Counseling and Educational Research

Evaluation and Application

FOURTH EDITION

Rick A. Houser

Counseling and Educational Research

Fourth Edition

This book is dedicated to: Carmen, my life and forever partner whom I cherish and admire and is also an exceptional forever collaborator; Serena, my thoughtful, creative, and easygoing daughter; and Clarissa, my sensitive, resilient, and determined daughter.

Counseling and Educational Research
Evaluation and Application

Fourth Edition

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The University of Alabama

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Foreword

The growing national movement toward evidence-based practice has created a need for psychologists, counselors, and educators to be competent consumers of research. The delivery of services must be based on the most up-to-date evidence-based practices, and the fourth edition of *Counseling and Educational Research: Evaluation and Application* by Dr. Rick Houser is essential reading toward this goal.

Building on the third edition of this classic text, Dr. Houser continues to refine and improve what is already an outstanding contribution to the field. His enthusiasm and passion for conducting research is inspiring and contagious. Dr. Houser's extensive years of practice doing and teaching evaluation and research are clearly evident. It is rare to find a researcher and teacher equally facile in both arenas; Dr. Houser is equally adept in both roles and demonstrates a breadth and depth of knowledge that is truly remarkable. For example, he is equally versed in issues that are general and specific to education, family therapy, and counseling; therefore, students are exposed to and grapple with a range of broadening and expanding diverse research readings. New chapters focus on qualitative data analysis, single-subject research, and technology and research; additional helpful and clarifying examples to illustrate key points can be found throughout the text. Dr. Houser is a masterful, engaging teacher and writer. Using language that is easy to comprehend but never compromises complexity, Dr. Houser presents research concepts with superb examples that allow readers to apply what they have read in multiple contexts that address cross-cultural issues. He is thorough, systematic, and comprehensive in his approach. For example, most chapters are written such that the reader has multiple opportunities to develop mastery. A predictable structure is presented by Dr. Houser, often with clarifying tables that provide the reader with relevant and up-to-date material and examples and critical questions to consider, followed by opportunities to master and critique other works of research.

Ongoing feedback is given by Dr. Houser such that the reader can ascertain the degree to which he or she has mastered the material. Finally, summaries at the ends of chapters, with engaging exercises that allow the reader the opportunity to consolidate the skills covered, are invaluable. It is difficult to improve upon a text that has proven to be effective, relevant, and one of the best in the field of research and evaluation. Yet, Dr. Houser has met this challenging goal. It is an honor to review a truly exceptional text.

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Preface

The intent of this text is to prepare students in counseling and educational programs to be good users and consumers of research. Our society holds science and decisions based on sound information as crucial and even uses such standards in determining culpability for malpractice. It is imperative that practitioners embrace research and the research process, which can provide the best and most current practices. This means using the research literature in one's area of expertise—whether it is counseling, education, or both—and systematically evaluating whether the information presented in professional journals is valid and appropriate for the populations for which it is intended. Acquiring necessary skills for systematically evaluating professional scientific literature is critical in functioning as a practitioner. The majority of this text focuses on preparing readers to be good *consumers* and evaluators of scientific literature published in professional journals.

In addition, it is beneficial if a practitioner engages in small-scale research on the job site to test out new ideas. The practitioner is in a unique position to see problems confronting those whom he or she serves and can systematically develop new strategies to test. The second purpose of this book is to prepare readers to engage in small-scale research projects that are field-based and can be practically implemented.

I have taught research and evaluation to students in counseling and education programs for more than three decades, and I am acutely aware that the majority of students do not look forward to taking a research course. However, I truly believe it is critical that those entering the counseling and educational field must have a solid background as consumers in reading the professional literature. This means developing the skills to systematically evaluate the professional literature with a critical eye and to use the literature in a responsible fashion. I have found that at the end of a research course, students generally have a more positive attitude toward research and, most importantly, feel more competent in reading research from the professional literature. Also, I have had students who, at the beginning of a research course, state that they shy away from research but at the end of the research reported that they actually enjoyed the experience. I believe that learning should be relatively enjoyable, and this typically occurs when there is in an interest in the topic. This textbook is organized in such a way that students are encouraged to evaluate articles in the professional literature using a systematic approach—with specific questions to address. Therefore, I would recommend that students choose articles to evaluate that are of significant interest to them and not just find any article to analyze.

I see this text being used as an introduction to the research process and useful for those who plan to be practitioners and consumers of research. There are numerous texts that teach students to be primarily researchers, but that is not the intent of this book. Research and the research process are public phenomena, and, consequently, I have found that allowing students to engage in discussions in reviewing articles, typically in small groups, facilitates the learning process. Also, participating in small-group discussions

with student peers and potential future colleagues will, I hope, promote habits that will carry over into professional practice—for instance, discussing research in the professional literature among professional colleagues.

NEW TO THE FOURTH EDITION

I enjoyed writing this fourth edition of the book, as I did with the other three editions, because I like the scientific approach and I enjoy discussing new ideas and using creative problem-solving to address practical issues. I hope students find this text a readable and practical guide that will facilitate the practice of their exciting and challenging professions of counseling and education. I have added important connections and discussions of research to national accreditation standards in counseling (Council for Accreditation of Counseling and Related Educational Programs, or CACREP) and education (Council for the Accreditation of Educational Preparation, or CAEP). Additional examples are provided to facilitate understanding. The new chapters include one focused on conducting research and cultural issues to consider and replaced the evidence-based research methods with a chapter on evidence-based research and application. Additionally, the searching for articles chapter (Chapter 2) in the third edition was integrated into Chapter 1. I hope you enjoy the revisions and the new examples.

INSTRUCTOR RESOURCES

For additional classroom support, instructors may access a test bank to accompany this text at **study.sagepub.com/houser4e**.

Acknowledgments

I have been fortunate in my over-30-year academic career to work with dedicated and thoughtful students. Students have provided comments and feedback over the past several years about the first three editions of *Counseling and Educational Research: Evaluation and Application.* I want to acknowledge the insightful comments made by prior students, and I hope the changes that have been made reflect the needs of other students taking courses in research.

Completion of this book required significant effort, and there are a number of others who have made essential contributions that I want to acknowledge. First, Abbie Rickard, the acquisitions editor for SAGE, carefully selected reviewers to assist in the revision of the text. Her supportive efforts and expertise are greatly appreciated. She professionally and smoothly facilitated the completion of the book.

Elizabeth Cruz, editorial assistant, facilitated the submission process. Rebecca Lee moved the book through production efficiently and in a timely fashion. Megan Markanich, copy editor, provided exceptional review and comments. She diligently reviewed the manuscript and made valuable suggestions. Varda Konstam graciously wrote the foreword, which provides a thoughtful summary of the text. Her efforts are greatly appreciated. I enjoy the writing process, and it is made more enjoyable with the assistance and help of the highly skilled individuals mentioned here.

I would also like to thank the instructors who have provided editorial feedback. I appreciate their thoughtful and expert comments to improve the fourth edition.

Gayl Crump-Swaby, Springfield College Boston

Jeff Daniels, West Virginia University

Seth Fishman, Villanova University

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SECTION I

Introduction to the Research Process

Science and the Research Process

Those entering social science professions such as counseling and education frequently hold a wide variety of attitudes (and emotions) associated with reading about research and potentially conducting research. You may be excited about taking a research course or you may have considerable concern and apprehension. Also, you may place considerable faith in scientific knowledge or you may question reports of research outcomes. The range of attitudes and emotions that students in education and counseling have mirrors the general population in many respects. How do you approach making decisions in your life? Do you systematically gather information scientific sources to make your decisions, or do you consult with others, peers, friends, or relatives?

Over the centuries, there have been frequent attempts to improve the plight of humankind, and frequently these efforts have focused on the use of research to do so. However, most recent advances in science have been most dramatic. Little (1924/2006) stated, "During the last fifty years science and invention have led us further and further from the world that was; deeper and deeper into a new environment. The process of change has been so rapid that readjustment has been difficult. Yet readjust ourselves we must" (p. 54). Science and scientific advances have been purported to be critical in promoting the well-being of individuals and in societal functioning (Frye, 1965; Mendelsohn & Nowotny, 1984). Padgett (2004) noted that "faith in the scientific method has been the rock solid foundation of technological advances" (p. 1). You are not alone in using advances in technology; over 74% of adults use the Internet and 91% of American adults use cell phones (Duggan, 2015). Technology is not the only area where we have seen significant advances; advances in medicine, engineering, physics, and all other disciplines have seen significant advances. Recent engineering advances in understanding and developing methods to produce nanotechnology has been dramatic. According to the National Nanotechnology Initiative (Roco, 2007), *nanotechnology* is defined as "the understanding, control and restructuring of matter on the order of nanometers (i.e., less than 100 nm) to create materials with fundamentally new properties and functions." More specifically, a nanometer is one billionth of a meter! One cannot use a standard microscope to see particles on a nanometer scale. Nanotechnology is being used to develop medical interventions on these extremely small scales. You can easily speculate on the benefits of using such scientific advances where interventions like medical treatments are so small that they can enter and cross cell membranes. Nanoparticles are being developed to transport medicine, nanobots, to specific cells for the treatment of medical conditions such as cancer (Somanna, 2015). Science and research are part of our everyday lives and have significant impact on our lives.

The words *science* and *research* have significant meaning in our current world. According to Padgett (2004), our society has had a "love–hate" relationship with science. This love–hate relationship may be found in various aspects of our lives. The entertainment industry provides good examples of this conflicted relationship. Science and research have been depicted both positively and negatively in movies and on television. *Star Trek, The Six Million Dollar Man*, Ian Fleming's James Bond books and movies, and other media presentations have frequently portrayed science in a positive light. Conversely, *Frankenstein* and even *Jurassic Park* are examples of science and research being presented as potentially out of control and creating problems. Al Gore's movie *An Inconvenient Truth* presents how human efforts in science (creating a greenhouse effect through technology) have impacted our world and potentially may lead to major changes in Earth's ability to sustain life. The debate over the "greenhouse" effect also demonstrates the range of societal views on the value of science (Nisbet & Myers, 2007). For example, trust and acceptance of research on global warming is mixed (Nisbet & Myers, 2007). Nisbet and Myers (2007) cited recent surveys that U.S. public opinion shows that about 60% believe that global warming is real, whereas another 40% do not share this view and question the research on this topic. An initial international agreement on greenhouse gas emissions, Paris Climate Accord (United Nations General Assembly, 2016), received mixed acceptance in the United States. What are your thoughts about the importance and relevance of impact on our lives?

