

# 14

## Developing Your Research Skills

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*Regan A. R. Gurung*  
University of Wisconsin–Green Bay

**R**esearch is at the very foundation of science, and being a good research scientist is fundamental to being a successful psychologist. Whether you are aiming for a career as a clinician seeing clients on a daily basis, an academic career teaching in a college or university, or particularly if you are considering a research-based career, you have to be well versed in the scientific process. Practicing clinicians need to be able to evaluate evidence-based treatments and new developments in the field. Good teachers need to be able to incorporate the latest findings into their classes. The bottom line: having strong research skills is one of the most marketable and functional skill sets you can have. In this chapter, I first overview the main ways of gathering knowledge, then highlight the importance of research skills in the field of psychology. I then discuss some of the ways you can develop your research skills and enumerate some critical habits to foster to enhance your research acumen.

### Ways to Knowledge: Scientific Research

There are many ways to gather knowledge, and methods of inquiry vary across disciplines. Disciplines such as English and history take the hermeneutical approach, in which interpretation is important and textual meaning is constructed through a blend of understanding and explanation (Donald, 2002). In the social sciences, the scientific method rules supreme. The scientific method consists of universal standards for knowledge claims, common ownership of information, integrity in gathering and interpreting data, and organized skepticism (Kratwohl, 1985). Science insists on empirical demonstrations, uses objective methods, replicates findings, and

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uses an explicit playbook in communicating knowledge (i.e., publication in peer-reviewed scholarly outlets). Knowing how to conduct scientific research is a part of all psychology graduate training programs. Whether you are working toward a master's degree, a degree in professional psychology (i.e., Psy.D.) or a traditional doctorate (i.e., Ph.D.), knowing how to do research is important.

## Research Is an Essential Skill

A good indicator of the importance of research is the fact that research skills are a key learning outcome of the undergraduate psychology major (see APA, 2005, 2007; Dunn et al., 2010). Research is also a central part of what it means to think like a psychologist (Peden & Wilson VanVoorhis, 2009). Your research skills will be important in many parts of your career as you conduct your own scholarly research and later mentor your own graduate students and undergraduate research assistants.

The relevant content objectives from the National Standards are listed in Table 14.1. The National Standards are among the most explicit statements of objectives for research knowledge. The APA guidelines for the psychology major similarly include explicit goals for research (e.g., Goal 2 under Learning Goal I, APA, 2007, pp. 9–10). The suggested learning outcomes for this goal are shown in Table 14.2 and again provide a nice reference point for you to assess where you stand.

Table 14.1

**CONTENT STANDARD IA-3: Research strategies used by psychologists to explore behavior and mental processes**

Students are able to (performance standards):

**IA-3.1 Describe the elements of an experiment.**

**IA-3.2 Explain the importance of sampling and random assignment in psychological research.**

Students may indicate this by (performance indicators):

- a. Identifying examples of representative and biased samples in research designs
- b. Specifying how random assignment permits causal inferences
- c. Explaining the importance of being able to generalize results of research
- d. Describing how sample selection (e.g., representation of gender, ethnicity, age) influences results

**IA-3.3 Describe and compare quantitative and qualitative research strategies.**

Students may indicate this by (performance indicators):

- a. Explaining the characteristics of surveys, naturalistic observation, case studies, longitudinal studies, cross-sectional research, and experiments
- b. Identifying the suitability of a given method for testing a given hypothesis
- c. Specifying the populations to which a particular research result may be generalized

**CONTENT STANDARD IA-4: Purposes and basic concepts of statistics**

Students are able to (performance standards):

**IA-4.1 Define descriptive statistics and explain how they are used by behavioral scientists.**

Students may indicate this by (performance indicators):

- a. Providing examples of situations in which descriptive statistics can be used to organize and analyze information
- b. Explaining how statistical analysis can add value to the interpretation of behavior
- c. Citing a statistical finding to strengthen an argument

