual, tabular, graphical, and video/audio support materials that help the audience share in the researcher's understanding of the data, insights, and recommendations.

data warehouse electronic storehouse where vast arrays of collected integrated data are stored by categories to facilitate retrieval, interpretation, and sorting by data-mining techniques.

database a collection of data organized for computerized retrieval; defines data fields, data records, and data files.

debriefing explanation, after the research, that the participant has been part of a research study; done to alleviate any possible harmful effects; may reveal the purpose of the study.

deception occurs when participants are told only part of the truth or the truth is fully compromised to prevent biasing participants or to protect sponsor confidentiality.

decision a judgment made after thoughtful consideration.

decision rule the criterion for judging the attractiveness of two or more alternatives when using a decision variable.

decision variable a quantifiable characteristic, attribute, or outcome on which a choice decision will be made.

Projects Provide the Proof.

How-to Exhibits and sample Appendices help students DO research.

>Exhibit 11-10 How to Build a Likert Scale with Item Analysis

Item analysis assesses each item (statement) in a Likert scale based on how well it discriminates between those people whose total score is high and those whose total score is low.

- Step 1** Collect a large number of statements that meet the following criteria:
- Each statement is relevant to the attitude being studied.
 - Each statement reflects a favorable or unfavorable position on that attitude.
- Step 2** Select people similar to study participants (participant stand-ins) to read each statement.
- Step 3** Participant stand-ins indicate their level of their agreement with each statement, using a 5-point scale. A scale value of 1 indicates a strongly unfavorable attitude (strongly disagree). A value of 5 indicates a strongly favorable attitude (strongly agree). The other alternatives, 2 (disagree), 3 (neither agree nor disagree), 4 (agree), are mid-range attitudes (see Exhibit 11-3).
- To ensure consistent results, the assigned numerical values are reversed if the statement is worded negatively. The number 1 is always strongly unfavorable and 5 is always strongly favorable.
- Step 4** Add each participant stand-in's responses to secure a total score.
- Step 5** Array these total scores from highest to lowest, then select some portion—generally defined as the top and bottom 10 to 25 percent of the distribution—to represent the highest and lowest total scores.
- The two extreme groups represent people with the most favorable and least favorable attitudes toward the attitude being studied. These extremes are the two criterion groups by which individual Likert statements (items) are evaluated.
 - Discard the middle group's scores (50 to 80 percent of participant stand-ins), as they are not highly discriminatory on the attitude.
- Step 6** Calculate the mean scores for each scale item among the low scorers and high scorers.
- Step 7** Test the mean scores for statistical significance by computing a *t* value for each statement.
- Step 8** Rank order the statements by their *t* values from highest to lowest.
- Step 9** Select 20–25 statements (items) with the highest *t* values (statistically significant difference between mean scores) to include in the final question using the Likert scale.

Researchers have found that a larger number of items for each attitude object improves the reliability of the Likert scale. As an approximate indicator of a statement's discrimination power, one authority suggests using only those statements whose *t* value is 1.75 or greater, provided there are 25 or more participant stand-ins in each group. See Exhibit 11-8 for an example.

Source: Adapted from Allen J. Edwards, *Behaviors and Attitudes: Their Construction* (New York: Appleton-Century-Crofts, 1957), pp. 83–84.

participants choose the same answer for all statements). Using both positively and negatively worded statements within the same question can discourage this practice or make the participant easier to spot and address during data preparation.

Semantic Differential Questions

Questions based on the **semantic differential (SD) scale** measure the psychological meanings of an attitude object using bipolar (opposite) adjectives. The SD scale is based on the proposition that an object can have several dimensions of connotative meaning. The meanings are located in multidimensional property space, called *semantic space*. Connotative meanings are suggested or implied meanings, in addition to the explicit meaning of an object. For example, a roaring fire in a fireplace may connote warmth, as well as its more explicit meaning of heating, *pleasant material with a fresh fire*. One restaurant trying to attract patrons on slow Tuesday evenings offered a special Tuesday menu and called it "down-home cooking." Yankee pot roast, stew, and chicken pot pie, although not its usual cuisine, carried the connotative meaning of *comfort foods* and brought patrons into the restaurant, making Tuesday one of the busiest nights of the week. Advertisers, salespeople, and product and package designers have long known that they must use words, shapes, associations, and images to activate a person's connotative meanings.

>appendix B

Focus Group Discussion Guide*

Background

What if your firm manufactures cleansing products in multiple forms—deodorant bar, beauty bar, cream body wash, gel body wash—and your customers are not using the best form for their skin types and activity levels? You might use exploratory focus groups to determine what drivers motivate customers to select the form they choose. Given the dramatic growth in this market, you want to hear from women aged 16 to 50 and also from men aged 16 to 25. Also, you need to understand their trade-offs when choosing a specific form.

You turn to a research specialist to conduct focus groups in three cities representative of the category market. Prior to meeting the six groups (two groups in each city; two consisting only of teens), researchers ask each participant to prepare two visual collages using pictures cut from magazines. One collage is to reflect the participant's perceptions and experiences with each form (regardless of personal use experience). A second collage is to depict a month in the participant's life. The Intro and Forms segments of the discussion guide below reference these creative exercises.

Personal Cleansing Form Drivers

Atlanta, Seattle, Phoenix

INTRO (15 min)

- A. ALL ABOUT ME—name, family info, work, play, activities, interests. SHOW LIFE IN THE MONTH COLLAGE
- B. AT SOME POINT ASK: How often shower / bathe?
Use fragrances / perfumes? How often?
Use scented or unscented deodorant, lotions, etc?

FORMS (60 min)

- A. LISTED ON EASEL: "DEODORANT BAR, BEAUTY BAR, CREAM BODY WASH, GEL BODY WASH"
Here are the different forms of soaps available that we want to learn about.
How many have ever used _____? Still using or moved on / rejected?
- B. EASEL RESPONSES (BE SURE PICTURES ARE LABELED) Show and describe your picture collage (from homework), as you tell what you like / not, what *assists w/* _____ form.
What else like? / why use?
What *not* like about _____? Why not using (more often)?
How compare to other forms—advantages / disadvantages?
What *wish* for this form . . . what would make it *better* / *perfect* for you?
How / why begin to use? Specifically, what *reminded* about _____ form then?
How find out about it? (ads, TV commercial, friends) What details remember about the ad—what show, who in it?
REPEAT FOR ALL FORMS
- C. LINE UP THE FORMS—When you think about these different forms, are they *basically the same*—just a different form or do you think of these as different products with *different results*? Describe.

>preface

So much is happening in business as we move into this third decade of the millennium. I wanted to know how researchers were dealing with the constancy of change. I heard two themes consistently: justification and speed. With so much of a firm's resources being committed to data-driven decision making and data analytics, justifying the need for new data has become difficult for some managers. Speed in research continues to be increasingly important in the current business environment. Happily, quality is not being sacrificed for quick information. Being confident in the results is still critically important.

All sorts of terms are used to describe the unstable environment in which most businesses are operating: *chaos*, *upheaval*, and *disruption* are some of the most common terms that surfaced. Some firms are sacrificing research and standing their ground or making bold moves without its guidance. Other firms are finding alternative methodologies that can deliver insights more quickly. Others are forming ecosystems and sharing their existing data with this partnership of firms. Still others are conducting new research to make bolder moves to cause disruptions in their own industries.

