Gary Kielhofner



Research in Occupational Therapy

Methods of Inquiry for Enhancing Practice

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Research in Occupational Therapy

Methods of Inquiry for Enhancing Practice

F. A. DAVIS COMPANY • Philadelphia

F. A. Davis Company
1915 Arch Street
Philadelphia, PA 19103
www.fadavis.com

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Printed in the United States of America

Last digit indicates print number: 10 9 8 7 6 5 4 3 2 1

Acquisitions Editor: Christa A. Fratantoro
Manager of Content Development: Deborah J. Thorp
Developmental Editor: Peg Waltner
Design Manager: Carolyn O'Brien

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Library of Congress Cataloging-in-Publication Data

Kielhofner, Gary
Research in occupational therapy : methods of inquiry for enhancing practice / Gary Kielhofner.
p. cm.
Includes bibliographical references and index.
ISBN 13: 978-0-8036-1525-0
ISBN 10: 0-8036-1525-6
1. Occupational therapy—Research. I. Title.
RM735.K54 2006
615.8′515—dc22

2006041013

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This book is dedicated to:

A. Jean Ayres,
for role-modeling the vocation of a scientist in the field

Mary Reilly,
for providing timeless insights into the nature of knowledge and discovery in occupational therapy

Noomi Katz,
for demonstrating open and persistent inquiry into a complex clinical problem

Anne Mosey,
for logically critiquing how scholarship should advance the practice of occupational therapy

Elizabeth Yerxa,
for demonstrating how to love the questions posed by our field

And to all others who have passed on to a current generation of scholars the passion, persistance, and perspectives necessary to scholarship in occupational therapy

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PREFACE

Those who enter the profession of occupational therapy come with a desire to enable people to participate more fully in everyday life. The profession's mission is practical and humanistic. Not surprisingly, the mention of research in occupational therapy can engender expectations of an uninteresting and technical topic of limited relevance. This is not surprising. Research is often written about as though it were mysterious and quite apart from practical therapeutic work. As a consequence, discussions of research can sometimes make it appear inaccessible and remote from occupational therapy practice.

Investigators, such as those who have contributed to this book, do research because they find the process of discovery exhilarating and because they see how it enhances occupational therapy practice. Thus, in this text, we have sought to underscore two themes. First, we have sought to illustrate how research is a creative process of discovering and sharing new information. We have aimed to demonstrate that research is not only comprehensible but also engaging. Second, we have made specific efforts to demonstrate how research is both essential to and can support and improve occupational therapy practice. We sought to accomplish this not only through constant use of occupational therapy research examples, but also through addressing issues of how research contributes to professional knowledge and how research can be used by members of the profession.

Investigators, such as those who have contributed to this book, do research because they find the process of discovery exhilarating and because they see how it enhances occupational therapy practice.

DEFINITIONS OF RESEARCH

One can readily find a number of definitions of research as it pertains to the field of health care. For instance, research has been defined as:

> *" a systematic and principled way of obtaining evidence (data, information) for solving heath care problems" Polgar and Thomas, S.A. (2000, p 3)*

> *"a systematic search for and validation of knowledge about issues of importance…" Polit and Hungler (1999, p 3)*

> *"a structured process of investigating facts and theories and exploring connections" Portney and Watkins (2000, p 4)*

> *"Multiple, systematic strategies to generate knowledge about human behavior, human experience and human environments in which the thought and action processes of the researcher are clearly specified so that they are logical, understandable, confirmable, and useful". Depoy and Gitlin (1998, p 6)*

Taken together, these definitions emphasize a number of important points. First, research is systematic, principled, structured, and logical. Second, it involves a process of investigation or obtaining evidence in order to generate knowledge, and test theories Third, research aims to study issues of importance and solve practical problems. These characteristics of research have been our point of departure and are emphasized throughout the text.

SCOPE, CONTENT, AND ORGANIZATION OF THE BOOK

This book discusses contemporary research methods and tools. It aims to comprehensively cover the range research relevant to occupational therapy. The book is designed to build an appreciation of the kinds of perspectives, strategies and specific tools that are used by researchers. It should also allow the reader to become a competent consumer of most types of research. Finally, it includes the necessary information to prepare one for being a competent collaborator in research.

Because the book is broad in scope, many topics are covered at the most basic level. Therefore,

many chapters will provide the reader with many additional resources for understanding research reports and for participating in research.

Deciding how to organize and sequence the chapters in a text such as this is no small challenge; everyone consulted offered up differing opinions. Our strategy has been to organize the book into nine fairly small sections. Each section is designed to stand alone; however, some sections do rely on material discussed in other sections and the reader will profit from referring to those other chapters. Within each section, the chapters are generally best read in sequence.