**IA-4.2 Explain and describe measures of central tendency and variability.**

Students may indicate this by (performance indicators):

- a. Calculating the mean, median, and mode for a set of data
- b. Explaining the characteristics of a normal distribution
- c. Providing examples of psychological variables that tend to be normally distributed
- d. Applying the concepts of variability, such as range and standard deviation, to supplement information about central tendency in a normal distribution

**IA-4.3 Describe the concept of correlation and explain how it is used in psychology.**

Students may indicate this by (performance indicators):

- a. Differentiating between positive, negative, and zero correlations
- b. Identifying and providing examples of how correlations can be used to predict future behavior or performance
- c. Explaining the difference between correlation and causation

**IA-4.4 Recognize how inferential statistics are used in psychological research.**

Students may indicate this by (performance indicators):

- a. Recognizing the basic process that psychologists use to draw statistical inferences
- b. Defining statistical significance as a statement of probability
- c. Recognizing limitations in interpretation of statistical significance

**CONTENT STANDARD IA-5: Ethical issues in research with human and other animals that are important to psychologists**

Students are able to (performance standards):

**IA-5.1 Identify ethical issues in psychological research.**

Students may indicate this by (performance indicators):

- a. Discussing ethical issues in psychological research
- b. Identifying historical examples of research that may have departed from contemporary ethical standards
- c. Acknowledging the importance of adhering to APA and government ethical standards and procedures (i.e., Institutional Review Boards) for working with humans and other animals
- d. Explaining the use and value of humans and other animals in behavioral research, including their ethical treatment

**CONTENT STANDARD IA-6: Development of psychology as an empirical science**

Students are able to (performance standards):

**IA-6.1 Discuss psychology's roots in philosophy and natural science.**

Students may indicate this by (performance indicators):

- a. Describing the form psychology took before the 20th century (e.g., Aristotle, Locke)

*(Continued)*

**Table 14.1** (Continued)

- b. Summarizing some 19th century scientific research findings (e.g., Helmholtz, Weber, and Fechner)
- c. Analyzing how philosophical issues become psychological when tested empirically

**IA-6.2 Describe the emergence of experimental psychology.**

Students may indicate this by (performance indicators):

- a. Defining psychophysics and describing its impact on empirical psychology
- b. Identifying Wilhelm Wundt's contributions to experimental psychology
- c. Comparing philosophical argument with the empirical method

**IA-6.3 Recognize the diversity of psychological theories in the 20th and 21st centuries.**

Students may indicate this by (performance indicators):

- a. Describing the 20th and 21st centuries "schools" of psychology (e.g., behaviorism, Gestalt psychology, psychoanalysis, humanistic psychology, cognitive psychology)
- b. Showing how different theories of psychology produce different explanations of a particular behavior (e.g., truancy, altruism)
- c. Explaining the growing influence of new approaches to psychology (e.g., positive psychology, behavioral genetics, or the study and practice of psychology at the beginning of the 21st century)

**IA-6.4 Describe psychology's increasing inclusiveness of diverse interests and constituents.**

Students may indicate this by (performance indicators):

- a. Comparing the diverse topics that generate contemporary research with early research emphases
- b. Identifying how research biases have influenced research design and scope
- c. Exploring reasons why psychology had more limited participation from women and ethnic minorities in its early stages
- d. Highlighting contributions by ethnic minority psychologists
- e. Describing historical events and processes affecting the experiences and opportunities of minority groups

Unfortunately, not all graduate students will have had the same preparation at the undergraduate level. Tomcho and colleagues (2009) analyzed course syllabi and faculty self-reported coverage of both research methods and statistics course learning objectives to assess the concordance with APA's learning objectives and found course syllabi generally contained appropriate research methods and statistics content. Instructors' self-reports, though, did not always match syllabi. Although only 9% of research methods syllabi included the expressly stated goal of distinguishing the nature of designs that permit causal inferences from those that do not, instructors on average self-reported 80% of course time devoted to this topic.