I've used various interim *GreenBook Research Industry Trends (GRIT)* reports to guide the research for this revision. The latest GRIT Report is based on the largest study of research suppliers and users ever conducted. Automation and privacy are hot topics in GRIT, so I've added material on both these topics in the 14th edition. GRIT is always a wealth of great analysis and a stimulator of questions that has me seeking out collaborators for their ideas and experiences.

In researching trends in business research, I discovered several outstanding books published on research methodologies since the last edition, so I've shared some highlights of those in some of the snapshots. Some of my

favorite research ideas come not from the world of business, which makes their discovery all the more special. I hope you'll be enticed to explore these books, not just settle for the nuggets I've shared in Snapshots and Closeups.

As revealed in the Detailed Changes in this Edition, you'll find many new Snapshots, CloseUps, and PicProfiles that reveal how research is being conducted in a variety of different industries. The topics covered by the research stories and issues featured in this edition include extended reality in research, e-cigarettes, automation, foresight in decision making, avoiding problem participants, Nielsen's recruiting process, humanizing participants, interviewing strangers, sharpening observation by studying art, grocery experiments with delivery, use of QR codes in research, phone survey response rates, lifetime value as a metric, diversity and inclusiveness, Generation Z, a new prediction metric influencing advertising, research on top workplaces, relationship between smoking and vaping, relationship between negative feedback and performance enhancement, radio spins and artist success in country music, infographics as a reporting tool, word clouds to report text data, video as a learning tool, a persona as a reporting device, the power of a single number to accomplish action, cyber security, prediction markets, sentiment analysis, why data analytics isn't delivering results, millennials and housing, the art of asking questions, learning to tell research stories, automation in secondary data searches, agile research, mixed access sample recruitment, digital transformation, eye tracking, experiments in employee health, use of robots, experimental labs, gaming in research, packaging redesign, question banks, survey engagement, coding word data, data insights, finding best practices, presentation venues, and more.

I've let news headlines guide me as I looked for new discussion questions, so you'll find discussion questions, especially those labeled *From the Headlines*, covering Sandra Bullock and Ellen DeGeneres' lawsuit against firms using their likenesses to sell fraudulent products, personal data and privacy concerns, loyalty programs, Victoria's Secret, robots replacing workers, Boeing 737 MAX and safety, HR Trends Report: The DNA of Human Capital, Brazil's Natura Cosméticos SA, GM's Cadillac in China vs. U.S., fast-fashion retailer Forever 21, media streaming and AMC theaters, sensitive content and monetization on YouTube, Globalforce MoodTracker employee engagement survey, sexual harassment of country music rising stars, and Ipsos MORI study of Generation Z.

The various studies of Generation Z also influenced the revision of the

peripherals, especially the Instructor's Manual and PowerPoint. Gen Z students have a different way of learning (see the Walkthrough) that helps explain the frustrations of my teaching colleagues over the last few years—and from this edition's reviewers—about student lack of engagement. Research methods is a subject where active learning is not only possible, but highly desirable; such methods are directly synchronized with how Gen Z likes to learn. I've added more suggestions for in-classroom engagement to the Instructor's Manual, to help instructors who are new to this type of teaching. The PowerPoint slide decks have been reorganized to facilitate active learning as well.

Keep the Features Adopters Love, but Add Value

In each new revision, I'm always sure to keep *Business Research Methods* responsive to (1) industry practices and (2) shifts in teaching page xiii pedagogy and environment, and (3) student learning approaches. In an attempt to make the 14th edition more flexible to current instructional methodologies or learning styles, I've stayed true to what made the book an industry leader.

- **Critical Core Content.** My faculty reviewers this time around didn't pull their punches. It gave me a fresh perspective when looking at material I've looked at for more than 30 years. I've listened to their sometimes-contradictory remarks and tried to find common ground to strengthen areas they thought needed a fresh angle or approach. Materials adopters have loved for decades are still, though, the core of this edition.
- **Strong Summaries for Each Learning Objective.** The summaries are comprehensive, knowing sometimes these are the only material a student has time to read before class. These are tightly tied to the learning objectives and the key terms in the chapter.
- **Multipurpose Discussion Questions.** These can serve as review for students, as testing exercises, or as options for lively class discussions as many are pulled from the headlines reflecting real business situations.
- **Appendices that Add Value.** End-of-chapter and end-of-text appendices offer information that, given the differing skills and knowledge of their students, professors may choose to emphasize or

exclude. End-of-book appendices offer opportunities for active learning, and testing, supplementing text material.

- **End-of-Chapter Appendices** in the 14th edition relate to
 - Calculating sample size (Chapter 5).
 - Sources for measurement questions (Chapter 11).
 - Building better tables for examining data (Chapter 13).
 - Describing data statistically (Chapter 13).
 - Tips on improving reports (Chapter 16).

When an end-of-chapter appendix loses its usefulness, I drop the appendix but incorporate some of its more valued content into a relevant text chapter exhibit or content. I did this with two appendices in the 14th edition.

- **End-of-Book Appendices** in the 14th edition
 - Appendix A (Business Research Proposals and RFPs) is organized with three active-learning exercises in mind: writing a formal proposal, creating an RFP, and assessing a proposal submitted in response to an RFP. Professors sometimes use writing a proposal or an RFP as an end-of-term project or testing exercise, and find the appendix and the sample within this appendix valuable.
 - Appendix B (Focus Group Discussion Guide) can be used as a sample for developing a guide or for a discussion of issues and problems related to conducting focus groups.
 - Appendix C (Nonparametric Significance Tests) can be used to supplement the chapter on hypothesis testing.
 - Appendix D (Statistical Tables) can be used to discuss the mathematical foundation of hypothesis testing, association, and correlation.

Add Value to Teaching and Learning Resources

As a teacher and a researcher, I always assume there is a better way to do something. Just as innovation is the lifeblood of a business, it's the lifeblood of a classroom, too. At educational conferences, I'm always drawn to

sessions on teaching approaches. I've mentored dozens of new faculty in various teaching approaches in my career. When faculty reveal they don't look at the resources that come with their books or share the appropriate ones with their students, I wonder why. *Business Research Methods* comes with a comprehensive set of teaching and learning resources for both faculty and students. I hope you'll use them and send me suggestions for improving them for the next edition.

- **Instructor's Manual (instructors only).** Decades of reviewers tell me that *Business Research Methods* is often assigned to professors new to teaching. I bring 40 years of teaching and even more years of research experience to the subject, so it's important to me that both teachers and students have a wonderful experience. That means making the Instructor's Manual a valuable tool. It's full of information, teaching ideas, and teaching tools. It can help in a pinch, when preparation time is slim, when your tried-and-true approach seems to be failing to reach your Gen Z audience, or when you want to shake things up and try something fresh. Each chapter offers
 - Suggestions for *Active-Learning Exercises*
 - Suggestions for *Web Exercises*. While students surf the web all the time, they are often novices at finding the information they want on the web—just ask any librarian. Due to the ever-changing nature of web URLs, you'll find these exercises within the IM, not the text.
 - *List of Exhibits*, by number and title
-
- *List of Key Terms*
 - *Chapter Outline*
 - Answers to end-of-chapter *Review & Discussion Questions*
 - *Additional Discussion Opportunities* based on business research examples featured in prior editions.

Examine the Instructor's Manual for ideas for using the resources below in your classroom.