Importantly, the sequence of the sections and the chapters within the sections is not intended to convey anything about importance. To a large extent, sequence was driven by how we felt the underlying logical with which we sought to explain research would best unfold.

Reading this book can be approached in a variety of ways. Most readers will find it helpful to complete section one first, since it discusses some of the broadest and most basic topics related to research in occupational therapy. Beyond this first section, the sequence can depend on the reader's interest or the organization for a course or coursework for which to book is being used. Below each section is described to give a sense of its purpose and contents.

The first section introduces the reader to the nature and scope of research and its place in occupational therapy. Chapters address why research is needed, philosophical underpinnings of research, the range of research methods, the basic process common to all forms of research, and the various roles and responsibilities that members of the profession should and can take on related to research. By the end of the section, the reader should have a very broad idea of aims of research, the assumptions, principles and concerns that guide research, and the different ways that research can be conducted. Additionally, the reader should appreciate what the results of research have to do with the profession and what members of the profession should have to do with research.

The second section covers major forms of quantitative research designs (i.e., exploratory, group comparison, survey, retrospective, longitudinal, and single subject) These chapters aim to provide an overview of both the logic and methods that belong to each design. Readers should glean a substantial understanding of what types of research questions quantitative designs can address and how such designs answer these questions.

Section three addresses a specific issue underlying quantitative research, namely; how investigators quantify or measure the phenomena they study. The rigor of all quantitative investigation rests on how adequately the researcher has operationalized the variables of interest. Thus, the quantification of research variables must be carefully approached. Three chapters address this issue from the different perspectives of classical test theory, contemporary item response theory, and a critical reflection on the aims, value, and limits of quantification.

The fourth section completes coverage of quantitative research by discussing the major statistical methods used in such research. In addition to the overview of statistics provided by the chapters, this section includes tables that provide, at a glance: summaries of the questions various statistics answer, requirements for appropriate application of the statistic, and how the numbers generated by the statistic should be interpreted.

Section five covers qualitative research methods. These chapters provide an overview of the logic and methods of qualitative research, and discuss how qualitative data are collected, managed and analyzed. This section aims to provide the reader with an understanding of the logic and range of qualitative methods, the various purposes to which qualitative research is put, and the major methodological procedures involved in doing qualitative research.

The sixth section covers research designs that do not neatly fit into either the broad quantitative or qualitative categories. Two chapters cover research approaches that achieve insights through systematically eliciting opinions or perspectives. A third chapter discusses how qualitative and quantitative research methods can be combined in a rigorous way.

Section seven covers in detail the various steps and procedures the investigators complete when they conduct research. The first chapter provides an overview of the main steps of research which are discussed in more detail in subsequent chapters. These include: searching the literature; identifying research questions; designing the study; assuring the research is ethically sound; obtaining funding for the research; securing samples; collecting, managing and analyzing data; disseminating findings; and writing a research report. This section aims to discuss the research process in such a way that the reader appreciates all the elements that go into research and so that a first-time researcher can systematically anticipate and plan for what is involved in a study.

Section eight discusses how research methods can specifically be used to enhance occupational

therapy practice. It includes illustrations of how research methods can be applied to needs assessment and to program development and evaluation. Additionally this section features three chapters that address participatory research approaches. These approaches represent a promising way to conduct research that is grounded in and addresses the issues and perspectives of occupational therapy practitioners and consumers.

Section nine discusses evidence based practice. The chapters in this section cover the definition, history and purpose and implementation of evidence-based practice. This section also addresses how practice can effectively be changed in response to evidence and how evidence can be generated in ways that are more relevant to practice.

A NOTE ON TERMINOLOGY

Convention about how to refer to persons who are being studied in an investigation has changed over the years. The classical term, subject, connoted that individuals were objects of inquiry and/or were subjected to experimental procedures. Contemporary researchers generally prefer the term, participant. This terminology stresses the extent to which people who are studied freely contribute time, personal information, and effort to a study. Still other researchers, who emphasize the importance of involving people who are being studied as partners in the research enterprise, use terms such as partners or stakeholders to refer to individuals whose circumstances are being investigated.

Throughout this text the authors of chapters were given freedom to use the terminology which best suited their discussion. Because of its classic use certain key concepts still use the term, subject, in the phraseology (e.g., between-subjects variance or single-subject design). In such instances authors have retained classical terminology to avoid confusion. Other authors preferred use of the contemporary terms, such as participants, stakeholders or partners for their discussion.

We hope the book conveys the deep commitment that all who contributed feel toward the research process.