Psychology is a science, although most undergraduates do not fully understand what this means. In a large survey of psychology majors, Holmes and Beins (2009) showed that over time, students' knowledge of scientific thinking increased, whereas their tendency to see psychology as a science did not. Students reported greater interest in practitioner activities than scientific ones, and these divergent interests were associated

Table 14.2 APA Undergraduate Guidelines

**GOAL 2: Research Methods in Psychology**

Understand and apply basic research methods in psychology, including research design, data analysis, and interpretation.

**Suggested Learning Outcomes**

- 2.1 Describe the basic characteristics of the science of psychology.
- 2.2 Explain different research methods used by psychologists.
  - a. Describe how various research designs address different types of questions and hypotheses
  - b. Articulate strengths and limitations of various research designs, including distinguishing between qualitative and quantitative methods
  - c. Distinguish the nature of designs that permit causal inferences from those that do not
  - d. Describe how the values system of the researcher can influence research design and decisions
- 2.3 Evaluate the appropriateness of conclusions derived from psychological research.
  - a. Interpret basic statistical results
  - b. Distinguish between statistical significance and practical significance
  - c. Describe effect size and confidence intervals
  - d. Evaluate the validity of conclusions presented in research reports
- 2.4 Design and conduct basic studies to address psychological questions using appropriate research methods.
  - a. Locate and use relevant databases, research, and theory to plan, conduct, and interpret results of research studies
  - b. Formulate testable research hypotheses, based on operational definitions of variables
  - c. Use reliable and valid measures of variables of interest
  - d. Select and apply appropriate methods to maximize internal and external validity and reduce the plausibility of alternative explanations
  - e. Collect, analyze, interpret, and report data using appropriate statistical strategies to address different types of research questions and hypotheses
  - f. Recognize that theoretical and sociocultural contexts as well as personal biases may shape research questions, design, data collection, analysis, and interpretation
- 2.5 Follow the APA Ethics Code in the treatment of human and nonhuman participants in the design, data collection, interpretation, and reporting of psychological research.
- 2.6 Generalize research conclusions appropriately based on the parameters of particular research methods.
  - a. Exercise caution in predicting behavior based on limitations of single studies
  - b. Recognize the limitations of applying normative conclusions to individuals
  - c. Acknowledge that research results may have unanticipated societal consequences
  - d. Recognize that individual differences and sociocultural contexts may influence the applicability of research findings

with differential ways of thinking and of viewing the field of psychology. Psychology majors should graduate with a good sense that research is important. Virtually all psychology programs in a major survey of departments in the United States showed that students are required to learn statistics or research methods (Perlman & McCann, 1999; Stoloff et al., 2010). In fact, research methods is one of the only courses, next to the introductory course, that is uniformly required (98% of institutions surveyed, Stoloff et al., 2010). Overall, students can expect seven courses that offer research experiences in the typical psychology curriculum (Perlman & McCann, 2005). This knowledge is important for you to keep in mind as you hone your own research skills and then foster research skills in others as you teach and mentor.

Whether you take research methods as an undergraduate or in graduate school, you are often faced with the question of what topic to research. In graduate school, the answer and the results of what you decide can play a major role in your future career. What should you pick?

## What Should You Do Research On?

Fortunately, you do not have to pay allegiance to your application personal statement for the rest of your academic life. You may find that your research interests change during your graduate training. Expose yourself to as many different topics as possible and take as wide a range of classes/seminars as possible. Even if you think you have settled on a dissertation topic from day one (see Locke, Spirduso & Silverman, 1993), take classes in related areas and topics. It also will help to know what other departmental faculty in your research area are doing. Take a class from them, arrange readings, or even try and work on a project with them if it interests you and if they are accommodating. Allow yourself time to get a good, strong background in your area and a sense of what is out there.