- **PowerPoint.** While you can use these to guide a lecture, these slide decks are designed to facilitate discussion. This means one particular slide deck might be used for several class sessions, or only one. Faculty are encouraged to reorder the slides in any order that fits the activities you plan for your class session or just make notes of the slides you want and jump to them. Even when faculty don't use PowerPoint, students might find the Chapter Outline portion of the slide deck a good review of the chapter or a good note-taking summary for class. Each chapter's deck provides at minimum
 - *Exhibit* slides: one or more slides for each exhibit providing the visual cues for concept development and discussion.
 - *Concept* slides for key terms not covered by exhibit slides: providing deeper dives into concepts.
 - *Image* slides: providing links to visual cues in the chapter.
 - *Snapshot/CloseUp/PicProfile* slides: discussion slides, one or more for each of these special features in the chapter.
 - *Industry Thought Leadership* slides, one or more for each chapter, sharing a quote or issue for discussion.
 - *Key Term List* slide(s): one or more for each chapter, for review and quizzing.
- **Video Supplements.** Video supplements can be used as preparation for an in-class exercise or shown in the class as part of such an exercise. Some attach to a particular Snapshot/CloseUp/PicProfile or case. In the IM section on *Video*, you'll find suggestions for video downloadable from company websites, YouTube.com, Ted.com, and more. Some explain concepts or provide examples; others set the stage for a thought-provoking discussion. In CONNECT you'll find video that my collaborators have shared, such as:
 - An experiment in observation using body cameras; use for discussing error in observation research.
 - Several short segments drawn from a two-hour metaphor elicitation technique (MET) interview; use to teach students to conduct almost any type of individual depth interview or to explain the concept of

researcher–participant rapport.

- **Cases.** Cases offer an opportunity to examine management dilemmas and research projects in more depth and detail. You'll find detailed discussion guides for each case in the Instructor's Manual.
 - **Video Research Cases.** Four full video cases were written and produced especially to match the text's research process model. These feature noted companies Lexus, Starbucks, Wirthlin Worldwide (now Harris Interactive), Robert Wood Johnson Foundation, GMMB, Visa, Bank One, Team One Advertising, U.S. Tennis Association, Vigilante New York, and the Taylor Group.
 - **Written Research Cases.** You'll find cases about hospital services, state lotteries, data mining, fundraising, new promotions, and website design, among other topics, featuring organizations like Akron Children's Hospital, Kelley Blue Book, Starbucks, Yahoo!, the American Red Cross, and more.
- **Data Files.** If your course doesn't involve a project where students collect their own data, use one of the cases that contain data to have them work with concepts found in Chapters 13–16. For example, you can modify the data (make it "dirty") and have students prepare it for analysis, develop an analysis plans, construct dummy tables, choose appropriate tests for analysis, and more.
- **Sample Questionnaires.** The *Case Index* identifies which cases contain questionnaires. Use these for opportunities for active-learning exercises or discussion. Students can be asked to find problems with questions, question order, question transition, and so on.
- **Sample Student Project.** Appropriate data visualization in the finished deliverable is crucial to creating a strong research report. Have students critique this one.
- **Appendices.** You'll find additional appendices within CONNECT: Bibliographic Database Searches, Advanced Bibliographic Searches, Complex Experimental Designs, Test Markets, and Pretesting Options and Discoveries. Assign these if you plan an active-learning exercise that needs more content than the text offers. For example, my class has a full period in the library computer lab where I team teach with our business librarian a session on an exploration strategy. Students review

the Bibliographic Database Searches, Advanced Bibliographic Searches appendices, as well as the section in Chapter 3, in preparation. page xv

- **Articles, Samples, and Templates.** Students often need to see how professionals do research to really understand the research process. You'll find a sample EyeTrackShop report, a Nielsen report of using U.S. Census data, an Excel template for generating sample data displays, and more. *Multivariate Analysis: An Overview* is a chapter mostly for the benefit of graduate students who use *Business Research Methods*.
- **Test Bank with Answer Key** (instructors only). More than 1,700 objective and essay questions are included, tied specifically to the learning objectives and the key terms in each chapter. If you have the equipment, you can use these for in-class polls, but most faculty use them for assessment quiz or test questions.

Collaborators

Research Industry

Research industry collaborators are the lifeblood of this textbook writer. The following people collaborated directly on material in this edition or connected me with those who did: Bella Tumini, Suja; Betty Adamou, Research Through Gaming Ltd.; Carlos Santiago, Santiago Solutions Group; Colin McHattie, iTracks; Dan Weber, iTracks; Daniel Enson, Toluna; Edwige Winans, Marcus Thomas LLC; Eric Lipp, Open Doors Organization; Hans Lee, Sticky; Jennifer Hirt-Marchand, Marcus Thomas LLC; John Whittle, Further; Justin Ohanessian, Sticky; Lenard Murphy, GreenBook; Malgorzata Kolling, OdinAnswers; Nicola Petty, Statistics Learning Centre; Pete Cape, SSI; Rebecca Wulfeck, Marcus Thomas, LLC; Seth Stoughton, University of South Carolina; Stuart Schear, Robert Wood Johnson Foundation; Tom H.C. Anderson, OdinAnswers; Tom Hill, Axiom Consulting Partners;

The following are just a few of the people who provided ideas for Snapshots, PicProfiles, and CloseUps for this edition, either directly or through their research, writing, or artistic endeavors: Amelia Dunlop, Deloitte Digital; Amy E. Herman, author and consultant; Ashley Goodall, Cisco and author; Bina Venkataraman, MIT; Brian Christian, author; Carlo Ratti, Senseable City Lab, MIT; Chris Baggott, ClusterTruck; Emily Sword, MTD Products; Emma Coats, Pixar; Frederick F. Reichheld, Bain & Company's Loyalty Practice and author; Gabe Zicherman, author; Geoffrey Alpert,

University of South Carolina; Glenn Kelman, Redfin and author; Jada Watson, University of Ottawa; Jeff Noble, Noble Consulting; Julia Smith, AIG; Ken Burns, filmmaker; Terca, Netvibes; Lenard Murphy, GreenBook; Malcolm Gladwell, author; Marcus Buckingham, The Marcus Buckingham Company, ADP Research Institute and author; Martin Lindstrom, author; Max Kalehoff, Realeyes; Mitesh Patel, University of Pennsylvania; Michael Graziano, Princeton; Mike Perry, Hallmark Cards; Pamela Kirk Prentice, MIT-Sloan; Pam Goodfellow, Prosper Insights & Analytics; Peter Fader, Wharton School at University of Pennsylvania and author; Ray Poynter, NewMR; Reed Hastings, Netflix; Richard Cassidy, AlertLogic; Robert W. Kahle, Research Solutions Inc. and author; Sam Ransbotham, MIT-Sloan; Sarah Toms, Wharton Interactive and author; Serguei Netessine, Wharton School of Business, University of Pennsylvania; Seth Doane, CBS News; Suzy Monford, Kroger; Tom Tan, Cox School of Business, Southern Methodist University; Tony Saldanha, Transformant; Warren Berger, researcher and author; Yael Cosset, Kroger; and Zoe Downing, Focus Vision.