Modern science has a long history, over 400 years, starting in the mid 1600s with scientists such as Isaac Newton and Galileo introducing major advances in scientific knowledge and methods (Okasha, 2002). More recently, the advent of the telephone, electricity, and computers (the Internet), along with advances in medicine (genetic engineering), are examples of how science has changed and (theoretically) improved our lives. In fact, today there are probably few places you can go or activities you can engage in and not come into contact with advances achieved through science and research. Most recent scientific advances have occurred in neuroscience and cognitive sciences (Okasha, 2002). In fact, recent advances in neuroscience and cognitive sciences have resulted in specific applications to education and counseling (Goswami, 2006; Patten & Campbell, 2011). Decisions in our society made by government and other social institutions are typically based on scientific research outcomes. Finally, you cannot read a newspaper on a daily basis without coming across reports of scientific advances.

DEFINITIONS OF SCIENCE AND RESEARCH

The terms *science* and *research* have been defined in various ways, but there are common elements to the definitions. Best and Kahn (2003) defined *science* as "an approach to the gathering of knowledge rather than a field or subject matter" (p. 6). They further described science as consisting "of two primary functions: (1) the development of theory and (2) the testing of substantive hypotheses that are deduced from theory" (p. 6). Gay, Mills, and Airasian (2012) defined the scientific method as "an orderly process entailing a number of steps: recognition and definition of a problem; formulation of hypotheses; collection of data; analysis of data; and statement of conclusions" (p. 5). The connection

of science to research is found in the application of the scientific method (Ary, Jacobs, & Sorensen, 2010; Gay et al., 2012). Creswell (2012) defined *research* as "a process of steps used to collect and analyze information to increase our understanding of a topic or issue" (p. 3). Common elements of science and research include acquisition of knowledge, a systematic approach, and an objective analysis with opportunities for conclusions about how our world may function. The ultimate goal of research and science is to obtain knowledge useful in understating how our world operates. Cooper (2012) discussed five ways humans tend to make decisions about what is true. These include information provided by authority figures; tradition or history; personal observation; rational analysis; and the scientific method. Cooper suggested that the first four methods may lead to errors in detecting truth, whereas the scientific method is based on a combination of rational analysis and observation, which makes the process more objective and likely to lead to discovering truth. Hemsley-Brown (2004) noted that medical professionals typically sought scientific and research information in making patient decisions. Alternatively, they noted that teachers rarely used research in making decisions about student progress. What methods do you use in various circumstances to make decisions?

Moore (1983) described different approaches we use in obtaining knowledge that are *not* based on the scientific method such as personal experience, tradition, expert opinion, authority, and church–state scholarship. He noted that the use of these methods of obtaining knowledge is fraught with subjective bias. The conclusion he suggests that we reach is that using the research method reduces such subjective bias. Ary et al. (2010) also have identified similar sources of knowledge which do not use the scientific method. One frequently used source of knowledge is experience (Ary et al., 2010). We may even trust our experience more than what may be presented in scientific journals. A second source of knowledge, according to Ary et al. (2010), is authority, and we frequently seek out the advice of those who have particular expertise, such as lawyers, physicians, and others who hold a high level of expertise in a specified body of knowledge. In our everyday lives we make decisions, some of which are based upon scientific information and some that are based on personal experiences and other sources. In fact, there are decisions we make that do not call for an objective systematic approach (the scientific method)—for example, what cereal to eat in the morning or what color to paint a bedroom. However, most in the fields of education and counseling believe that use of the scientific method is critical in the practice of our professions (Spencer, Detrich, & Slocum, 2012).

Salkind (2006) proposed that there are five elements of quality research. For example, he noted that quality research (1) can be replicated, (2) is generalizable to other settings, (3) is based on a reasonable rationale and linked to a theory or theories, (4) is not based upon political beliefs, and (5) is objective. Gall, Gall, and Borg (2003) suggested that there are four different types of knowledge, and these various types of knowledge can be clearly linked to certain research approaches. The four are description, prediction, improvement, and explanation. Knowledge viewed from a descriptive approach may be interpreted to consist of attempts to describe natural and/or social or psychological events. The key to descriptive knowledge is a focus on assessment, which allows descriptions of identified events to be made. In counseling, this may involve

(for example) a description of the specific characteristics of an emotional condition, such as obsessive–compulsive disorder. In education, an example of knowledge from a descriptive view might be how a teacher interacts with children based upon gender in a classroom.

Knowledge based on a predictive view involves developing ways to predict identified outcomes (Gall et al., 2003). For example, in education, we may want to predict success in a particular type of educational program, such as an advanced placement course in biology. In counseling, we may want to predict who may benefit most from a particular treatment approach, such as a posttraumatic stress treatment—for example, a virtual reality technique; we need objective knowledge that allows us to predict effectively.

Another type of research knowledge involves developing information designed to determine the effectiveness of interventions (Gall et al., 2003). For example, in education we may be interested in knowing the effectiveness of mainstreaming students with disabilities. An example from counseling might be an interest in the effectiveness of a specific counseling approach—the cognitive behavioral approach, for example—with a condition such as a posttraumatic stress.

The fourth and final type of research knowledge, according to Gall et al. (2003), is explanation. This type of knowledge may be the broadest of all and subsumes the others. Typically, researchers frame questions and problems in terms of theories or explanations of phenomena. For example, behavioral theory may be a basis for explaining a child's tantrum behavior and the reinforcement sequence developed within a particular environment. Researchers would use the theory to establish research studies to support or refute components of the theory.

Although the research method clearly does inherently reduce subjective bias, I want to caution against complete acceptance of the notion that research is always objective and never biased. Babbie (2011) suggested that there are four types of errors in inquiry. The four are inaccurate observation, overgeneralization, selective observation, and illogical reasoning. Inaccurate observation can occur easily when humans are asked to use their senses to document outcomes. For example, inaccurate observation may occur in research investigations, especially if the investigators are not careful in their procedures. Overgeneralization may occur, particularly when conclusions are based on limited information and small sample sizes, rather than larger samples from the population (Babbie, 2011). These conclusions are made with the intent of suggesting the findings are general patterns and insight into explaining a general pattern or explanation for an outcome. For example, an educational researcher may make conclusions about an innovative math program using expensive technology tested on a small sample—a sample that is characterized by selection from an upper-middle-class community. The researcher may overgeneralize and conclude this math program could be used with any population of children—for example, lower income communities that may have limited technology resources. Gall et al. (2003) suggested that another potential criticism of research is that inevitably the researcher's own biases and selection of what to observe create problems. This is the error of selective observation (Babbie, 2011). Babbie noted that when one bases research on broad theories it may be possible that the researcher seeks to confirm research outcomes based on the theory. Consequently, the researcher may seek evidence to

support the theory even when the results do not actually fit the theory. Researchers have found that we as human beings have a tendency to quickly decide upon a hypothesis and then gather information to confirm it, rather than seek alternative hypotheses (Pottick, Kirk, & Hsieh, 2007; Strohmer, Pellerin, & Davidson, 1995). The last error in inquiry, illogical reasoning, concerns conclusions that may be based on individual idiosyncratic views or interpretations (Babbie, 2011). For example, an individual may interpret results from a counseling study on teaching a stress reduction method and conclude it is effective because the time of day of the training: the stress reduction is done during a less stressful time of day.

The important question to address is whether the research method does provide more objectivity in gaining knowledge about our world. Kelly (1955), a personality theorist, stated that a major motivation for human beings is to be a "good scientist," and being a good scientist involves making accurate predictions about events. A major tenet of psychology is that we as human beings inherently like to predict and control our lives. Scientific and research methods may ultimately provide one of the better ways to be a good scientist and make good predictions particularly when we make professional decisions. Being a good scientist professionally may be achieved in part through our ability to systematically evaluate the efficacy of the scientific and research process and the information present in professional journals used in practice.

PRACTITIONER–SCIENTIST

In counseling and psychology, there has been a relatively long tradition of graduate-level training from a scientist–practitioner orientation (Forsyth & Leary, 1997; Gelso, 2006; Hinkin, Holtom, & Klag, 2007; Hoshmand & Polkinghorne, 1992; Kram, Wasserman, & Yip, 2012; Lane & Corrie, 2006; Leong & Zachar, 1991; Nelson & Neufeldt, 1996; Shapiro, 2002; Stoltenberg, McNeil, & Elliott, 1995; Vespia, Sauer, & Lyddon, 2006). Goldfried (1984) suggested that a profession based on a scientific approach is in a better position to be considered legitimate. The scientist–practitioner model was developed by the American Psychological Association (APA) in 1947 (Bernstein & Kerr, 1993). The basic concept is that those practicing the profession of psychology, and also counseling (Bernstein & Kerr, 1993), would split their time and focus rather evenly between research and practice. However, as Heppner, Kivlighan, and Wampold (1992) noted, the reality may be a much different ratio, more like 75% practice and 25% research, based on need and interest. Most practitioners have been dissatisfied with heavy emphasis on scientific methods and knowledge, using the ideal model of 50% research and 50% practice. Love, Bahner, Jones, and Nilsson (2007) discussed the relevance of research in psychology or counseling: "Research advances knowledge in the field of psychology and often guides clinical practice, yet very few psychologists conduct research after graduate school" (p. 314). Gelso (2006) noted that students entering graduate programs typically are interested in practice and not in conducting research, and this is manifested in the low productivity of research by those who complete graduate counseling and psychology programs. Shapiro (2002) suggested that the scientist–practitioner needed to be

renewed and reinforced in training and practice. Renewing the scientist–practitioner model in psychology requires prioritizing the relevance and importance of research in both training and practice.