Let me be idealistic for a moment. Perhaps one of the biggest contributions you can make to a field is to derive a theory that has great heuristic value, ties together many unexplained phenomena, and provides for pragmatic applications that can change lives for the better (e.g., Higgins, 2004; Pendry, Driscoll, & Field, 2007; Van Orden, Witte, Selby, Bender, & Joiner, 2008). Theory plays an extremely important part in research and science in general (Kruglanski & Higgins, 2004). Theoretical work in psychology benefits from a well-developed understanding of the prior empirical and theoretical work on a problem and from informed intuitions (Cacioppo, 2004). Because psychology is so integral a part of life and is so personal, anyone new to psychology arrives with many intuitions, prior beliefs, and naive theories about processes and behavior based on unsystematic experiences and observations. These intuitions can hinder or foster theoretical progress (Cacioppo, 2004). Theory creation calls for both random variation and flexibility and critical selection processes (tightening), not unlike evolution (Fiedler, 2004). Learning how to develop theory is, therefore, a critical research skill to develop, and the best way to do it is by looking at models of theory development (Fiedler, 2004; Fiske, 2004; McGuire, 2004; Taylor et al., 2000; Uchino, Thoman, & Byerly, 2010) and practice. There are a number of good guides out there. For example, Jaccard and Jacoby (2010) provide hands-on tools for generating ideas and translating them into formal theories with examples drawn from multiple social science disciplines and research settings.

The basic research process is relatively common across areas of psychology. You start with an interesting phenomenon, formulate research questions, decide on a methodological approach to use, assess your success in answering your research questions, and then either revise your study and try again or publish your findings (Sansone, Morf, & Panter, 2003.) In an undergraduate research class, you were probably given a list of possible ideas. Perhaps you looked through some journals to inspire your research ideas. Most graduate students include some semblance of a research plan in their personal statements for graduate school. Although exact numbers are hard to come by, I would not be surprised if most graduate students go on to research careers working on topics somewhat removed from what they waxed eloquently about in their application statements. So where do good research ideas come from?

There are many ways to answer this question. The easy ones: Good research ideas come from personal passions or interests. Good research ideas come from recognition of what is missing in existing literature. Good research ideas come from the real world, from recognizing problems that need to be solved. There are many examples, such as Stanley Milgram's interest in obedience from his noticing the atrocities of the Holocaust and Elizabeth Loftus's interest in repressed memories relating to personal incidents of memory distortion. Ask yourself, "Is there any real-world value to what you are doing or want to do?" It is one thing to do some research because it is interesting to you, but to spend time and money on it, it is a good idea to think about whether your findings will change the human condition. If that sounds too lofty, remember that few people's research changes life as we know it. That said, it should not be an immense leap from your research to a real-world application. Will your work advance theory? Is it a common issue? The social psychologist Robert Cialdini commented that "if there is evidence that the effect occurs regularly and powerfully in multiple environments, it is simply more worthy of examination" (Crandall & Schaller, 2002, p. 22).

It is telling to listen to what established researchers have to say on this point. Some years ago, the editors of *Dialogue*, the newsletter of the Society for Personality and Social Psychology (SPSP, Division 8 of APA) asked prominent researchers how they knew what research ideas to pursue. The answers (Crandall & Schaller, 2002) were compelling though perhaps disheartening (to those looking for a sure answer). In general, researchers had trouble putting the answer in words. Some answered that "it sort of feels right" (Mahzarin Banaji, Galen Bodenhausen, Shelley Taylor). Others used their own excitement to guide them—if it was exciting, it was research worth doing (Marilynn Brewer, Brenda Major)—or others invoked their own curiosity (Elliot Aronson). If your research does not excite you, it is probably a good idea to find another topic. On this note, Anthony Greenwald provides some very specific advice. I remember a class I took with him in graduate school, and he made us write the title and abstract of our experimental research projects within the first week of the research methods class. In his view, if you cannot write the title and abstract or if you can write them but you do not find them compelling, then stop before you start. This is advice he wished he had had when he started his career (Crandall & Schaller, 2002), and now you have it. Believe me, it is good advice to practice. I have found it useful and effective, as it makes you think about your research in a way in which you are rarely trained. You are essentially starting to write before you think you are ready to start, and it pays off (Boice, 2000).