And to all those research collaborators who suggested ideas, collaborated on cases or past Snapshots, Closeups, or PicProfiles, and continue to discuss the research industry with me, I'm grateful. These individuals include: Elaine Arkin, research consultant; Jane Boutelle, Digsite; Jessica Broome, Jessica Broome Research; Kerry Hecht, Ramius; Lance Jones, Keynote Systems; Mark Bunker, Forrester Research; Rob Ramirez, Schlesinger Associates; Todd Juenger, TiVo; Andy Peytchev, Research Triangle Institute; Sean Case, Research for Good; Matt Marta, GutCheck; Monika Wingate, Digsite; Patricio Pagani, InfoTools; Denise D'Andrea, Focus Vision; Ilan Hertz, SiSense; David Harris, Insight and Measurement; Cassandra McNeill, GutCheck; Michael Benisch, Rocket Fuel Inc.; Michelle Shail, TIAA; Nick Drew, Fresh Intelligence; Rachel Sockut, Innerscope; Erica Cenci, Brady PR for OpinionLab; Olescia Hanson, The Container Store; Cynthia Clark, 1to1 Magazine; Betty Adamou, Research Through Gaming Ltd.; Debra Semans, Polaris Marketing Research; Keith Chrzan, Maritz Research Inc.; Michael Kemery, Maritz Research Inc.; Christian Bauer, Daimler AG; Kai Blask, TNS Infratest; Melinda Gardner, Novation; Keith Phillips, SSI; Nels Wroe; SHL; Ephraim (Jeff) Bander, Eye Track-Shop; Ron Sellers, Grey Matter Research & Consulting; Guadalupe Pagalday, Qualvu.com; Sandra Klaunzler, TNS Infratest; Steve August, Revelation; Kathy Miller, GMI (Global Market Insite Inc.); Takayuki Nozoe, NTT Communications

Corporation; Janeen Hazel, Luth Research; Christine Stricker, RealtyTrac; Stephanie Blakely, The Prosper Foundation; Jennifer Frighetto, Nielsen; Andy Pitched, Research Triangle Institute (RTI International); Jeffrey C. Adler, Centric DC Marketing Research; Josh Mendelssohn, Chadwick Martin Bailey Inc.; Ruth Stan, SIS International Research; Sharon Starr, IPC Inc.; Keith Crosley, Proofpoint; Christopher Schultheiss, SuperLetter.com; Hy Mariampolski, QualiData Research Inc; Julie Grabarkewitz and Paul Herrera, American Heart Association; Holly Ripans, American Red Cross; Mike Bordner and Ajay Gupta, Bank One; Laurie Laurant Smith, page xvi
Arielle Burgess, Jill Grech, David Lockwood, and Arthur Miller, Campbell-Ewald; Francie Turk, Consumer Connections; Tom Krouse, Donatos Pizza; Annie Burns and Aimee Seagal, GMMB; Laura Light and Steve Struhl, Harris Interactive; Emil Vicale, Herobuilders.com; Adrian Chiu, NetConversions; Colette Courtion, Starbucks; Mark Miller, Team One Advertising; Rebecca Conway, The Taylor Research Group; Scott Staniar, United States Tennis Association; Danny Robinson, Vigilante; Maury Giles, Wirthlin Worldwide; Ken Mallon, Yahoo!; and William Pink, Millward Brown.

Faculty and Students

The 13e faculty reviewers represent a small sample of adopters and nonadopters; they teach in-classroom, online, and hybrid courses; they are seasoned teachers or very new at their craft; they teach in small and large institutions. Their insights, aggravations, frustrations, suggestions, and disagreements were challenging to address but inspired innovative solutions, some simple and some more complex. And, as always, their comments encouraged me to examine every word, every sentence, and every concept to find better, clearer ways to engage students in the subject I love. Reviewers wanted more bullet lists, rather than prose, when appropriate; I complied where possible. Often their wants contradicted, so I found a different path I hope will satisfy both. Reviewers' feedback also encourage me to take a deeper look at the Instructor's Manual and PowerPoint, to see what I could do to make these two peripherals more supportive of teaching approaches that support active learning. While I couldn't give reviewers everything in the textbook they wanted, I hope adopters will find the changes I made to this edition and its peripherals valuable.

Reviewers for this edition's revision included: Carol Jones, University of

Alabama; Carolyn Scott, American National University; Gregory Lubiani, Texas A&M-

Commerce; Jennifer Trout, Rasmussen College; Mary Hamman, University of Wisconsin-La Crosse; Pushkala Raman, Texas Woman's University; Rick Simmons, Texas A&M; and Rikki Abzug, Ramapo College. Prior edition reviewers included: Ahmed Al-Asfour, Ogala Lakota College; Zara Ambadar, Carlow University; Don Ashley, Wayland Baptist University; Kristopher Blanchard, Upper Iowa University; Cristanna Cook, Husson University; Charlene Dunfee, Capella University; Ernesto Gonzalez, Florida National University; Wendy Gradwohl, Wittenberg University; Pam Houston, Ogala Lakota College; Yan Jin, Elizabeth City State University; Abdullah Khan, Clafin University; Tracy Kramer, North Greenville University; Rex Moody, Angelo State University; Jason Patalinghug, University of New Haven; Glen Philbrick, United Tribes Technical College; Denel Pierre, Shorter University; Pushkala Raman, Texas Woman's University; Charles Richardson, Clafin University; Marcel Robles, Eastern Kentucky University; Angela Sandberg, Shorter University; Brian Satterlee, Liberty University; Jonathan Schultz, Amberton University; Stefano Tijerina, Husson University; Greg Turner, Clafin University; Sam VanHoose, Wayland Baptist University; Greg Warren, Wilmington University; Beyonka Wider, Claflin University; and Ron Zargarian, University of Indianapolis; Scott Bailey, Troy University; Scott Baker, Champlain College; Robert Balik, Western Michigan University–Kalamazoo; John A. Ballard, College of Mount St. Joseph; Jayanta Bandyopadhyay, Central Michigan University; Larry Banks, University of Phoenix; Carroll M. Belew, New Mexico Highlands University; Kay Braguglia, Hampton University; Jim Brodzinski, College of Mount St. Joseph; Taggart Brooks, University of Wisconsin–La Crosse; Cheryl O'Meara Brown, University of West Georgia; L. Jay Burks, Lincoln University; Marcia Carter, University of Southern New Hampshire; Raul Chavez, Eastern Mennonite University; Darrell Cousert, University of Indianapolis; David Dorsett, Florida Institute of Technology; Michael P. Dumler, Illinois State University; Kathy Dye, Thomas More College; Don English, Texas A&M University–Commerce; Antonnia Espiritu, Hawaii Pacific University; Hamid Falatoon, University of Redlands; Judson Faurer, Metropolitan State College of Denver; Eve Fogarty, New Hampshire College; Bob Folden, Texas A&M University–Commerce; Gary Grudinski, San Diego State University; John Hanke, Eastern Washington University; Alan G.

Heffner, Silver Lake College; Ron E. Holm, Cardinal Stritch University (Director of Distance Learning); Lee H. Igel, New York University; Burt Kaliski, New Hampshire College; Jane Legacy, Southern New Hampshire University; Andrew Luna, State University of West Georgia; Andrew Lynch, Southern New Hampshire University; Iraj Mahdvi, National University; Warren Matthews, LeTourneau University; Erika Matulich, University of Tampa; Judith McKnew, Clemson University; Rosemarie Reynolds, Embry Riddle Aero University–Daytona; Randi L. Sims, Nova Southeastern University; Gary Stark, Northern Michigan University; Bruce Strom, University of Indianapolis; Cecelia Tempomi, Southwest Texas State University; Gary Tucker, Northwestern Oklahoma State University; Marjolijn Vandervelde, Davenport University; Charles Warren, Salem State College; Dennis G. Weis, Alliant International University; Robert Wheatley, Troy University; Bill Wresch, University of Wisconsin–Oshkosh; and Robert Wright, University of Illinois at Springfield; and Ken Zula, Keystone College.