Education has not had the history with the scientist–practitioner model as counseling and psychology, but recently there have efforts to consider how such a model can be implemented in education (Apel, 2011). Kamhi (2011) suggested that school personnel cannot truly use the scientific approach and model because they function and practice based upon a perspective of certainty. Essentially Kamhi noted that practitioners who hold consistent and certain views of how they should practice are not using a scientific approach. He contended that a scientific approach involves the careful balance between certainty and uncertainty. We know what we know because of experience, but can one be *open* and consider other options to explain events? Science is based to a certain degree on uncertainty and as Kamhi noted being in a state of uncertainty causes individuals to pursue additional knowledge and information, possibly collected based on the scientific method. We want to have questions answered and science provides a good model to answer questions, particularly in a systematic way. However, Apel (2011) argued that educators can use the scientific model in practice if they embrace an attitude of uncertainty. This attitude of uncertainty is characterized by a desire to seek to solve a problem. An attitude of uncertainty in science is defined by a problem with a hypothesis. A hypothesis is a "tentative" guess about phenomena or events. What this means is that rather than knowing with certainty how to set up discipline in the classroom, a teacher using an attitude of uncertainty establishes or thinks in terms of a hypothesis(es). As Apel noted, most practitioners do not like to admit they are uncertain or do not know, and many times educators (and counselors) are encouraged during preservice training (academic preparation) to behave and act definitively. An alternative approach, the scientific approach, is to treat difficult situations (where one does not know) by using a hypothesis(es). The educator or counselor develops hypotheses to test out in practice to solve a problem and attempts to employ a systematic method, gather data, and evaluate a particular intervention or instructional method.

Manicas and Secord (1983) attempted to differentiate the tasks of the scientist and the practitioner by stating, "The former practices science by creating at least partially close systems; the latter uses the discoveries of science, but . . . also employs a great deal of knowledge that extends beyond science" (p. 412). They were stating that practitioners use not only science but also other forms of information, such as personal information, in the practice of their profession. Alternatively, I like the term *practitioner–scientist* to more appropriately reflect the realities of how many master's-level-trained counselors and educators use and participate in research. The emphasis is on practice first, with the use of research as a foundation for conducting practice. Others also have used the term *practitioner–scientist/researcher* (Bernstein & Kerr, 1993). As Heppner et al. (1992) noted, the use of science in practice does not need to be evenly split. Practitioners will most likely choose to emphasize practice with science as a source of knowledge for treatment decisions rather than conducting research or being the researchers who gather the knowledge. Hunsley (2007) noted the different terms utilized from the original scientist–practitioner view to include "practitioner scholar" or "clinical scientists."

Heiman (1995) stated that "psychology is as much a science as the natural sciences of physics, chemistry, or biology because they all employ the scientific method" (p. 5). This statement by Heiman can be applied to education also, as long as the scientific method is employed. What differentiates a scientific approach from a nonscientific approach? The definition of science and several assumptions about science provide this answer.

ASSUMPTIONS ABOUT SCIENCE AND RESEARCH

Heiman (1995) cited several important assumptions about science that may be helpful in understanding the difference between scientific activity and nonscience. A basic premise of research and science, according to Heiman, is that one can find lawfulness in the subject studied (e.g., psychology or counseling and education). Lawfulness in our disciplines, counseling and education, is determined by the extent to which we can find ways to predict and control events. For example, we may hypothesize that when a client in counseling describes a certain psychological reaction, such as an obsession with cleanliness, and is always washing his hands, that he has an obsessive–compulsive personality. Consequently, we can hypothesize and predict to some degree how the person will react in the future. In education, an example may be teaching a child reading with certain methods of instruction, for instance phonics or whole word, and we may predict that one method of instruction will be better than another based on research outcomes.

A second important assumption, according to Heiman (1995), is that nature is understandable. This means that the laws of nature are understandable, and we can explain them in some way based on a theory. Understanding from a research perspective refers back to an explanation, which is a major goal of the scientific approach (Gall et al., 2003). Gall et al. (2003) proposed that researchers employ different theoretical orientations in the search for explanations. Three orientations may be used by investigators in their attempt to explain natural and/or social and psychological phenomena: mechanistic, postpositivistic, and scientific realism. The mechanistic approach has been a major orientation of scientific research since the 1800s and consists of developing scientific explanations from a cause-and-effect relationship. If a bowler rolls a bowling ball down a bowling alley and it hits the pins, the assumption is that the ball caused the pins to fall. There is a direct relationship between two or more events: the ball rolling and hitting the pins and the pins falling. An example in education may be an adolescent taking an advanced placement course in high school, and she graduates early in 3 years from college.

The postpositivist approach, according to Gall et al. (2003), involves an assumption that individual perceptions of the social environment and an event influence how they behave: There is an interaction between the person's perception and certain phenomena. To concretely illustrate this orientation, we can go back to the example of encouraging a child to study and complete his or her work, and the result is a high grade. According to the postpositivist view, the child's interpretation and the meaning attached to getting a high grade will have a significant impact on the outcome. Consequently, the explanation for a particular event or phenomenon is not a simple cause-and-effect relationship.

Children may interpret a high grade in different ways; some may consider a B a good grade, whereas others may be satisfied only by an A. I have had students state that "they must get an A in a course," whereas others have stated "they were hoping for a B." Frequently the student interpretation and expectation was reflected by her or his effort.

The scientific realism view for explaining events states that the world is composed of layers of causal structures. Some of the causal structures are easy to observe, while others are not as easy to observe (Gall, Borg, & Gall, 1996). The job of the researcher is to identify the various causal structures and how they interact to produce an effect. The following interpretation may be made if we again return, using the scientific realism view, to an example of a child studying to receive a high grade. Not only does the grade influence the outcome but the events prior to studying have influence as well. For example, did the child's parents have a fight prior to the child starting to study or the day the child took a test? The student may have just received a high grade in another subject, and this motivates him or her to work hard on the current topic. The job of the researcher using the scientific realism approach is to identify the relevant causal structures influencing the event or phenomenon being studied. The scientific realism view is an attempt to move research beyond a laboratory and into the real world, where events are complex and not based on simple cause-and-effect relationships.

Relevance of Using and Applying Skills in Evaluating Research

The importance of using and applying skills in evaluating research is founded on the classic view of the scientist–practitioner model. As I mentioned earlier, if you read a large daily newspaper on any given day, you will find reports and summaries of scientific research studies. However, the newspapers do not publish specifics of the studies or information about how the study was conducted. An important question is this: How much credence should you place on the information you read in such sources? Additionally, if you have a copy of the study, do you accept the results unequivocally because they are published in a professional journal? I would suggest that accepting the results of a scientific study without systematically evaluating the methods is analogous to buying something—for instance, a car—without ever test-driving it. Another important source of information to many these days is the Internet. Specifically, many use Wikipedia for information. What do you know about the person or source that is being used to share information on Wikipedia (likely not an expert in the topic)? Few of us would buy a car or a house without first systematically evaluating the quality of the article being purchased. Consequently, I believe we as professionals have an *obligation* to carefully evaluate knowledge and research results that may be used in the practice of our professions. I am not suggesting that you evaluate each piece of knowledge presented to you in a comprehensive fashion (this would be extremely tedious and probably impossible), but I believe that acquiring the skills to evaluate how knowledge was generated is a key to functioning as a professional and differentiates those with advanced graduate degrees from those who are not so trained. Most recently, counseling and psychology influenced by medicine has introduced the use of evidence-based practice (EBP; APA, 2006; Tanenbaum, 2003). EBP is focused on the identification and use of the best research

available in the implementation of services. Love and colleagues (2007) concluded that "one of the most important goals of psychological research is to provide guidance and answers for clinicians with practical, relevant, and useful information that will enhance their ability to practice effectively, ultimately providing more sound services to clients" (p. 315). The use of EBP as a model provides counselors and educators with a foundation for decision-making and services that are more systematic and theoretically more ethical. Few people want to see a physician who does *not* use the most current research to guide his or her practice.

Obtaining Information From Electronic Databases and Articles in Journals

A first step in developing skills in using and evaluating research in professional journals is knowing how to systematically gather and search for articles relevant to your discipline. Many of you will have developed these skills to some degree at this point in your academic career, but a review is helpful and you may obtain new information. As a user—and even a producer—of research, you need to develop skills for searching various sources. An understanding of the search process can facilitate your searching. Search sources include hardbound journals (likely not something you will do these days; this method was used 20 years ago), electronic journals, databases, online search engines, and metasearch engines. There are strategies that can be used to expedite and refine your search. Once you have identified what you want to search, you must decide how you will search and what sources you will use. Determining what search terms are important can hinder or help your success. After obtaining the search information, you must determine how you will use the information and how you will cite or reference the information you obtained. A key component of using published information is the fair and accurate citation of the information. There is a discussion later in this chapter of appropriate methods of citation, issues of plagiarism, and ways to avoid plagiarism.

One of the first steps in using and conducting research is to access sources of information. A starting point in accessing information is to first identify what you want to search. This sounds simple, but if you do not have a clear search topic you will struggle to find usable information that meets your needs. Once you have identified a topic, or someone (an instructor) has identified one for you, you should conduct a brief initial investigation of the topic to find out how broad it is. You can do an initial search through a **search engine** such as Yahoo or Google Scholar and/or databases such as PsycINFO or EBSCOhost. There will be a discussion later in the chapter giving more information about using a database like PsycINFO, EBSCOhost, and various search engines. You also can go to your class textbook or various encyclopedias to select your topic. (See www.lib.umb.edu/newtutorial/module1.php.) Your initial investigation gives you information about how large the topic is and what may be some variations on the topic. Once you complete this initial search, you likely will need to refine your search because it may be either too large or not quite what you wanted. Keep in mind that you want to be able to manage the information, and if your search topic is too large you may have trouble covering all the information available. Many topics are

well researched, and reading and managing large numbers of articles or readings is typically beyond what you want, unless you are preparing a dissertation. After refining your topic, you want to generate key search terms. A somewhat complex strategy for searching various topics is through using a Boolean approach. However, much more simple strategies have been developed, and one can search by discipline. My guess is that such a trend in identifying our search for articles will become even easier; who knows—in the future you may be able to have a thought (not speech-echo), and the search will be conducted for you.