CONCLUSION

Writing this book was a challenging enterprise for all involved and reading it will be no less challenging. Nonetheless, the reader will find that the chapter authors are not only knowledgeable and passionate about their topic, but made substantial effort to help the reader comprehend the topic. We hope the book conveys the deep commitment that all who contributed feel toward the research process. Most of all, we hope that the reader will share some of that commitment after having digested this volume.

Gary Kielhofner

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ACKNOWLEDGMENTS

Scholarship of Practice

No book of this size and scope comes into existence without the contributions of many people. First of all, I am grateful for the privilege of working as editor with the esteemed colleagues from throughout the world who contributed chapters to this text. Each brought unique qualities to the chapters they created, writing from the informed perspectives of experience and expertise. In the course of editing their work, I learned a great deal.

I owe a debt of gratitude for the commitment and the many hours of careful work that my team at UIC put into this project. Research assistants and graduate students, Jenny Fox-Manaster, Annie Ploszaj, and Jessica Kramer provided outstanding leadership that helped guide this manuscript to fruition at various stages. They had able editorial help of their peers: Mona Youngblood, Stefanie Conaway, Sun-Wook Lee, and Kathleen Kramer. My assistant, Felicia Walters, ably oversaw the process of acquiring photographs, while post-doctoral fellow Patty Bowyer gave helpful feedback throughout the process.

We relied heavily on external reviewers to improve the clarity and content of the book. Their guidance and feedback were instrumental to improving the final quality of this text. I am grateful to the following persons who reviewed the book at its various stages of development:

Julie Bass-Haugen, Bette R. Bonder, Barbara A. Boyt Schell, Jane Case-Smith, Sherrilene Classen, Susan Doble, Regina Doherty, Edward Duncan, Catherine Emery, John Fleming, Ellie Fossey, Linnea Franits, Karen Funk, Linda Gabriel, Heather A. Gallew, Kilian Garvey, Robert W. Gibson, Stacie Lynn Iken, Panelpha L. Kyler, Lori Letts, Jennie Q. Lou, Ferol Menks Ludwig, Rosemary M. Lysaght, Nancy MacRae, Maralynne Mitcham, Maggie Nicol, Jane O'Brien, Genèvieve Pépin, Carol Reed, Pat Sample, Dianne F. Simons, Karen Sladyk, Roger Smith, Barry Trentham, Kerryellen Vroman, Janet H. Watts, Shirley A. Wells, Don Workman, and Hon Yuen. Thanks are also owing to Marcia Ciol, who created many graphs for figures in *Chapter 11, Single Subject Research*.

This book would not have come into existence but for the friendship and persistent badgering of Christa Fratantoro and Margaret Biblis. Margaret convinced me that the book was a good idea and artfully talked me into taking it on, despite my initial hesitations. Christa was there at every stage and willing to do whatever it took to make this a great book. Deborah Thorp provided able editorial guidance and the final look and layout of the text is a reflection of her hard work.

Over the years, F.A. Davis has supported projects that began as ideas without much precedent, including my very first text. I am grateful for their ongoing faith in and support of me.

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SECTION 1

The Nature and Scope of Inquiry in a Practice Profession

CHAPTER 1

The Necessity of Research in a Profession

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A. Jean Ayres provided occupational therapy to children with learning disabilities (Figure 1.1). She observed that some of these children had difficulty processing sensory information from their bodies and from the environment. She also noted that these sensory processing problems appeared related to problems in motor and academic learning. Spurred by her observations, Ayres began developing a conceptualization of how the brain organizes and interprets sensory information (Ayres, 1979). She used this theory, referred to as Sensory Integration, to understand the functional difficulties found in some children with learning disabilities.

Ayres went on to conduct research on large samples of children to describe the different types of sensory problems that certain children exhibited. As part of this research, she constructed tests to study the behavioral manifestations of sensory processing problems. Findings from a series of nation-wide studies comparing normal children and children with problems processing sensory information eventually identified patterns of sensory integrative impairment (Bundy, Lane, & Murray, 2002). Armed with empirical support for the existence of certain patterns of sensory processing problems and with a conceptualization of those problems, she refined strategies of intervention. Her own research and hundreds of studies by others over several decades have served to improve understanding of sensory integration problems, to develop and refine a battery of tests designed to help therapists identify and understand sensory integrative impairments, and to test the effectiveness of interventions designed to remediate them (Walker, 2004).



Figure 1.1 Dr. A. Jean Ayres. (Reprinted with permission from Kielhofner, G. Conceptual foundations of occupational therapy, 3rd ed. Philadelphia: FA Davis, 2004, p. 47.)