## When Should You Try Something New?

When you find something to do research on, how do you know when to stop? You could spend a successful career if your results are significant, but what if you are not getting anywhere? In graduate school, your cohort will often be too gentle or kind to tell you to stop, and even faculty mentors may have trouble knowing which ideas are more valuable than others or deserving of continued effort in the face of null results. If you lose interest in the problem you are studying, if you continually fail to get a study to work, or if the magnitude of your effect size is weak, it is a good idea to move on to other topics of research. This is difficult to do when you are early in your career (still in graduate school), but sometimes it is better to move on and not be swayed by the sunk cost of time and effort.

## An Overview of Research Skills

As you can probably guess, a full description of the main research skills you will need is beyond the scope of this chapter, but I will give you an overview of what you should know and what you will get from a research methods course.

At its core, research consists of testing hypotheses, and there are three distinct approaches to hypothesis testing (validation, falsification, and qualification). The development and nature of the experimental paradigm began a little over 80 years ago with the work of Fisher, who first formalized essential elements of research, including the manipulation of independent and dependent variables, randomization (including both random selection and random assignment), and statistical testing (Pelham & Harton, 2006). Other essential characteristics of research you need to be familiar with are validity, reliability, and measurement scales as they apply to psychological research. Validity and reliability are crucial to both experimental and passive observational research (naturalistic research that does not involve the manipulation of variables).

The most commonly used nonexperimental designs include case studies or single-participant designs, single-variable studies whose purpose is to describe the state of the world (epidemiological research, research on public opinion, and research on judgment and decision making), archival research, surveys, and interview research. The form of research that affords the most control is the true experiment, in which the researcher uses random assignment and thus has control over all of the independent variables of interest. True experiments are further broken down into one-way designs and factorial designs. In some studies, such as repeated measures designs, researchers hold some control over individual differences by exposing participants to more than one level of an independent variable. Of course, you cannot always manipulate variables (e.g., exposure to carcinogenic cigarette smoke), so psychologists also conduct quasi-experiments in which they study naturally occurring differences (e.g., smokers and nonsmokers). This is the tip of the iceberg in terms of research methods terminology, representing some of the most common elements of research design. You can familiarize yourself with many of these terms, issues, and research skills by reading peer-reviewed scholarly articles published in journals in your field. A research methods class is an essential foundation, but reading journal articles is what keeps your research mind sharp.

## Building Research Skills Vicariously: Reading Journals

The best way to sharpen both your research acumen and your statistical prowess is to read the journals in your field. In this day and age, you need not have a stack by your bedside, but you can have pdf files on your laptop (or iPad or other digital reading device). The important thing is to make time in your weekly schedule to read articles. The first step in any research endeavor is to know what has been done on the same topic, and reading the research literature is a critical part of your research skills training. Every university library worth its salt will provide free journal access to many, if not all, journals. Take the time to subscribe to alerts at the critical journals you aspire to publish in for your area (e.g., *Journal of Personality and Social Psychology* for social psychologists, *Health Psychology* for health psychologists, *The Counseling Psychologist* for counseling psychologists, and so on).

You should be reading for ideas for research and examples of research designs, and also for practice with statistical analyses. At the most basic level, exposing yourself to the published literature in the field and, in particular, in your area of study nicely prepares you for the eventuality of publishing your research in those outlets. Once you identify the key journals you should be reading (start with the flagship journal of your American Psychological Association division or the Association for Psychological Science, and then look at the sources of articles in the reference list of an article you found interesting or relevant), it is a good idea to sign up for electronic alerts. Sometimes called RSS feeds (really simple syndication), almost every journal or psychological society has a way for you to get the table of contents of the most recent publications sent right to your e-mail account. You can look over the content and dig deeper into a particular article if you see something relevant. The regular e-mail alerts are also a nice reminder for you to keep abreast of recent publications.