Database Searches

Once you have identified key search terms, you are ready to proceed with your search strategy. Databases like PsycINFO and EBSCOhost are useful because they contain primarily citations of original research that typically are peer-reviewed (*peer-reviewed* refers to publication in a journal where the articles have been critiqued by professionals in the field before publication or acceptance for publication), so the quality is generally good. You also can search Google Scholar and obtain similar scholarly publications. If you go to a university library's website and click on "database search," you can begin the process. The databases are listed by topic alphabetically. The major databases you would search include PsycINFO, Academic Search Premier, Expanded Academic ASAP, JSTOR, EBSCOhost, PsycARTICLES, PsycCRITIQUES, Sociological Abstracts, and Biological Abstracts. Once you determine the database, you type in your search terms. Depending on your initial results, you may want to either expand or restrict your search. If you receive too many results to manage, you may want to restrict your search. If you receive too few, you may want to expand. For example, you may restrict your search by reviewing sample citations and identifying those that closely match your interests and then using the specific terms found in the citation to further focus your search. Once you find your citations in the database, you may have a choice of an article abstract or full-text options. Most often, you want full-text options so you can access the full article. The full-text options may be in either PDF format or HTML format. Periodically an article is available in both PDF and HTML format. You can restrict the years of your search. You also may search by author and publication date.

Electronic Journals

Another format for a search is through electronic journals. If you know the journal title and the publication year, you can locate an article through your university's electronic journals. Electronic journals are alphabetized so you can easily find your journal. Also, there is the option of abstracts or full-text articles (not your choice but the library's and publisher's). The electronic journals are organized by date and publication volume. Once you have an article that fits your interest and topic, you may use the references in the article to gather further journal publications that may be of interest. You may want to determine the impact of a particular topic or article or research, and you can do this through citation searching. There are several Internet databases that provide information about the number of times an article or publication is cited in a particular database.

Such citations give evidence of the impact of a publication on the field—the view is that others are using the article or study information as documentation in their work. A primary source for determining the impact of a study is the Web of Science database. A search of the Web of Science database provides information about citations listed in the sciences, social sciences, and arts and humanities. Google Scholar is another source that can be used to determine the citation frequency of a particular article.

How to Evaluate Internet Information

I want to review how to evaluate an Internet source for accuracy and quality. The information on the Internet (aside from that found in electronic professional journals) may or may not be accurate. There is no systematic evaluation of information posted on a website, and accuracy of information may be very weak or strong depending on the originator's knowledge and intention (a contributor to a website may intend to mislead readers). You as the reader must determine whether the information posted is credible, not assume that it is accurate. Guidelines for evaluating web-based information include a determination of accuracy, authority, objectivity, and currency (see http://www.library .georgetown.edu/tutorials/research-guides/evaluating-internet-content). An important question is whether an author is identified on the web page; the name provides an opportunity to evaluate the credentials of the person posting the information. Lastly, remember that anyone can post anything on the Internet, and the accuracy of the information should always be examined.

PLAGIARISM

Because one of the topics of this chapter addresses searching topics and the use of database citations, it is important to discuss academic honesty—or rather what is considered academic dishonesty (plagiarism). Plagiarism is an important concern in academia (Maurer, Kappe, & Zaka, 2006). There have been various definitions, perspectives, and levels of plagiarism. Maurer et al. (2006) provided a description of broad examples of plagiarism and include the following:

- Submitting another's work as your own

- Stating others' work as your own without noting the source or giving credit

- Not placing quotation marks around a direct quote from others

- Not providing correct information about a citation or quote

- Changing the words but maintaining the basic essence of meaning without noting the source

Plagiarism is committed when someone presents another's ideas or writings as his or her own. The plagiarist is not giving the person who wrote the material credit and is

attempting to take credit himself or herself. Maurer et al. (2006) identified four types of plagiarism: accidental, unintentional, intentional, and self-plagiarism. Accidental plagiarism is characterized by lack of knowledge and understanding of how to complete a reference or citation. Unintentional plagiarism refers to taking statements from another source when one does not note or recall the influence of that source. Intentional plagiarism involves a specific act of copying others' work and doing so knowingly. Self-plagiarism is where one does not cite an original work in another published format, using one's own work without the proper citation.

A more recent form of plagiarism is called cybercheating and refers to taking another's work from the web, copying it, and pasting it into your own work. Marsh (2007) concluded that "plagiarists commit acts of petty larceny, trying to steal or pass off the words or ideas of another as if they were their own" (p. 31). One may consider using another's words as "not a big issue" without appropriate acknowledgment and citation, but in academia it is tantamount to stealing. In essence, thoughts and ideas are "owned" by the originator and not providing appropriate citation takes something from them.

Researchers have noted the frequency of cheating and plagiarism among college students, particularly undergraduates (Belter & du Pre, 2009). Belter and du Pre (2009) noted that cheating (purchasing papers) and other types of plagiarism (inappropriate or lack of citing a source) ranges from 50% to 80% of all college students! This means that over half of all undergraduates engage in plagiarism and cheating in completing their coursework and degree. One can see the potential problem. Do you want to see a physician who has obtained their degree and grades that was not their own work? You also may not want to drive across a bridge where the engineer cheated in getting her or his degree and may not be competent or qualified.

Park (2003) identified several reasons why college students plagiarize: lack of understanding, efficiency gain, time management, personal values or attitudes, defiance, attitudes toward teachers, denial, and lack of deterrence. College students may intentionally or unintentionally plagiarize. Certainly, it may seem more expedient to use others' work and purchase a paper or copy word-for-word another's work, but this is cheating and potentially stealing from others. Also, students may unintentionally plagiarize, but researchers have found that college students have difficulty knowing what plagiarism is (Landau, Druen, & Arcuri, 2002; Roig, 1997). Undergraduates in the Landau et al. (2002) study could not identify acts of plagiarism in a text sample. Also, plagiarism may be unintentional and be a consequence of the person's memory of the source material (Bredart, Lampinen, & Defeldre, 2003). Bredart and colleagues (2003) defined plagiarism that was unintentional and a result of not remembering that one obtained the information from another source as "cryptomnesia." Despite there being a controversy over the ability to detect or know if one is plagiarizing or whether it is a case of cryptomnesia, colleges and universities have increasingly focused on stopping such practices (Roig & Caso, 2005).

Roig and Caso (2005) stated, "Many in academia now believe that with the advent of computers and the internet 'copy and paste' plagiarism has increased dramatically in recent years" (p. 485). In most instances, the discovery of plagiarism results in a negative consequence for the student that may involve lowering a course grade or even dismissal

from the university (Robinson-Zanartu et al., 2005). It is important for students to be aware of what plagiarism is and how to avoid it. There are several ways to avoid plagiarism (Landau et al., 2002). One way is to provide appropriate and accurate citation of the work used in your search. It is acceptable to quote a source based on the accuracy of the citation. Refer to the sixth edition of the *Publication Manual of the American Psychological Association* (APA, 2010) for ensuring accuracy and format for making a quote. The citation should include the author, title, date of publication, and location. Another approach is to use methods of reporting on an article or publication through summarizing or paraphrasing so you do not use the exact words used by others unless you are using a quote. You still need to cite the source of your information; ideas are considered property, and giving credit for ideas is important. Practice summarizing and paraphrasing can help with reducing or stopping plagiarism, along with appropriate and accurate citation of the work. I would suggest purchasing an APA manual at the start of your graduate program and becoming familiar with using accurate and appropriate documentation of the sources you use. A review of a few samples of paraphrasing and direct quotes may help you understand how to avoid plagiarism.

An example of a direct quote is this: Pineda Olvera, Stewart, Galindo, and Stephens (2007) stated, "Group (particularly familial) goals are emphasized by most Latinos; however, American culture emphasizes individual goals" (p. 225). A paraphrase of the same quotation could be this: American culture generally highlights individual goals over group goals, whereas Latinos tend to highlight group goals (Pineda Olvera et al., 2007). Note that the paraphrase results in the use of different words to provide the same meaning and is an interpretation of the direct quote.

Here is another direct quote: "Students in our science classes were sending us mixed messages. On the one hand, they didn't see the content of our science classes as relevant to them. They didn't engage with the content of the class, and they let us know that they saw classwork as busy work and homework as optional" (O'Neill, Yamagata, Yamagata, & Togioka, 2012). A paraphrase of this quote might be this: One study on teaching science found that students informally communicated that they perceived science as not very relevant to them. They also communicated that homework was a choice and not a requirement. Finally, the students indicated that classwork was busywork (O'Neill et al., 2012). You can see the meaning of the paraphrase is similar to the direct quote and conveys the findings of the authors from the study cited.

STEPS IN THE SCIENTIFIC PROCESS

As has been discussed, science and research are based on a systematic approach, and they proceed according to specific rules. I want to describe the generally accepted steps in the scientific research process and relate these steps to the sections of a journal article. I want to note that an important step in the research process is that the procedures used in a study are presented in a public arena such as a professional journal or a professional presentation so the methods can be evaluated as to their efficacy. The steps to scientific research are depicted in Figure 1.1.