Lucy Jane Miller began research developing norm-referenced standardized scales for preschool children after working as an occupational therapist in the Head Start program (Figure 1.2). During that time she realized that most of the children who later demonstrated problems were "missed" by traditional screening tests. She was awarded federal funding to standardize the Miller Assessment for Preschoolers and to develop the FirstSTEP, a shorter screening tool (Miller, 1982, 1988, 1993). Dr. Miller later developed and standardized the Toddler and Infant Motor Evaluation and made a large step forward in intelligence testing when she co-authored the Leiter International Performance Scale, which provides a nonmotor, nonverbal alternative to traditional IQ scales (Miller, 1988, 1982; Roid & Miller, 1997).

Dr. Miller used tests as a way to identify and evaluate children with sensory processing problems and developmental delays. Since 1995, Dr. Miller and her team have run a full-time program of research investigating the underlying mechanisms of sensory dysfunction and evaluating the effectiveness of occupational therapy for children with these disorders (McIntosh, Miller, Shyu, & Hagerman, 1999; Miller et al., 1999). This research has included diverse investigations such as quantitative studies of the sympathetic nervous system based on descriptions of children's "fight or flight" responses and qualitative studies of parental hopes for therapy outcomes.

Dr. Laura Gitlin, an applied research sociologist, has a long-standing passion for developing



Figure 1.2 Dr. Lucy Jane Miller.

and testing innovative health and human services that can make a difference in the lives of persons with disabilities and their families (Figure 1.3). Working out of the traditions of Kurt Lewin's field theory and M. Powell Lawton's competence-environmental press framework in aging research, her collaboration with occupational therapy has been a natural fit. Since 1988, in partnership with her occupational therapy colleagues, Dr. Gitlin has received federal and foundation funding to study the adaptive processes of older adults, the role and benefits of adaptive equipment and home environmental modification for older people with functional impairments, the quality of life of persons with dementia living at home, and interventions to enable older adults with functional difficulties to age in place at home (Gitlin & Corcoran, in press; Gitlin, Luborsky, & Schemm, 1998; Gitlin, Swenson Miller, & Boyce, 1999). Her recent study on physical frailty has demonstrated the effectiveness of a combined occupational therapy and physical therapy intervention in reducing difficulties with activities of daily living.

In addition, Dr. Gitlin and her team have been investigating the most effective approaches to supporting families to manage dementia-related care challenges (Gitlin, Schinfeld, Winter, Corcoran, & Hauck, 2002). This research has involved developing various measures such as a standardized assessment of the physical features of home environments that support or hinder functionality (Home Environmental Assessment Protocol [HEAP]), a tool to measure the type and range of care strategies families use (Task Management Strategy Index [TMSI]), and a tool to evaluate the strength of the therapeutic engagement process with families (Therapeutic Engagement Index [TEI]) (Gitlin et al. 2002).

This program of research has yielded an effective intervention with families, the Environmental Skill-building Program (ESP). It has also generated other related approaches that enhance the quality of life of both persons with dementia and their families (Gitlin, et al., 2003). Currently, Dr. Gitlin and her team are working on ways of translating these evidence-based interventions into reimbursable services.



Figure 1.3 Dr. Laura N. Gitlin.

Kerstin Tham, a Swedish occupational therapist, became interested in a particular problem some of her clients with a cerebrovascular accident (CVA) experienced (Figure 1.4). This problem, unilateral neglect, meant that, following a CVA, people no longer recognized half of their own bodies nor did they perceive half of the world. As a consequence, they neglected these regions of the self and the world, washing only one side of the body, eating only the food on one half of the plate, and so on.

A great deal of research has been published about the problem of neglect. Moreover, a number of training approaches have been developed to help people with neglect overcome the problem.



Figure 1.4 Dr. Kerstin Tham (left) and student Ann-Helen Patomella.

However, these approaches have not been shown to be very successful in improving function.

Dr. Tham became convinced that the research that had described unilateral neglect had one large flaw. It always examined how neglect appeared from the outside—that is, how it appeared to clinicians and researchers. It never asked the person with CVA how it was to experience neglect. So, she decided to undertake research that would describe neglect phenomenologically (i.e., from the point of view of the person who had it), with the aim of better providing services for it.

> Without the development of a research base to refine and provide evidence about the value of its practice, occupational therapy simply will not survive, much less thrive, as a health profession.