This revision incorporates the feedback of countless students who identified areas of confusion so that this edition could make concepts more understandable, who participated in search tests, who worked on numerous research projects demonstrating where the book needed to page xvii include more information or more how-to directions, and who provided reminders with their questions and actions that some aspects of the research process operate below their learning radar.

Data-driven decision making is fast becoming the norm for business. Through this 14th edition, I hope you and your students discover, or rediscover, how stimulating, challenging, fascinating, and sometimes frustrating this world of research-supported data-driven decision making can be.

Many thanks to my McGraw Hill team; without your assistance this revision wouldn't have happened so smoothly: Chuck Synovec, Director; Noelle Bathurst, Portfolio Manager; Ryan McAndrews, Product Developer; Pat Frederickson, Lead Core Project Manager; Harper Christopher, Executive Marketing Manager; David W. Hash, Designer; Fran Simon, Associate Program Manager; Angela Norris, Senior Assessment Project Manager; Margaret Haywood, copyeditor; and Raguraman Guru, proofreader.

Pamela Schindler

>detailedchangestothisedition

In this 14th edition of *Business Research Methods*, revisions were made to incorporate new information and trends in the industry, as well as to be responsive to changing teaching pedagogy. My reviewers indicated where students in their classes were struggling, and I responded to their concerns by reorganizing some material, redefining some terms more clearly, modifying some exhibits, and providing different, clearer examples.

For Teachers and Students:

- 29 new research examples from research collaborations appear as Snapshots, CloseUps, and PicProfiles; where possible, I've also updated holdover Snapshot and CloseUps.
- 23 changes have been made to the Glossary, including the addition of 20 new key terms and some clarifications to other key terms.
- 88 new images will help students to visually anchor key terms, research concepts, and research examples.
- 38 exhibits have been modified (some major, others minor) to make them clearer

For Teachers:

- Each chapter's *Instructor's Manual*
 - has been reorganized to support greater student engagement with a new section, Active Learning Exercises, that covers teaching ideas for Snapshots, CloseUps, and PicProfiles; Industry Thought Leadership; PulsePoints; Video and Film; Web Exercises; Case Discussions; and more.

- has been reorganized to facilitate review of exhibits and key terms.
- contains additional research examples for discussion or testing.
- The *Test Bank* has been updated to reflect changes in content.
- Each chapter's *PowerPoint* slide deck
 - has been updated to reflect changes in content.
 - has been reorganized to support active learning exercises with the use of separate slides groups for exhibits; Snapshots, CloseUps, and PicProfiles; and Industry Thought Leadership.

Changes for Each Chapter

Chapter 1

The following elements are new to this edition: A new opening section, focusing on the KPMG study of business CEOs and information and its relation to decision making; two PicProfiles, one on Extended Reality (XR) in business and another using e-cigarettes to discuss operational definitions in the National Youth Tobacco Survey; eight new key terms; nine new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about celebrities fighting the unauthorized use of their likenesses to sell fraudulent products; and a modification to Exhibit 1-11 Model of Traditional Product Life Cycle Theory. Two Snapshots have been moved to the Instructor's Manual: *Identifying and Defining Concepts* and *Radio Chips vs. Retinal Scans_Which Theory Offers the Best Protection*, as well as one discussion question.

Chapter 2

The following elements are new to this edition: two new Snapshots, one on GLG on the way executives learn and another on new privacy legislation; and one PicProfile on automation in research; seven new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about attitudes about personal data privacy. Two Snapshots have been moved to the Instructor's Manual: *Research and Programmatic Algorithms*, and *GRIT Research Techniques*, as well as one discussion question.

Chapter 3

The following elements are new to this edition: A major modification of Exhibit 3-3 SalePro's Management-Research Question Hierarchy; one Snapshot on Foresight in Decision Making and one Picprofile on the Hallmark and Zola PR implosion and secondary data; seven new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about loyalty programs and a new *From Concept to Practice* question using Exhibits 3-2 and 3-3 and different scenarios. One Snapshot has been moved to the Instructor's Manual: *Using Interviews to refine the Management Question*, as well as one discussion question.

page xix

Chapter 4

The following elements are new to this edition: two PicProfiles, one new CloseUp on facial coding to determine emotional response and one new Snapshot on research at Goldman Sachs to influence their hiring process; five new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about Victoria's Secret; one Snapshot has been moved to the Instructor's Manual: *TIAA Performance Management Overhaul*, as well as one discussion question. The Snapshot *AIG Embraces Interviews* moved to Chapter 9.

Chapter 5

The following elements are new to this edition: two new Snapshots, one on how to avoid problem participants and another on how Nielsen recruits its TV families; one new PicProfile on how to humanize participants; one new key term; six new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about the declining milk market; and a minor modification to Exhibit 5-7 How to Choose a Random Sample. Three Snapshots have been moved to the Instructor's Manual: *Ford Reenergizes by Changing Its Sampling Design*, *Who's Really Taking Your Surveys*, and *Keynote Systems Tests the Power of Search*.

Chapter 6

The following elements are new to this edition: two new Snapshots, one on advice from Malcolm Gladwell on talking with strangers and another on ethnographic interviewing; two new key terms; six new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about the Boeing 737 MAX; and Exhibit 6-1 *GRIT Qualitative Research Techniques* is new, based on the newest GRIT report. One PicProfile has been moved to the Instructor's Manual: *OdinText's use of avatars in research*, as well as one discussion question.

Chapter 7

The following elements are new to this edition: one new CloseUp on sharpening your powers of observation using art as a tool; one new key term; five new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about the HR Trends Report, *The DNA of Human Capital*; and modifications to Exhibits 7-1, 7-2, 7-4, 7-5, 7-6, 7-7 to better match the chapter's text. One discussion question has moved to the Instructor's Manual.

Chapter 8

The following elements are new to this edition: one new snapshot on Kroger's venture into delivery of prepared food; five new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about Brazil's Natura Cosméticos SA; and a modification to Exhibits 8-3. One Snapshot has been moved to the Instructor's Manual: *Zeotap Experiments with Mercedes Benz*, as well as one discussion question.

Chapter 9

The following elements are new to this edition: three PicProfiles, one on GRIT Trends on Survey Research, one on QR codes in research, and another on phone survey response rates; three new key terms; seven new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *Terms in Review* question on privacy and one *From the Headlines* discussion question about GM's Cadillac in

China; and modifications to Exhibits 9-1, 9-7, and 9-9. Two PicProfiles (on 2018 GRIT Survey Research Trends and Decline in Phone Response Rates 2016) and one Snapshot (Research Embraces the Smart Phone) have been moved to the Instructor's Manual, as well as one discussion question.

Chapter 10

The following elements are new to this edition: one new Snapshot on lifetime value; four new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about Forever 21 retailer. Two Snapshots have been moved to the Instructor's Manual: *The Emotional Face of Research* and *Measurement of TiVo Households: Skipped Ads vs. Most Watched*, as well as one discussion question.