FIGURE 1.1

Steps in the Scientific Research Method

Step 1	Identify a problem.
Step 2	Define the problem operationally.
Step 3	Develop hypotheses or research questions.
Step 4	Identify and develop the research design (procedures).
Step 5	Develop and/or identify techniques or instruments that can be used to gain knowledge about the identified problem.
Step 6	Collect data.
Step 7	Analyze the data collected.
Step 8	Generate conclusions about the data.
Step 9	Report the data in a public arena such as a professional journal or presentation.

The text is organized primarily around systematically discussing steps in the scientific research method. The next section is an overview of the text and how the steps in the scientific research method is addressed.

PURPOSE AND OVERVIEW OF THE TEXT

A major purpose of this text is to provide a framework and guide for practitioners in the fields of counseling and education to use in systematically evaluating the efficacy of scientific research reported in professional journals so that the information may be used and applied in practice. In other words, one goal of this book is to prepare counselors and educators to be good consumers and users of scientific research. This will be partly accomplished by relating the scientific research method to journal articles and providing a guide for evaluating counseling and educational research. The format of a research article may easily be related to the scientific method through the steps described earlier (see Figure 1.1). A research article is typically composed of four major sections: introduction, methods, results, and discussion (see Figure 1.2).

A second purpose of this text is to provide the reader with basic skills necessary to professionally practice as a practitioner–scientist from a systematic and, when appropriate, a scientific approach. The completion of this purpose involves a discussion of how to conduct research. A basic overview of how to participate in and conduct research is presented. Contributing to the professional counseling and educational research literature is an exciting and important role of graduate-level-trained practitioners. This discussion includes coverage of conducting both quantitative and qualitative research.

Another goal of this book is to provide a basic introduction to program evaluation. I will provide information about program evaluation—how to systematically evaluate interventions used. Steps in conducting program evaluation are discussed, as are various

FIGURE 1.2

Relating Sections of a Journal Article to Steps in Scientific Research

Sections of Journal Article	Steps in Scientific Research
Introduction	Identify the problem and the gaps in the literature.
Introduction—Review of the literature	Define the problem operationally.
Introduction—Purpose statement and hypothesis(es)	Identify the purpose, develop hypotheses or research questions.
Methods Sample	Identify the population of interest, and discuss how the sample was chosen
Methods—Procedures	Identify the procedures used to conduct the study.
Methods—Instruments	Identify the instrument to be used and how data is collected.
Results	Analyze the data collected.
Discussion	Generate conclusions about the data. Report the data in a public area (professional journal and/or professional presentation).

types of program evaluation, such as formative and summative evaluation. There is presentation of how evaluation such as national accreditation illustrates the program evaluation process. This will be accomplished through connection of the various topics and chapters to national accreditation for both counseling (Council for Accreditation of Counseling and Related Educational Programs, or CACREP) and education (Council for the Accreditation of Educator Preparation, or CAEP). National accreditation of counseling and education programs provides both the public and students or graduates with assurance of a level of training and education that meets academic and practice standards necessary to be highly effective in their disciplines, a minimum level of competence. You have a physician (national accreditation is Liaison Committee on Medical Education, or LCME), a dentist (national accreditation is Commission on Dental Accreditation, or CODA), etc., who has attended a nationally accredited program and you expect a high level of knowledge and skills from them. Similarly, the public and those you serve have the same expectations of you. Specifically, each chapter in the text will involve a connection to national standards in counseling and education to the topics addressed. Additionally, there will be exercises and activities at the end of the chapter that provides an opportunity to interpret and understand the connection between national standards and your professional practice.

The last goal is to inform the reader of current and future issues confronting those conducting and using research in the fields of counseling and education. As was mentioned earlier, there is a controversy over the designation of training graduate-level practitioners as "scientist–practitioners" or as "practitioner–scientists." Another issue (and this is discussed in later chapters) is the use of quantitative versus qualitative research.

The last issue addressed is the use and conduct of research sensitive to cultural diversity. We live in an extremely diverse society, and the use of research in a responsible and sensitive manner based on cultural and diversity issues is critical. Ignoring culture and diversity is irresponsible in research and may result in misuse of research.

To accomplish the goals cited, this text (the fourth edition) is organized around three major parts: Introduction to the Research Process, Evaluating Articles in the Professional Literature, and The Application of Research and Evaluation. Part I: Introduction to the Research Process includes the first eight chapters. The first chapter is an overview of the research process, and the fourth edition involves updating references and the scientific process. An example is a discussion of the value of science in our current society. Chapter 1 includes an introduction to searching for journal articles and the use of electronic online databases. Chapter 2 focuses on ethics in the research process. The primary focus of the discussion is on the appropriateness of interpreting and applying results from one specific sample in the literature to a different group of subjects or in practice. Guidelines for interpreting the impact of research results on the population are presented, and studies from the research literature are used to illustrate how to evaluate ethical concerns. For example, there is an evaluation of the Tuskegee Syphilis Study with African American males, using the proposed guidelines. The purpose of the Tuskegee study was to determine the natural course of untreated syphilis. The researchers in this study used 400 African American males who were left untreated for syphilis, even when effective treatment was available. The fourth edition involves an update of examples of current ethical research issues and an expansion of discussion of ethical misconduct in research. Examples such as manipulation of data will be provided—for example, Anil Potti and manipulation of cancer research data.

Chapter 3 is an overview of a certain category of research, quantitative research, which is defined in terms of results and data being quantifiable. Most standard research designs may be categorized as quantitative research, and most professional journals publish primarily quantitative research rather than other types of research, such as qualitative research. As part of this chapter, there is a presentation of various research designs that may best characterize this type of research. There are limitations to the quantitative approach, and these are presented. Chapter 4 involves adding additional examples of various statistical methods. Chapter 4 addresses another major approach to research: qualitative research. Qualitative research is defined in terms of how data is analyzed and which research designs are used. Data is collected and analyzed using language and descriptive methods rather than numerical methods. Qualitative methods include such research approaches as case study methods: ethnographic, grounded theory, phenomenological, and historical. Qualitative methods provide opportunities for investigators to do more naturalized observations of the actual object of study versus the more experimentally controlled approach used in quantitative methods. Limitations of the qualitative approach are addressed.

Chapter 5 is a discussion of mixed methods research. The development of mixed methods research has provided a link between qualitative and quantitative research methods. These two traditions, quantitative and qualitative, have had significant differences over the past 100 years. There have been recent efforts to develop systematic

mixed methods designs, which have led to more integration of the approaches. I discuss the benefits of employing mixed methods in research. There are additional examples of mixed methods studies to illustrate the various approaches in the third edition. Chapter 6 is focused on single-case research designs. There are discussions of the strength and limitations of single-case study. Additionally, there are discussions of when to use single-case-study designs. Both the threats to internal and external validity are covered as well as discussions of specific single-case study designs such as multiple baseline, ABAB designs, between-group designs, and multiple treatment designs. Subsequent chapters involving critique of articles include new examples of single-subject studies. Chapter 7 is a basic overview of statistical methods. It includes a discussion of descriptive, inferential, correlation, and regression methods. Students have commented to me that the examples are helpful, and they would like more examples, so more are included in the fourth edition. Additional examples of qualitative research studies are provided in the fourth edition. Chapter 8 is a focus on evidence-based research practice. As was mentioned earlier, the importance of using EBP as a model is increasingly being acknowledged as a critical component of becoming an effective counselor (Nezu, Ronan, Meadows, & McClure, 2000; Tanenbaum, 2003) or educator (Spencer et al., 2012). There is a discussion of the strengths and limitations in using an EBP approach. Lastly, there is a discussion of the best way to practice using an evidence-based model (Davison & Lazarus, 2007).

Chapters 9 through 15 comprise Part II: Evaluating Articles in the Professional Literature and provide a foundation for systematically evaluating the efficacy of articles presented in the professional counseling and educational literature. The section of evaluating articles will involve updating examples used in illustrating how to effectively evaluate articles and there will be additional articles. As stated earlier, students have reported that additional examples are always helpful. Chapters 9 through 15 are focused on evaluating articles, and new examples illustrating how to evaluate the articles will be added to each chapter. Also, each chapter will include a qualitative study which was not provided in previous editions. Finally, there are examples from single-subject case research in Chapter 15 and discussion on how to evaluate the studies based on the criteria provided. At the end of each of these chapters, there are exercises and activities to help deepen your understanding of the material.

Chapter 9 is the beginning of the major focus of this text: a presentation of guidelines for evaluating the efficacy of research reported in journal articles. Methods for evaluating each section of a journal article are presented, starting with an article's introduction. To clearly illustrate how to evaluate the various sections of a journal article, there will be examples taken from the counseling and educational research literature. The introduction section of an article includes the development of the argument or the rationale for conducting the study cited; this is frequently accomplished through a review of the relevant literature. Methods for evaluating the literature review will be presented here. Chapter 10 is a discussion of how to evaluate the purpose statement and hypotheses, which is also a part of the introduction section. The purpose statement and hypothesis (or hypotheses) is typically found toward the end of the introduction section, after the literature review. The purpose statement should be clear and concise as to what

the study and researchers are investigating, whereas the hypothesis is more specific and gives information about any predictions the researcher is making. The next chapter, Chapter 11, focuses on the second section of a journal article, the methods section, beginning with sample or subjects used in the study. A discussion is included on how to evaluate the selection procedures used and the appropriateness of the particular sample based on the purpose of the study. Chapter 12 is a discussion of how to evaluate the third part of the methods section: the instruments. Investigators must decide how to assess the outcomes of the focus of the study and use valid and reliable methods. Chapter 13 is an examination of how to evaluate the procedures used and described in the methods section. The procedures are a step-by-step description of how the study was conducted. Guidelines for evaluating the results section are the focus of Chapter 14. The results section generally involves the presentation of statistical methods used in the analysis of the study. It is not unusual for students in counseling and education to skip or skim over this section because of an aversion to numbers and math or statistics. The ability to evaluate the results section is not based solely on knowledge of statistical methods, and the evaluation approach introduced here is rooted in general concepts and assumptions that can be reviewed without significant expertise in statistics. Chapter 15, the last chapter in the discussion of the evaluation process of a research journal article, is the discussion section. This is where the researchers summarize the results of the studying descriptive form and attempt to generalize and relate the results to actual practice in counseling and education.