While on the topic of journal articles and electronic media, here is a key tangent regarding increasing your reading efficiency. It pays to have a good way to organize your articles. Once upon a time, faculty would trudge over to the library, find the issue of the journal they were interested in, make a photocopy of the article they wanted, and then read and mark up their copy. Although some folks still do this, it is much more efficient to use an all-electronic format. Once you get an electronic alert of a new journal issue being published, you can often get a pdf file of the article (mostly through your home university library subscription). Save the file either on your computer hard drive or university server, or, even better, in the “cloud.” Cloud computing, essentially the use of servers at various sites that you can access from a variety of devices, enables you to save your article pdfs for later use. Two very common places to save such pdfs are Google Docs and Dropbox, which are both free. No more stacks of paper and file cabinets full of articles needed. Furthermore, you can often search for terms or information across your documents.

An article published on something you are interested in can be a goldmine of information. The introduction should provide you with a wealth of relevant citations together with an immediate sense of how up to date you are on your topic of interest. If you are keeping up with the literature, you should recognize many of the citations in the article. With consistent reading, you should run into the usual suspects in terms

of citations. It is a great feeling to read an article hot off the press and recognize most of the research discussed in the introduction section. Of course, this also gives you a good “to read” list.

The Method section of an article provides a nice opportunity to test your own research skills and your knowledge of the subject area. Once you are cognizant of the hypotheses being tested from the Introduction section, you can now see one way (the authors’) of testing the hypotheses. Reading and understanding a variety of designs gives you the basic building blocks for when you want to design your own study. If you can understand *what* exactly researchers did (i.e., their research design), you will be in a better position to evaluate the results and critique the methodology. It is always a fun exercise to see if you can come up with better ways to test the hypotheses. It is a lot easier to critique someone else’s work than your own.

The Discussion section provides you with great fodder for future research. Most good articles have a strong Limitations section as well as a Future Directions section. Not only will you be able to generate a number of your own future directions, but it will also be useful to ponder those outlined by the authors. Ask yourself if you agree with what the authors propose as next steps. Do the suggestions lead directly from the findings discussed in the article? Such mental exercises will make you a more robust researcher.

One special tip: Do not wait until journals come out to read current research. Hot off the press is good. Before it hits the press is even better. Contact researchers in the field whose work you follow and ask if they have preprints of their articles, manuscripts accepted for publication that are in line to be released. Talk to faculty of your institution or your mentors and see if you can review manuscripts. You could review a manuscript your mentor is reviewing and see if you both caught the same issues. You should also consider contacting journal editors and volunteering to be a manuscript reviewer. Sometimes faculty mentors ask their graduate students to review articles that they do not have time to review themselves. In either case, try and review manuscripts. Not only does this give you practice in identifying good (and bad) research, it also exposes you to research before it is published, giving you a head start.

## Building a Research Skills Library

Beyond reading journal articles, it will also be prudent to invest in building a research library stocked with resources to help you do research. Research methods have changed over time (Smith & Davis, 2003), and it is good to have resources that expose you to the wide array of possible methods and designs. Articles provide good models, but they do not provide enough guidance. Furthermore, although the best place to begin to build your research skills is a research methods class, it always helps to have some good references in hand.