Chapter 11

The following elements are new to this edition: one new CloseUp on developing a prediction metric (CIIM) and two new PicProfiles, one on the value of diversity and inclusiveness and another on Ipsos MORI's study of Generation Z; six new key terms; seven new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *Terms in Review* question and a *From the Headlines* discussion question about AMC theaters and streaming services; and a new Exhibit 11-6, *Review of Reliability, Validity, and Practicality in Research* and design modifications to Exhibits 11-9, 11-10, 11-11, 11-14, 11-15, 11-18. Two PicProfiles have been moved to the Instructor's Manual: on Snausages and on UrbanDictionary.com. Dropped Chapter 11 *Appendix More on Effective Measurement Questions* and incorporated some of the material into Chapter 11. Dropped Chapter 11 *Appendix Sample Computer-Based page xx Questions and Guidelines for Mobile Q* and incorporated some questions into Exhibit 11-9 and some material into Chapter 12.

Chapter 12

The following elements are new to this edition: one new Snapshot on Energage's approach to measuring top workplaces and one PicProfile on e-cigarettes; 1 modified key term; three new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about monetization

of YouTube content. One Snapshot *Does Cupid Deserve a Place in the Office Cubicle?* and one PicProfile on travel issues has been moved to the Instructor's Manual, as well as one discussion question.

Chapter 13

The following elements are new to this edition: one new Snapshot *Can Negative Feedback Improve Performance*; four new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question on the Globalforce MoodTracker employee engagement survey; and major modifications to Exhibits 13-2 and 13-4 with some modifications to Exhibits 13-3, 13-5, 13-11, 13-18, and 13-20.

Chapter 14

The following elements are new to this edition: one new Snapshot on a new HR training model for restaurants; three new images or art to anchor concepts or examples; and a modification to Exhibits 14-9 and 14-11. One Snapshot has been moved to the Instructor's Manual: *Testing a hypothesis of unrealistic drug use in movies*.

Chapter 15

The following elements are new to this edition: one new CloseUp on a relationship between radio spins and success and one new PicProfile on association between decline in cigarette smoking and vaping; two new key terms; three new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about sexual harassment of country music performers by radio programmers; and a modification to Exhibit 15-3. Two Snapshots have been moved to the Instructor's Manual: *Envirosell Studies Reveal Left-Hand Retail* and *Advanced Statistics Increase Satisfaction and Release More Funds through ATMS*, as well as one PicProfile on Constellation Wines, as well as one discussion question.

Chapter 16

The following elements are new to this edition: one new CloseUp on creating 3D personas, one new Snapshot on focusing your research story on one powerful number, and two new PicProfiles, one on learning through videos

and another on displaying text data with word clouds; four new key terms; eight new images or art to anchor concepts or examples; a reorganization of the review and discussion questions including a new *From the Headlines* discussion question about Generation Z spending; and modifications to Exhibits 16-1, 16-6, and 16-7. Two Snapshots have been moved to the Instructor's Manual: *Hitting the Wall Is a Good Thing* and *Forrester Research—Finding the Dramatic Story Line*, as well as one discussion question.

Chapter 17

No changes were made to this chapter. An Integrated Example provides an insider's perspective on a research project. This example applies text practices and theory to one example from management dilemma to research report. The companies, Visionary Insights and BrainSavvy, might be fictional, but the research profiled in the example is very real. This chapter can be used throughout the course to review (or test) various concepts, or at the end of the course as the basis for a lively discussion or final exam.



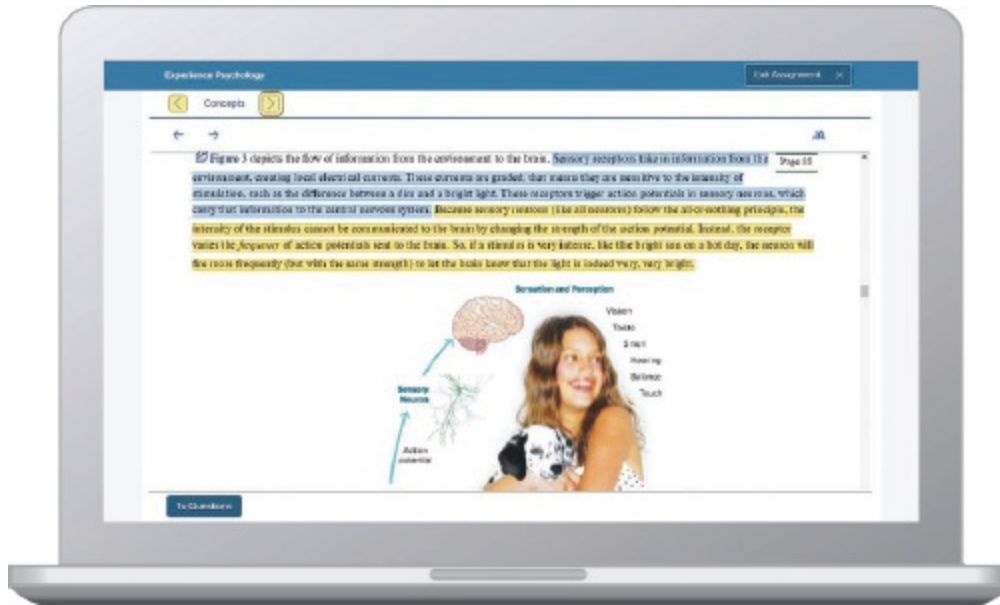
Instructors: Student Success Starts with You

Tools to enhance your unique voice

Want to build your own course? No problem. Prefer to use our turnkey, prebuilt course? Easy. Want to make changes throughout the semester? Sure. And you'll save time with Connect's auto-grading too.

65%

Less Time Grading



Laptop: McGraw Hill; Woman/dog: George Doyle/Getty Images

Study made personal

Incorporate adaptive study resources like SmartBook® 2.0 into your course and help your students be better prepared in less time. Learn more about the powerful personalized learning experience available in SmartBook 2.0 at www.mheducation.com/highered/connect/smartbook

Affordable solutions, added value



Make technology work for you with LMS integration for single sign-on access, mobile access to the digital textbook, and reports to quickly show you how each of your students is doing. And with our Inclusive Access program you can provide all these tools at a discount to your students. Ask your McGraw Hill representative for more information.

Solutions for your challenges



A product isn't a solution. Real solutions are affordable, reliable, and come with training and ongoing support when you need it and how you want it. Visit www.supportateverystep.com for videos and resources both you and your students can use throughout the semester.

Checkmark: Jobalou/Getty Images



Students: Get Learning that Fits You

Effective tools for efficient studying

Connect is designed to make you more productive with simple, flexible, intuitive tools that maximize your study time and meet your individual learning needs. Get learning that works for you with Connect.

Study anytime, anywhere

Download the free ReadAnywhere app and access your online eBook or SmartBook 2.0 assignments when it's convenient, even if you're offline. And since the app automatically syncs with your eBook and SmartBook 2.0 assignments in Connect, all of your work is available every time you open it. Find out more at www.mheducation.com/readanywhere

“I really liked this app—it made it easy to study when you don't have your textbook in front of you.”

- Jordan Cunningham, Eastern Washington University



Calendar: owattaphotos/Getty Images

Everything you need in one place

Your Connect course has everything you need—whether reading on your digital eBook or completing assignments for class, Connect makes it easy to get your work done.