Part III: The Application of Research and Evaluation is a discussion of how to develop and use research in actual practice for those in the fields of counseling and education. The discussion is presented from the practitioner–scientist approach. In Chapter 16, the focus is on evidence-based research and application. As was mentioned earlier, the importance of using EBP as a model is increasingly being acknowledged as a critical component of becoming an effective counselor (Nezu et al., 2000; Tanenbaum, 2003) or educator (Spencer et al., 2012). There is a discussion of the strengths and limitations in using an EBP approach. Lastly there is a discussion of the best way to practice using an evidence-based model (Davison & Lazarus, 2007). The next chapter, Chapter 17, is focused on cultural issues in conducting research. We live in a diverse society and world. There are multiple issues and concerns with conducting research from a multicultural perspective. First, conducting research from a Western perspective may involve an openness and willingness to participate and use research more readily than in other cultures and regions. Yancey, Ortega, and Kumanyika (2006) concluded that participation by minorities in research is low, and researchers need to increase participation so the results can be applied more effectively, both nationally and internationally. Cialdini, Wosinska, Barrett, Butner, and Gornik Durose (1999) found that there were differences in cultures that emphasized an individual versus a collective view, which impacted perceptions, acceptance of results (social proof), and participation in research. Another issue for conducting research with sensitivity to culture is the use of appropriate instruments or testing materials. Brislin (1986) noted the importance of conducting research using appropriate and culturally sensitive testing materials. This may include translating the instrument into the participants' language. Lastly, certain cultures or races have a

negative view of research because of past abuses; the Tuskegee study is an example. African American males were studied for the progression of syphilis for over 40 years without treatment (penicillin) although it was available for over 25 years. Sensitivity to how racial groups view participation in research is important, and researchers need to be aware of previous abuses of different racial and ethnic groups.

In Chapter 18, I provide a brief overview of how one goes about developing a research proposal. The discussion includes how to conduct small research studies as a practitioner, with particular emphasis on using the professional literature as a basis of design and implementation. Both quantitative and qualitative research designs are discussed. The chapter is updated with relevant references. As with other chapters, additional discussion of using single-case research is introduced as an option particularly relevant for practitioners interested in conducting research. In practice, it is much more pragmatic for a practitioner in counseling and education to use a single-subject design. Chapter 19 addresses program evaluation research. Counselors and educators may be asked to interpret and develop program evaluation. Program evaluation is quite useful to practitioners because the focus is on evaluating the effectiveness of the programs they are implementing and providing justification for continuing such programs. Program evaluation knowledge and skills seem particularly important in recent times of fiscal conservatism and accountability. The purpose here is to provide only an overview of the process of program evaluation and not to provide and in-depth review; there are other texts designed to provide a more detailed explanation (Padgett, 2004; Sanders, 1994; Thyer, 2005; Wholey, Hatry, & Newcomer, 2004). The fourth edition involves updates that include adding additional examples of program evaluations in various settings—for example, schools, agencies, higher education (Hernandez, 2012). Also, a change in this edition is an increased focus on national accreditation for both counseling (CACREP) and education (CAEP). There is discussion of how both accrediting bodies utilize program evaluation and a discussion of how accrediting standards are used in evaluation; examples are provided. Chapter 20 is focused on the use of technology in research. Advances in technology provide interesting and significant opportunities for conducting research that has not been available in the past. There are a range of technologies that enhance the opportunities for research. For example, one is the use of virtual worlds such as Second Life. Second Life is a virtual environment that allows for the virtual experience of social and educational experiences. The benefits of using a virtual world in research is that one can control the environment in much greater detail than in real life involving humans. Also, research participants can engage in social interactions that would be more challenging in real life: visiting another country and interacting with residents from that country. Another example of using technology in research is the use of low current electrical stimulation to treat many conditions such as learning disabilities, stroke, depression, posttraumatic stress disorder (PTSD), schizophrenia, etc. A third technology is the use of "bug in the ear" for supervision of teachers in a classroom. Current technology allows for video streaming into a classroom and supervision at a central site. Such technology can be particularly helpful in training teachers and supplement faculty contact with student interns. The last chapter, Chapter 21, is a discussion of the current and future issues confronting those conducting, and particularly those using, counseling

and educational research (Brunoni et al., 2012; Schwartz & Revicki, 2012)—for example, issues of conducting research through social media. A major criticism of research is that it is not accessible and practical for practitioners. Generally, researchers write and publish studies that are more directed to colleagues in universities versus practitioners. Practitioners are the individuals working with children, adolescents, and adults based on their discipline. They (you) have daily contact and access to those with whom you serve. It only makes sense that researchers need to be more sensitive to making research more applied and practical. Another controversial issue is accountability in counseling and education. How can research be done to address such issues?

EXERCISES AND ACTIVITIES

Directions: Choose one or more of the following activities, and complete the activity.

1. Choose a topic from your discipline, and complete a literature search. Be sure to consider narrowing or expanding the search depending on the number of citations you obtain.

2. Discuss and/or review the professional accreditation standards of your discipline, CACREP or CAEP. What is the status of your university's national accreditation? If accredited, when is the reaccreditation scheduled? Do your program faculty share information about the accreditation and what information or data is being collected?

3. Practice summarizing several paragraphs in articles, and check through Turnitin whether the results suggest you may have plagiarized.

Ethics and Research

Chapter 2 is a discussion and review of ethical issues in conducting and using research. An important question is this: Why study ethics and research? First, it is important that the researcher is aware of how ethical his or her procedures are in conducting research. There are federal laws that protect human subjects against potentially harmful research practices (Office for Human Research Protections [OHRP] of the U.S. Department of Health and Human Services). The specific regulations may be found in the U.S. federal code of regulation, 45 CFR 46 and the Common Rule: 45 CFR 46 subpart A. There is a relatively short history of human research protection starting in 1974, the National Research Act (Pub L. 93-348). The Belmont Report was published to clarify and summarize the act. Due to several high-profile research studies that resulted in harm to participants, Congress passed the act. Several of these research studies are discussed later in this chapter.

While protecting subjects and adhering to federal laws are most relevant for researchers conducting research, I will not go into great detail here because the focus of this book is designed to prepare you to be a thoughtful consumer of research. What difference does it make to consider ethical issues in the articles you read in the professional literature? The answers to these questions are the foci of this chapter.

The purpose of this chapter is threefold: first, to introduce you to ethical guidelines helpful in understanding ethics and research; second, to discuss examples of ethical research violations; and third, more important for you as a practitioner, to provide a method of evaluating the ethics of a research design as ethics apply to your use in actual practice of the information from the research. Therefore, this chapter includes (a) discussion of basic principles that may be used to consider and understand ethics and research, (b) a foundation and set of criteria for evaluating research reported in the literature, with a particular focus on the ethics of the research design as the results apply to using the information in actual practice, and (c) a discussion of examples from the current literature, which will illustrate how to use the criteria presented earlier in evaluating research for violations and problems from an ethical perspective for the practitioner in counseling and education.

ETHICAL PRINCIPLES AND GUIDELINES

When one considers ethical issues in research, it is helpful to conceptualize the guidelines available in the form of an inverted triangle (see Figure 2.1). At the top of the inverted triangle are general theories of ethics, and you may think of the space in this segment

FIGURE 2.1
Ethical Guidelines for Research

Ethical Theories	Utilitarianism Deontological
Ethical Principles	Autonomy, Beneficence, Justice, Nonmaleficence, and Fidelity
Professional Codes of Ethics	ACA Code APA Code
Laws: State and Federal	Human Subjects Guidelines
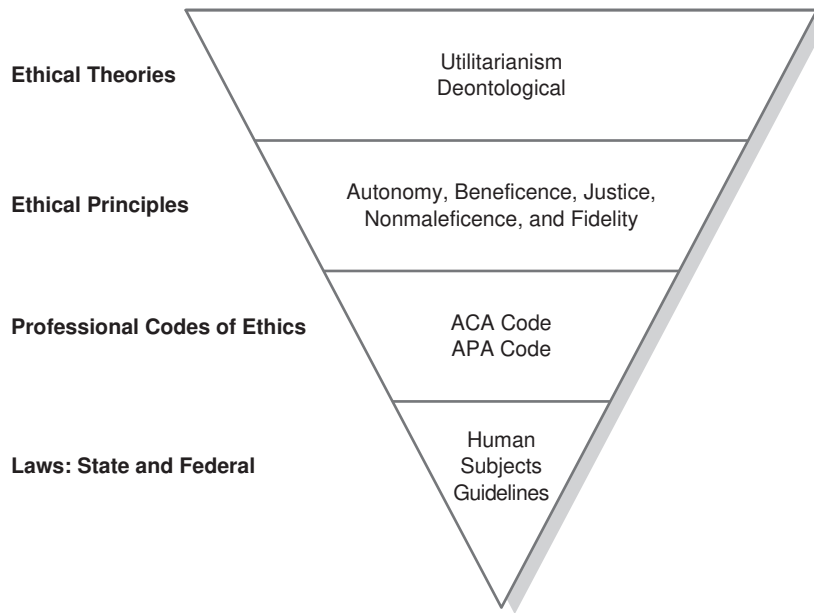
of the triangle as representing the number of situations that can be addressed with the theories. Also, the space may represent the amount of ambiguity in decision-making because there is not the specific clarity that some of the other guides listed in the triangle provide. Next are general principles such as autonomy, nonmaleficence, and so on. These general principles allow for a somewhat clearer interpretation than the general theories but do not allow the same number of situations to be addressed. The third type of guide is the professional ethical code, such as that of the American Psychological Association (APA) or the American Counseling Association (ACA). (I did not include the National Education Association [NEA] codes because they do not address research.) As we move down the triangle with the codes of ethics, there is an increased clarity in how and when to use the guidelines and a decrease in the number of situations to which they can be applied. Finally, at the bottom of the triangle, are laws and federal or state statutes and regulations. These are the most specific and clear-cut guides for ethical decision-making, but they apply to (generally) the fewest situations and circumstances.