The first best reference you will have is your textbook from your research methods class. This will often provide you with the key reminders you need about the main forms of research. You will also find that researchers tend to use a small set of research methods and statistics—those that they were trained with, those that their advisors used, or those with which the majority of work in their fields are conducted. Social psychologists, for example, love to use  $2 \times 2$  designs and multivariate analyses

of variance (MANOVA) to test for group differences, multiple regressions to predict variance, or structural equation modeling to test for relationships between designs. These are all good statistical methods that nicely map on to research methods (e.g., the MANOVA is great for basic experimental research). Make sure that you first learn about as many forms of research design as possible so your research plans are not constricted by your research methods knowledge. Some basic books that serve as good introductions to doing research and are good references are by Babbie (2010) and Dunn and colleagues (2010). You may also benefit from reading about theory construction and factors surrounding theory building (see the special issue of the journal *Personality and Social Psychology Review*, Kruglanski & Higgins, 2004).

Together with strong research skills, it is important to have good references to guide your statistics. One of the most readable books on statistics is by Field (2009), who not only gives you the basics behind the major statistical methods you will use but also provides the commands and results tables from the most commonly used statistical package (SPSS, the Statistical Package for the Social Sciences). Research and statistical skills are intertwined.

## Statistical Knowledge Is Essential

Being comfortable with statistics goes hand in hand with having strong research skills. Many schools yoke research methods classes with statistics classes and also require students to take statistics before methods. The reason for this pairing is simple. Different types of research designs need different statistical methods. Sometimes poor research design requires complex statistical methods to clean things up. For example, you may discover you did not measure for third or extraneous variables, or some control variables actually varied across conditions. You may have grossly unequal sample sizes. Any of these issues can be somewhat rectified by appropriate statistical tests. Conversely, the cleaner the research design, the cleaner the statistics needed, whether quantitative or qualitative.

Quantitative analyses form the backbone of research in the natural and social sciences, though both these areas also incorporate qualitative methodologies, which are often critical to theory building and preliminary explorations. You should be well informed about both to be prepared for what your research will need. One of the main drawbacks of quantitative analyses is that they sometimes make it easy to forget about theory. Researchers are sometimes so excited to have numbers to play with that the theory that guided the research in the first place takes second place to the emerging patterns in the numbers (there is a time and a method for letting the data shape your theory). Indeed, quantitative researchers do collect numerical information and use statistical analyses to determine whether there are relationships between the numbers, but this does not have to be as cold or difficult a process as it sounds. Furthermore, qualitative researchers do “process data” as well. Qualitative data processing brings order to observations and often involves coding, classifying, or categorizing the observations. In contrast to quantitative analyses in which a standardized unit (e.g., a score on a questionnaire or scale) is used, coding in qualitative analyses focuses on the concept as the organizing principle. There is a nice middle ground where one can do quantitative analyses on what started out as a qualitative investigation.

Qualitative analyses often involve closer connections among theory, data collection, and analyses and are most distinguishable from quantitative research by not always being driven by a formal hypothesis about how variables are related. For example, you do not have to assume that a given method of instruction is better than another or that certain classroom factors will facilitate learning more than others. Instead, the main goal is to describe the situation or process in as rich detail as possible and to explore possible reasons why certain outcomes may take place. Like an undercover cop, the qualitative researcher often immerses herself in the setting. Hypotheses and theory then emerge from these observations. An example is the Grounded Theory Method (e.g., Urquhart, Lehmann, & Myers, 2010) of qualitative analysis. This theory stresses the importance of building theory using an inductive basis using observations to reveal patterns in behavior and then builds theory from the ground up without preconceptions.

## A Note on Collaboration

Research is an enterprise often best undertaken in collaboration. Whereas generating research ideas may be an exciting independent activity, it helps to get feedback on your research ideas and even to work with others who may have expertise that you do not. If your statistical skills are not as strong as you would like, it is beneficial to collaborate with a statistician. More importantly, it may be prudent for you to collaborate with someone with research know-how in areas outside your own but that relate to your research ideas. In one of my favorite examples of collaboration, a group of colleagues at UCLA pooled their collective expertise to develop a brand new theory of stress, the Tend-and-Befriend Theory (Taylor, et al., 2000). The paper involved individuals skilled in evolutionary psychology, health psychology, physiology, close relationships, social support, and animal behavior. Individually, none would have been able to write what is now a modern classic in health psychology. Together, the paper is an interdisciplinary symphony uncovering a major new form of stress response.