Learning for everyone

McGraw Hill works directly with Accessibility Services Departments and faculty to meet the learning needs of all students. Please contact your Accessibility Services Office and ask them to email accessibility@mheducation.com, or visit www.mheducation.com/about/accessibility for more information.



Top: Jenner Images/Getty Images, Left: Hero Images/Getty Images, Right: Hero Images/Getty Images

>briefcontents

Preface xii

>part I

Building the Foundation for Research 1

- 1 Research Foundations and Fundamentals 2
- 2 The Research Process: An Overview 28
- 3 Stage 1: Clarify the Research Question 48

>part II

The Design of Business Research 73

- 4 Stage 2: Research Design, An Overview 74
- 5 Stage 2: Sampling Design 90
Appendix: Calculate the Sample Size 118
- 6 Stage 2: Data Collection Design: Qualitative Research 126
- 7 Stage 2: Data Collection Design: Observation Research 153
- 8 Stage 2: Data Collection Design: Experiments 177
- 9 Stage 2: Data Collection Design: Survey Research 202

>part III

Measurement 233

- 10 Stage 3: Measurement Foundations 234
- 11 Stage 3: Measurement Questions 254
Appendix: Sources of Measurement Questions 297
- 12 Stage 3: Measurement Instruments 298

>part IV

Collect, Prepare, and Examine the Data 325

- 13 Stage 3: Collect, Prepare, and Examine Data 326
 - Appendix: Better Tables 360
 - Appendix: Review: Describing Data Statistically 363

>part V

Analyze and Interpret Data 369

- 14 Stage 4: Hypothesis Testing 370
- 15 Stage 4: Measures of Association 407

>part VI

Stage 5: Report the Research 443

- 16 Stage 5: Research Reports: Support Insights and Recommendations 444
 - Appendix: Better Reports 480

>part VII

Research Project Overview 491

- 17 An Integrated Example 492

>case index 523

>appendices 533

- a Business Research Proposals and RFPs (with Sample RFP) 534
- b Focus Group Discussion Guide 554
- c Nonparametric Significance Tests 556
- d Selected Statistical Tables 563

References 574

Glossary 594

Indexes 609



501-1333

>contents

Preface xii

>part I

Building the Foundation for Research 1

1 Research Foundations and Fundamentals 2

Business Environment for Decision-Making 3

Role of Data in Decision-Making 4

Addressing the Challenges 6

Is New Data Needed? 7

The Research Process 10

The Language of Research 12

Concepts 12

Constructs 13

Operational Definitions 14

Variables 15

Hypotheses, Theories, and Models 18

>summary 25

>keyterms 26

>review&discussionquestions 26

>cases 27

2 The Research Process: An Overview 28

What Is Good Research? 29

The Research Process 29

Stage 1: Clarify the Research Question 30

Identify and Prioritize Dilemmas 31

<i>Exploration</i>	33
<i>Value and Budget the Research</i>	34
Stage 2: Design the Research Project	35
<i>Data Collection Design</i>	35
<i>Sampling Design</i>	38
Stage 3: Collect and Prepare the Data	39
<i>Collect the Data</i>	39
<i>Prepare the Data</i>	39
Stage 4: Analyze and Interpret the Data	40
Stage 5: Report Insights and Recommendations	41
The Research Project Time Frame	41
Research Process Pitfalls and Solutions	42
<i>Ill-Defined Management Problems</i>	42
<i>Unresearchable Questions</i>	43
<i>Overembracing Data Analytics</i>	43
<i>The Manager's Hidden Agenda(s)</i>	43
<i>Favored-Technique Syndrome</i>	43
<i>Researcher Inexperience</i>	44
Research Process Ethical Issues and Responsibilities	45

>summary 45

>keyterms 46

>review&discussionquestions 46

>cases 47

3 Stage 1: Clarify the Research Question 48

Stage 1 in the Research Process	49
The Question Hierarchy	49
<i>The Management Question</i>	51
<i>The Research Question</i>	53
<i>Investigative Questions</i>	54
<i>Measurement Questions</i>	54
The Exploration Strategy	55
<i>Information Sources</i>	56
<i>Evaluating External Sources</i>	62
<i>Internal Sources</i>	65
<i>Evaluating Internal Sources</i>	66
Value the Research	67
Justify and Budget for Research	68
Stage 1 Ethical Issues and Their Solutions	69

>summary 69

>keyterms 70

- >review&discussionquestions 71
- >cases 72
- >additionalcontent 72

>part II

The Design of Business Research 73

4 Stage 2: Research Design, An Overview 74

- What Is Research Design? 75
 - Sampling Design 76
 - Data Collection Design 77
 - An Example* 77
 - Design Dimensions* 78
 - The Topical Scope* 81
 - Design the Measurement Instrument 85
- >summary 88
- >keyterms 88
- >review&discussionquestions 88
- >cases 89

5 Stage 2: Sampling Design 90

- Sampling Design 91
 - Define the Target Population and Case 92
 - Define the Population Parameters 93
 - Define the Sample Frame 94
 - A Community as Sample Frame* 95
 - Define the Number of Cases 96
 - Sample versus Census* 96
 - Lower Cost* 98
 - Greater Speed of Data Collection* 98
 - Availability of Population Cases* 98
 - Better Quality Results* 98
 - Accuracy* 99
 - Precision* 99
 - Sample Size* 100

Define the Sampling Method	100
Probability Sampling	102
<i>Simple Random Sampling</i>	102
<i>Complex Probability Sampling</i>	103
Nonprobability Sampling	110
<i>Convenience Sampling</i>	110
<i>Purposive Sampling</i>	111
<i>Snowball Sampling</i>	112
Define the Selection and Recruiting Protocols	112
Ethical Issues and Their Solutions	114

>summary 115

>keyterms 116

>review&discussionquestions 116

>cases 117

appendix: Calculate the Sample Size 118

6 Stage 2: Data Collection Design: Qualitative Research 126

What Is Qualitative Research?	128
Qualitative Research Design	130
Qualitative Sampling Design	131
Qualitative Data Collection Design	133
<i>Interviews</i>	133
<i>Interviewers as Consultants</i>	136
<i>Creative Exercises</i>	138
<i>Individual Depth Interviews</i>	139
<i>Group Interviews</i>	142
<i>Focus Groups</i>	143
<i>Group Interview Drawbacks and Their Solutions</i>	146
<i>Recording, Analyzing, and Reporting Group Interviews</i>	146
Combining Qualitative Methodologies	147
<i>Case Study</i>	147
<i>Action Research</i>	148
Merging Qualitative and Quantitative Methodologies	149
Ethical Issues and Their Solutions	149

>summary 150

>keyterms 151

>review&discussionquestions 151

>cases 152

7 Stage 2: Data Collection Design: Observation Research 153

Observation Research Design	156
Sampling Design	157
Data Collection Design	158
<i>Content Type</i>	158
<i>Types of Observation</i>	159
<i>Observation Environment</i>	162
<i>Data Collection Protocol</i>	162

page xxvii

<i>Observer-Participant Relationship</i>	165
<i>Observer Training and Supervision</i>	169
Evaluation of the Observation Method	170
<i>Strengths</i>	170
<i>Limitations</i>	171
Ethical Issues and Their Solutions	171
>summary	174
>keyterms	175
>review&discussionquestions	175
>cases	176