Starting at the top of the triangle, you can see that two major types of theories have been proposed in ethical decision-making: utilitarian ethics and a deontological view (Beauchamp & Childress, 2012). There are several other ethical theories that could be included in ethical decision-making (Houser & Thoma, 2012; Houser, Wilczenski, & Ham, 2006). However, this book is not solely focused on ethics, so I will cover these two broad theories (utilitarian and deontological). Federal regulations (OHRP) as well as

state and federal laws generally use these two ethical theories in developing their guidelines or laws. Beauchamp and Childress (2012) defined *utilitarian theory* in terms of the end justifying or legitimizing the means and the promotion of the greatest good for the greatest number of people. Ethical decision-making can be applied to a great number of situations, but how to proceed is not that clear. Beauchamp and Childress defined the deontological approach in terms of decisions about right and wrong. There are rules or principles of right and wrong. For example, one rule within this theory is the Golden Rule (treat others as you would like to be treated) that guides actions (Beauchamp & Childress, 2012). In this theory, the outcome is less important than following the rule or principle.

The next level of ethical guidelines is that of general principles, which are founded on virtue ethics (found within the deontological perspective). The general principles include autonomy, beneficence, nonmaleficence, justice, and fidelity (Beauchamp & Childress, 2012). According to Beauchamp and Childress, autonomy involves the concept of self-rule and self-choice. Self-choice includes full disclosure of information, which makes it possible to make an informed choice. Beneficence refers to doing what is best for another or looking out for another, whereas nonmaleficence is complementary to beneficence and concerns doing no intentional harm. Justice involves the fair distribution of resources. Finally, fidelity refers to keeping one's promise or commitment (Beauchamp & Childress, 2012). The next level of ethical guidelines is that of professional codes of ethics (ACA, 2014; APA, 2010). The ethical codes for the ACA address the following areas, under research: (a) research responsibilities of the counselor (Standard G.1), (b) rights of research participants (Standard G.2), (c) managing and maintaining boundaries (Standard G.3), (d) reporting results (Standard G.4), and (e) publications and presentations (Standard G. 5). An example of rights of participants (Standard G.2) is as follows: The researcher needs to obtain **informed consent** for research purposes, and counselors must use language that is clear and understandable to participants. There are exceptions, when deception is required in a study, but deception is used only when no other methods are available. The APA (2003) Ethics Code Section 8 addresses (a) institutional approval (Standard 8.01), (b) informed consent for research (Standard 8.02), (c) Informed consent for recording voices and images in research (Standard 8.03), (d) client/patient, student, and subordinate research participants (Standard 8.04), (e) dispensing with informed consent for research (Standard 8.05), (f) offering inducements for research participation (Standard 8.06), (g) deception in research (Standard 8.07), (h) debriefing (Standard 8.08), (i) humane care and use of animals in research (Standard 8.09), (j) reporting research results (Standard 8.10), and (k) plagiarism (Standard 8.11). These topics in both the ACA and APA codes of ethics provide resources for practitioners who conduct or use research studies. You can review the relevant codes as necessary.

Finally, there are ethical guides that address specific procedures for the protection of human subjects (OHRP). Federal legislation (OHRP) requires that investigators who are associated with institutions that receive federal funds must submit their studies to an extensive review by peers before the studies can be conducted. The primary focus is on ensuring that adequate protections for research subjects are in place. The peer review is

done through a formally established institutional body, the Human Subjects Institutional Review Board (IRB). Guidelines for reviewing research proposals include requirements for informed consent, an evaluation of risks and benefits, and confidentiality. The IRB must evaluate the risks as being reasonable in relation to anticipated benefits.

Professional Association Standards for Research (American Counseling Association and National Education Association)

The 2014 ACA Code of Ethics includes a specific standard addressing research (Section G). The introduction to Section G states this: "Counselors who conduct research are encouraged to contribute to the knowledge-base of the profession and promote a clearer understanding of the conditions that lead to a healthy and more just society" (ACA, 2014, p. 15). In Chapter 1 in this text, there was a discussion of the role of research in developing knowledge, and this is reiterated in this professional code. Section G includes examples of standards that address how to conduct research, confidentiality of participants, consideration of research when procedures deviate from practice methods, precautions to avoid injury or harm to study participants, the use of informed consent with participants, appropriate dissemination of research records, and the reporting of results in a professional venue (journals and professional presentations). The standards in Section G of the ACA provide a detailed outline and guide for those who conduct counseling research. If you participate or conduct research in the future as a counselor, it is important and imperative that you review these professional codes of ethics prior to participating in or conducting research.

The NEA Code of Ethics (NEA, 1975) does not include specific standards addressing research on teaching. There are two sections in the professional code: standards addressing teachers' commitment to students and standards involving commitment to the teaching profession. I would suggest teachers who conduct or participate in research in the future review other professional codes of ethics that address research to provide guidance, the ACA (2014) or the APA (2010; Amendments 2010 and 2017).

Professional codes of ethics provide guidelines for practitioners, and they are important to know and understand. Using codes of ethics provides protection for you as a practitioner and the people you serve and employ in conducting research. There are certain circumstances where a particular research issue is not clearly stated in a code of ethics (a new intervention, online counseling, is an example over the past few years), and in such cases, you can review and use general ethical theories: virtue ethics, utilitarian ethics, Native American ethics, etc. Also, it is important to consult with colleagues and others (administrators) about the implementation of your research to ensure ethical research practice.

ETHICAL RESEARCH VIOLATIONS

Ethical violations or scientific misconduct has been defined in several different ways, and at times there has been some disagreement on what constitutes scientific misconduct (Habermann, Broome, Pryor, & Ziner, 2010). The Office of Research Integrity

(ORI) of the U.S. Department of Health and Human Services monitors and sanctions scientists who engage in ethical violations or scientific misconduct. Habermann et al. (2010) noted that federal guidelines for defining scientific misconduct as "fabrication, falsification, and plagiarism, as well as other practices that deviate seriously from those commonly accepted within the scientific community" (p. 52). Redman and Merz (2008) reviewed the public records for outcomes and consequences for investigators that were found to have engaged in scientific misconduct. They identified 106 individuals over an 8-year period, 1994 to 2001, that were reported publicly by the ORI. These individuals include those with a PhD and/or MD. The scientific misconduct was identified as **data falsification** or **plagiarism**. Consequences for those engaging in scientific misconduct were found to be removal from grant funding opportunities and institutional oversight. Finally, some were required to correct scientific papers that included the falsified or plagiarized information.

A **random selection** of examples of misconduct from the ORI provides insight into how decisions and outcomes are applied. One example, reported by the ORI, states that a researcher was found to have engaged in research misconduct by falsifying and/or fabricating data. The data was discovered to be falsified and/or fabricated in several National Institutes of Health (NIH), National Institute of Child Health and Human Development, or National Institute on Aging grants. A consequence of the findings was a recommendation that all publications resulting from the falsified and/or fabricated studies be retracted, a notification in the journal that the study is retracted. Six publications were identified for retraction. Additionally, the researcher voluntarily agreed to exclude himself from contracting or subcontracting with any federal grant for a period of three years.

A second case of misconduct reported by the ORI again involved falsifying data that was included in a grant application and in a publication in a research journal. The intention of the falsification was to show greater significance than actually found. The consequence for the researcher who again signed a voluntary settlement agreement included requiring the researcher to be supervised by any institution that receives public health service grant funding. Additionally, if the researcher submits a grant application, the institution who employs her must include a supervision plan to ensure scientific integrity. One can see from a review of these two examples of scientific misconduct that in fact there are consequences for researchers who engage in such practices.

The findings by the ORI have been challenged in court; ORI concluded that a biochemistry professor engaged in scientific misconduct. The researcher took the case to a federal court. The judge found in favor of ORI findings, and the consequences against the researcher were upheld.

GUIDELINES AND QUESTIONS FOR EVALUATING THE RESEARCH LITERATURE FOR ETHICAL CONCERNS

As has been shown, there are several approaches and guides for interpreting ethical issues in counseling and education research, but which methods are most useful for you as a consumer of research? The answer must be based on the focus and purpose you have.

Researchers are most concerned with the protection of the human subjects used in their studies; therefore, the federal guidelines and professional codes addressing the protection of human subjects are most relevant. However, consumers of research are interested in the ethics of research that focuses on interpreting results, and the applications for those for whom they provide services in the practice of their professions.

Gostin (1991) suggested guidelines to consider when conducting and applying research to populations ("population research"). He defined *population research* as "all research and practice, performed on, or which affects groups of people or populations" (p. 192). Gostin (1991) linked the application of ethical principles to populations and stated the following:

> Ethical principles applied to larger groups of people or populations are designed to protect the human dignity, integrity, self determination, confidentiality, rights, and health of populations and the people comprising them. The kinds of social groupings encompassed in this definition include communities, cultures, social orders, and other minorities. (p. 191)

The key terms here are protecting the *human dignity, integrity, self-determination, confidentiality, rights,* and *health of populations.* The concern for practitioners providing counseling and educational services is that research results must be interpreted and implemented based on ethical guides that protect the populations we serve. Several of the previous ethical guides are pertinent to understanding and interpreting counseling research. The ethical principle of nonmaleficence states, "Do no harm." Do no harm can be interpreted in regard to population research based on the results and conclusions from research studies as to whether the outcomes harm the welfare of the populations studied. A key component of nonmaleficence and "do no harm" is an awareness and intention of knowingly acting in a way that may harm others. As Gostin (1991) stated, this means protecting the dignity, integrity, and health of the populations. Neither the APA nor the ACA includes ethical codes that specifically address population research ethics. The focus of professional codes has been on the ethical treatment of research participants and not so much on the ethics of population research. A question that consumers of research want to ask in reviewing research is this: What negative implications or harm is possible, based on the results from a particular study on the population of interest? Harm may include, as Gostin (1991) noted, an effect on the population's dignity, rights, integrity, and/or self-esteem.