Some collaborations take place naturally. In graduate school, you will probably work directly with one or more mentors on their research or variations on their research themes. As a junior faculty member, you will probably develop your own independent research. Do not leave your mentoring relationships behind. Nurture your research relationships as your interests warrant, but not at the expense of other projects (Zacks & Roediger, 2004). In fact, in graduate school, you should try to collaborate on as many articles as you can. Even getting research exposure—proofreading drafts, looking at grant proposals your advisor is working on, reviewing manuscripts—will go a long way toward building your own research skills. These forms of collaborations, sometimes implicit (e.g., you may get thanked in an author note for your work reviewing a paper), sometimes explicit (e.g., you get to be a coauthor of a paper), are absolutely essential to develop. The key here is you have to take the initiative and ask. You cannot afford to wait until something comes your way. In some graduate schools, faculty mentors are very cognizant of cultivating their graduate students. In other schools, it may not occur to the faculty mentor to think about it. Publishing in high-tier journals and garnering million-dollar research grants is difficult to do on the first shot. The more practice and exposure to these processes you

can get, the better off you will be. Better still, if you go into an academic career, being able to foster strong collaborations and have many papers in the pipeline, as it were, will go a long way toward tenure and promotion.

## Conclusion

Most graduate programs have structured courses that methodically help you learn what it means to be a competent academic: how to do valid research, learn the important theories in your area, successfully obtain research grants, review manuscripts, and learn the basic elements of teaching. The chapters in this book provide a wonderful list of tips to guide you through the process and make sure you know what you should be getting out of graduate school. Take a critical look at the structure of your own graduate program (i.e., consult graduate handbooks, course catalogues, upper-level students), and if the program is deficient in any of the key areas described in this chapter (and this book), take the initiative to get what you need. I list some key resources for you to enhance your research skills at the end of this chapter. Mobilize yourself.

Some of the key tips for enhancing your research skills are: Make time to read journal articles in your area, work on being comfortable with statistics, and collaborate with your cohort and faculty. Armed with these basic reminders and this book, you are ready to embark on the exciting adventure of doing research. Enjoy the ride.

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## ❖ Suggestions for Further Exploration

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- Babbie, E. (2010). *The basics of social research* (5th ed.). San Francisco: Cengage. One of the most widely adopted research methods books that is a good resource and refresher course for all you should have learned in a college methods/statistics class.
- Darley, J. M., Zanna, M. P., & Roediger III, H. L. (Eds.). (2004). *The compleat academic: A career guide* (2nd ed.). Washington, DC: American Psychological Association. An indispensable guide for any academic psychologist. It covers every aspect of the academic life from doing research, setting up a lab, getting grants, and managing your time to being productive.
- Dunn, D. (2010). *The practical researcher: A student guide to conducting psychological research* (2nd ed.). Malden, MA: Wiley-Blackwell. This book provides many ways to be an efficient and organized researcher. It has detailed suggestions for how best to generate ideas and to organize the different steps of your research endeavors.
- Field, A. (2009). *Discovering statistics using SPSS*. Thousand Oaks, CA: Sage. This is one of the best-written guides out there that covers both how to use SPSS and to do a large number of statistical analyses. Funny, detailed, robust.
- Pelham, B. W., & Blanton, H. (2006). *Conducting research in psychology: Measuring the weight of smoke*. San Francisco: Wadsworth. A readable introduction to research methodology with relevant examples and a useful instructor's manual you can use if you are teaching or a teaching assistant for research methods.
- Tashakkori, A., & Teddlie, C. (2010). *Sage handbook of mixed methods in social and behavioral research*. Thousand Oaks, CA: Sage. A resource for complex research methods that nicely outlines a wide variety of intricate and very effective research designs.