8 Stage 2: Data Collection Design: Experiments 177

Experiments and Causation	178
<i>Causation Evidence</i>	178
<i>Causal Conclusion</i>	178
Conduct an Experiment	181
<i>Select Relevant Variables</i>	182
<i>Specify Treatment Levels</i>	184
<i>Control the Experimental Environment</i>	184
<i>Choose the Experimental Design</i>	186
<i>Select and Assign Participants (or Cases)</i>	186
<i>Pilot Test Data Collection Protocols, Revise</i>	186
<i>Conduct the Experiment</i>	187
Validity in Experimentation	188
<i>Internal Validity</i>	189
<i>External Validity</i>	191
Experimental Research Designs	192
<i>Preexperimental Designs</i>	192
<i>True Experimental Designs</i>	193

Field Experiments: Quasi- or Semi-Experiments 194

An Evaluation of Experiments 196

Advantages 196

Disadvantages 198

Ethical Issues and Their Solutions 198

>summary 199

>keyterms 200

>review&discussionquestions 200

>cases 201

>additionalcontent 201

9 Stage 2: Data Collection Design: Survey Research 202

Data Collection Design: The Survey 204

Self-Administered Survey 208

Survey via Phone Interview 215

Survey via Personal Interview 220

Error in Survey Research 221

Interviewer Error 221

Participant Error 223

Outsourcing Survey Tasks 225

Evaluation of Survey Research 226

Ethical Issues and Their Solutions 226

>summary 230

>keyterms 231

>review&discussionquestions 231

>cases 232

>part III

Measurement 233

10 Stage 3: Measurement Foundations 234

The Nature of Measurement 235

Tasks of Measurement 235

What Is Measured 237

Measurement Scales 237

Nominal Scales 238

Ordinal Scales 240

<i>Interval Scales</i>	240
<i>Ratio Scales</i>	242
<i>Recoding</i>	242
Sources of Measurement Differences	242
<i>Error Sources</i>	243
The Characteristics of Good Measurement	245
<i>Validity</i>	245
<i>Reliability</i>	247
<i>Practicality</i>	250
>summary	251
>keyterms	251
>review&discussionquestions	251
>cases	253

11 Stage 3: Measurement Questions 254

Instrument Design	255
Prepare the Preliminary Analysis Plan	255
<i>Confirm Communication Approach</i>	257
<i>Select Instrument Structure</i>	257
Select or Craft a Measurement Scale	259
<i>Research Objectives</i>	260
<i>Response Types</i>	261
<i>Number of Dimensions</i>	262
<i>Balanced or Unbalanced</i>	262
<i>Forced or Unforced Choices</i>	262
<i>Number of Scale Points</i>	263
<i>Participant Errors</i>	264
The Nature of Attitudes	265
<i>The Relationship between Attitudes and Behavior</i>	266
<i>Attitude Scaling</i>	266
Rating Questions	267
<i>Single-Response Questions</i>	267
<i>Multiple-Response Questions</i>	267
Ranking Questions	278
Sorting Questions	281
Cumulative Questions	282
Find or Craft Measurement Questions	283
<i>Question Coverage</i>	283
<i>Question Wording</i>	284

Frame of Reference 286
Response Alternatives 287
Sources of Existing Questions 287
Pretesting 288

- >summary 292
- >keyterms 294
- >review&discussionquestions 294
- >cases 296

appendix: Sources of Measurement Questions 297

12 Stage 3: Measurement Instruments 298

Instrument Design 299
Phase 2: Gather and Sort the Pieces 300
Question Types 301
Pretesting: Scope and Coverage 304
Responsibility Fulfillment 304
Phase 2: Non-Question Elements 304
Non-Question Elements 307
Overcoming Instrument Problems 310
Responsibility Fulfillment 310
Phase 3: Organize the Pieces 311
Order Topics and Questions 312
Pretest The Instrument 317
Physical Design 317
Pretesting: Physical Design 320
Responsibility Fulfillment 320

- >summary 321
- >keyterms 322
- >review&discussionquestions 323
- >cases 324
- >additionalcontent 324

>part IV

Collect, Prepare, and Examine the Data 325

13 Stage 3: Collect, Prepare, and Examine Data 326

Collect the Data 328

Train the Data Collectors 328
Determine the Data Collection Timeline 328
Determine and Implement the Research Process(es) 328
Invite the Chosen Participants 329
Activate the Research Task(s) 329
Remind the Participants 330
Enter the Data 330
Enter the Data 330
Prepare the Data 332
Postcollection Coding of Data 332
Edit the Data 336
Complete 336
Accurate 339
Appropriately Coded 339
Examine the Data 340
Exploratory Data Analysis 340

Cross-Tabulation 349
The Importance of Percentages 350
Other Table-Based Analysis 352

- >summary 356
- >keyterms 357
- >review&discussionquestions 357
- >cases 359

appendix: Better Tables 360

appendix: Review: Describing Data Statistically 363

>part V

Analyze and Interpret Data 369

14 Stage 4: Hypothesis Testing 370

Introduction 371
Statistical Significance 371
The Logic of Hypothesis Testing 373
Statistical Testing Procedures 379
Probability Values (p Values) 379

Tests of Significance	380
<i>Types of Tests</i>	380
<i>How to Select a Test</i>	382
<i>Selecting Tests Using the Choice Criteria</i>	383
<i>One-Sample Tests</i>	384
<i>Two-Independent-Samples Tests</i>	387
<i>Two-Related-Samples Tests</i>	390
<i>k-Independent-Samples Tests</i>	394
<i>A Priori Contrasts</i>	396
<i>Multiple Comparison Tests</i>	398
<i>Exploring the Findings with Two-Way ANOVA</i>	399
<i>Nonparametric Tests</i>	399
<i>k-Related-Samples Tests</i>	401
>summary	403
>keyterms	404
>review&discussionquestions	405
>cases	406

15 Stage 4: Measures of Association 407

Introduction	408
Bivariate Correlation Analysis	408
<i>Pearson's Correlation Coefficient r</i>	408
<i>Scatterplots for Exploring Relationships</i>	411
<i>The Assumptions of r</i>	413
<i>Computation and Testing of r</i>	413
Simple Linear Regression	419
<i>The Basic Model</i>	419
<i>Concept Application</i>	420
<i>Method of Least Squares</i>	422
<i>Predictions</i>	425
<i>Testing the Goodness of Fit</i>	426
Nonparametric Measures of Association	429
<i>Measures for Nominal Data</i>	429
<i>Measures for Ordinal Data</i>	434
>summary	438
>keyterms	439
>review&discussionquestions	440
>cases	442

>part VI

Stage 5: Report the Research 443

16 Stage 5: Research Reports: Support Insights and Recommendations 444

Introduction 445

Emphasis on Insights 446

Shift in Reporting Structure 447

Audience-Centric Planning 448

Audience Analysis 449

Audience Composition 449

Research Question Knowledge 451

Research Predispositions 451

Recommendation Effects 451

Audience Effect 452

Supplemental Purposes 452

page xxx

Report Structure 452

Content and Style: Organize 453

Report Types 453

Report Components 454

Traditional Frameworks for Organization 457

Content and Style: Visualize 458

Presenting Findings 462

Data Visualization Specifically for the Oral Report 470

Content and Style: Compile 471

Content and Style: Practice 473

Content and Style: Deliver 473

Ethical Considerations in Reporting 474

>summary 476

>keyterms 478

>review&discussionquestions 478

>cases 479

appendix: Better Reports 480

>part VII