A second ethical consideration in regard to population research can be found in the general ethical principle of beneficence. The question here is this: What are the possible benefits of the research results for the population? In our professional capacity, we are most concerned with research results that will be useful to those receiving counseling and educational services. A review of a research study and how it may be applied in practice may be evaluated from the perspective of this: What are the benefits if I use the reported study interventions with the population I serve? You would not want to try an intervention that provided no benefit to those you serve. You have an obligation to provide quality services.

A third ethical guide that is applicable to population research is justice and the fair distribution of research outcomes. A question based on this ethical principle is this: Is the **sample** and **population** studied fairly representative of the general population that could benefit from the research results? More specifically, did the researcher or researchers present a reasonably clear argument for studying the population if the research was restricted to a particular group? We cannot expect that a researcher will be able to study every possible group because of cost and time, but the exclusion of certain groups from the benefit of research results may bring the ethics of a study into question. For example, the NIH, which in part funds medical research, has historically approved mostly studies involving White males, to the general exclusion of women. Fortunately, this issue of justice and fairness in funding medical research has changed over the past several years, and NIH now *requires* researchers to justify the sole use of males in a study (NIH, 1994).

A restatement of the questions that consumers of counseling and education research might ask to determine the ethical quality of research published in professional journals could include the following:

1. Are there possible negative implications, potential harm, if applied to a population (a practitioners' intended clients or students) due to the results of a particular study?

2. What are the possible benefits of the research results for the population (if applied to practitioners' intended clients or students)?

3. Is the sample and population studied fairly representative of the general population that could benefit from the research results? More specifically, did the researcher or researchers present a clear argument for studying the population if the study was restricted to a particular group?

EVALUATION OF RESEARCH EXAMPLES PRESENTED IN THE PROFESSIONAL LITERATURE

There have been studies that were conducted and involved ethical violations, and these studies serve as illustrations of the significance of the impact they have on populations. I want to review several examples: the Tuskegee Syphilis Study and the Milgram study. Next, I want to review some more current examples that provide illustrations of how a population may be impacted through certain research.

TUSKEGEE SYPHILIS STUDY

The Tuskegee Syphilis Study was intended to follow the natural course of syphilis, specifically in African American males. The study spanned 40 years, beginning in 1932 and ending in 1972. It was originally hypothesized that there were differences by race in the natural progression of syphilis (Thomas & Quinn, 1991). However, a Norwegian study

that focused on White males essentially provided information of the natural course of syphilis without treatment. However, the researchers wanted to believe they would find a difference due to race. The study was designed to last for 6 to 9 months and was conducted in Macon, Alabama. The Alabama state health officer solicited assurance from the U.S. Public Health Service (PHS) that participants would eventually receive treatment (Thomas & Quinn, 1991). However, the participants in this study never received treatment, even though treatment was available as early as 1943, when the PHS began administering penicillin as a treatment for syphilis across the country. One reason given for not providing treatment was that of the attitudes of the officials who were overseeing the study. For example, Dr. John Heller, director of the PHS Division of Venereal Diseases, stated that "the men's status did not warrant ethical debate, they were subjects not patients, clinical material, not sick people" (Jones, 1981, p. 179). This statement demonstrates a bias toward viewing participants as not having rights and/or a perception that these particular subjects, African American males, are not worthy of rights.

The Tuskegee study ended in 1972 when it became public that these men had had standard, effective medical treatment withheld. Numerous other reasons were cited for the treatment these men received, and many centered on the attitudes of the medical community toward those of different races, particularly African Americans (Gamble, 1993; Thomas & Quinn, 1991). For example, Gamble (1993) stated that certain assumptions about African Americans led to the unethical treatment of subjects in this study, such as beliefs that African Americans are promiscuous, lustful, and generally do not seek out medical treatment. Consequently, not providing medical treatment was justified in the minds of the study officials. It has been estimated that 28 to 100 of the participants died as a consequence of their untreated syphilis (Gamble, 1993).

The first question is to address concerns whether there are any negative implications based on the way the study was conducted and the results obtained for the population. Gamble (1993) described a legacy of mistrust among African Americans toward medical research: "The Tuskegee Syphilis Study symbolizes for many African Americans the racism that pervades American institutions including the medical profession" (p. 37). Thomas and Quinn (1991) suggested that the Tuskegee Syphilis Study has resulted in such distrust of the medical profession that it hampers acquired immunodeficiency syndrome (AIDS) education and acceptance of treatment among African Americans. Mason (2006) stated, "Historically, African Americans have resisted participation in clinical trials and other research projects because of distrust of the mostly white research establishment" (p. 296). It would not be a stretch to conclude that the effects of this study have had a negative impact on the population of the study, African American males, and their attitudes toward seeking medical treatment.

Are there any potential benefits from this study for the population? It is difficult to identify any. I am not aware of any special knowledge gained from the results that has benefited the treatment practices for syphilis in African American males. Recall the study of the progress of syphilis in adult males was conducted years earlier with a Norwegian population. One of the few benefits may be broader in that the exposure of Tuskegee Syphilis Study to Congress resulted in improved oversight of human subject research by the federal government.

The third question to address ethically is this: Is there a clear argument for using this particular population for the study? Initially, there was speculation in the medical literature on racial differences in the natural course of syphilis (Thomas & Quinn, 1991), but there was no attempt to compare the target group with other racial groups, such as White males. Gamble (1993) has noted that African Americans historically have been considered by the medical and scientific community to be inferior and, consequently, good sources for medical experimentation. Gamble (1993) cited physicians' use of Black women for medical experimentation during the late 1800s prior to the use of treatments for White women.

In summary, it appears that the Tuskegee Syphilis Study is of questionable ethical quality when population research is considered. There appear to be no benefits to the population—in this case, African American males—from the study; in fact, the study appears to have harmed the population—for example, distrusting the medical profession and not seeking necessary medical treatment.

MILGRAM STUDY

A classic study in psychology that has received significant criticism over violations of ethics is the Milgram study on obedience (Baumrind, 1964; Kelman 1967; Milgram, 1963). Milgram (1974) described the aim of the study as this: "to find when and how people would defy authority in the face of a clear moral imperative" (pp. 3–4). The methods involved the use of deception with the subject. Subjects were led to believe by the experimenter that they were participating in a learning study. Subjects were requested to train or teach another through the systematic use of electrical shock. In reality, the learner was an actor who did not actually receive a shock. The "teacher" in this experiment (the actual subject) was instructed to administer an electrical shock whenever the learner responded with an incorrect answer. With each incorrect answer, the teacher was informed that he should increase the intensity of the shock. The electrical shocks were presented on a board to the teacher, starting at 15 volts and rising to 450 volts at 14-volt intervals. Also, there were designations on the shock board indicating slight shock to "danger: severe shock" (Milgram, 1963). Milgram (1974) described his experiments with obedience in the following way:

> The man receiving the shock, begins to indicate he is experiencing discomfort. At 75 volts, the "learner" grunts. At 120 volts he complains verbally; at 150 he demands to be released from the experiment. His protests continue as the shock escalate, growing increasingly vehement and emotional. At 285 volts his response can only be described as an agonized scream. (p. 4)

When the teacher (subject) expressed reluctance at continuing with the experiment, the investigator urged him to complete the study and administer up to the maximum shock in the severe **range** (Milgram, 1963).

Milgram (1963) noted the behavior of subjects (teachers) wherein several of the initial study's participants exhibited unusual reactions: "nervous laughter and smiling. . .

Full-blown, uncontrollable seizures were observed in 3 subjects" (p. 375). Additionally, Milgram described in detail one subject's reaction: "initially [this subject was a] poised businessman . . . smiling and confident. Within 20 minutes he was reduced to a twitching, stuttering wreck, who was rapidly approaching a point of nervous collapse" (p. 377).

A key consideration in evaluating this study from a consumer's perspective is the use of deception. To answer the first question of harm to the population, I want to cite studies on the use of deception. Sharpe, Adair, and Roese (1992) found that subjects participating in psychological research expressed more negative views of psychological research after participation. Studies like Milgram's may contribute to mistrust in participating in psychological research or may influence participation in future research. Conversely, it is difficult to find more concrete negative effects on the population as a consequence of these results and research methods being published. The APA (2003) Ethics Code states the following:

> Deception in Research (a) Psychologists do not conduct a study involving deception unless they have determined that the use of deceptive techniques is justified by the study's significant prospective scientific, educational, or applied value and that effective nondeceptive alternative procedures are not feasible. (APA Code 8.07)

A possible benefit to the population is an understanding and realization of the vulnerability of humans in reacting to and complying with authority. Milgram's initial interest in studying obedience centered on compliance with authority and participation in aggressive acts, like those conducted by some Germans during World War II. These results may provide insights into why humans may engage in horrendous acts against others, and, consequently, prevention measures may be developed.

The sample studied was obtained from workers, or community members, in the New Haven, Connecticut, area and generally involved males. The use of the specific subjects in the study was not clearly defended in the introduction. What effect would it have had on the results to have included subjects not affiliated with a university? However, there does not seem to have been bias toward a particular group.

Overall, the Milgram study provides somewhat mixed results for ethical violations affecting the population. The study may more likely have violated the rights of participants than affected the intended population of the study.

Additional Examples of Ethics in Research Studies

To illustrate the practical application of ethics and counseling and educational research literature, there are additional examples of application from several studies to address these three questions. Correll et al. (2007) conducted a study comparing law enforcement officers in Denver, Colorado, to a community sample—undergraduate college students—in making high-threat decisions on whether to shoot or not to shoot. The study focused on the participant's decision to shoot or not to shoot based on race;