In a qualitative study in which she observed and interviewed four women over an extended period of time, she and her colleagues came to provide some startling insights into the nature of unilateral neglect (Tham, Borell, & Gustavsson, 2000). For instance, they found that people with neglect believed that the neglected body parts were not their own or not attached to their bodies. Their research described a natural course of discovery in which persons with neglect came to understand that they had neglect and were able to make sense of their strange and chaotic experiences of the self and the world.

In a subsequent investigation, Dr. Tham and a colleague went on to examine how behaviors of other people influenced the experiences and behavior of the person with neglect (Tham & Kielhofner, 2003). She continues this line of research, which offers a new approach to understanding and providing services to persons with unilateral neglect. She and her doctoral students are now also examining the experience of persons having other types of perceptual cognitive impairments after acquired brain damage (Erikson, Karlsson, Söderström, & Tham, 2004; Lampinen, & Tham, 2003).

Each of these four researchers has engaged in widely different programs of occupational therapy research. They used different methods on very different populations and sample sizes. Nonetheless, the work of each of these investigators stands as an example of why research is important to the field overall. That is, their research has provided:

- Knowledge and know-how that guides therapists in their everyday work, and
- Evidence that assures others about the impact of occupational therapy services.

The Profession's Research Obligation

Every health profession asks its clients and the public to have a level of confidence in the worth of its services. To justify that confidence, the profession must enable its members to offer high-quality services which will benefit the client. Thus, when healthcare professionals provide service to clients, the knowledge and skills they use should be "justified in terms of a systematic and shared body of professional knowledge" (Polgar & Thomas, 2000, p. 3). This knowledge includes the theory that informs practice and the tools and procedures that are used in practice. Research is the means by which the profession generates evidence to test and validate its theories and to examine and demonstrate the utility of its practice tools and procedures. Therefore, every profession has an ongoing obligation to undertake systematic and sustained research (Portney & Watkins, 2000).

The Necessity of Research for Professional Recognition and Support

The existence of occupational therapy depends on societal support. This support ranges from subsidizing educational programs that prepare occupational therapists to reimbursing occupational therapists for their services. Societal support for healthcare professions cannot be assumed. For instance, those who make public policy and decide what healthcare services are needed increasingly rely on scientific evidence to decide where limited public and private resources should be directed. As a result, research is increasingly necessary to ensure that resources will be available to support the profession. Along these lines Christiansen (1983) notes:

> *It seems clear that as administrators and policymakers render decision about how health care providers are used and reimbursed, those disciplines with objective evidence of their effectiveness and efficiency will have a competitive advantage. (p.197)*

He concludes, quite correctly, that research is an economic imperative for the profession:

> *Without the development of a research base to refine and provide evidence about the value of its practice, occupational therapy simply will not survive, much less thrive, as a health profession (Christiansen, 1983)*

"The goal of research in an applied discipline such as occupational therapy is to enhance and refine the knowledge base relevant to practice so that consumers receive the best available treatment." (Ottenbacher, 1987, p. 4)
"It is incumbent upon a developing profession to insure that its steadily growing body of knowledge be verified through research…" (West, 1981, p. 9)

Evidence-Based Practice

The obligation of the profession to conduct research that refines and validates its knowledge base is paralleled by an obligation of individual therapists to engage in evidence-based practice (Taylor, 2000). Accordingly, whenever possible, practitioners should select intervention strategies and tools that have been empirically demonstrated to be effective (Eakin, 1997). Evidence-based practitioners integrate their own expertise with the best available research evidence. The next section briefly examines some of the ways that research provides evidence for practice.

How Research Supports Practice

Research supports practice in many different ways including:

- Generating foundational knowledge used by therapists,
- Providing evidence about the need for occupational therapy services,
- Developing and testing theory that underlies practice, and
- Generating findings about the process and outcomes of therapy.

In the section below we examine each of these ways that research generates knowledge to support and advance practice

Generating Foundational Knowledge

Much of the background information that occupational therapists use on a daily basis would not exist without research. Often, a long history of investigation is behind what has become taken-for-

granted knowledge. Knowledge of musculoskeletal anatomy, neuronal transmission, the milestones the characterize child development, the nature of personality, and the etiology and prognosis of diseases have resulted from thousands of studies.

Over decades, investigators examined these phenomena, providing accounts that were subsequently verified or corrected by others. In time, this knowledge was accumulated and refined until it became part of the repository of knowledge that informs occupational therapy practice. This knowledge is ordinarily generated by persons who are not occupational therapists, but their research is, nonetheless, important to occupational therapy practice.

Providing Evidence of the Need for Occupational Therapy Services

Without clear identification of need, one can neither decide what services to provide nor accurately evaluate the value of any service. Needs assessment research determines what clients require to achieve some basic standard of health or to improve their situation (Witkin & Altschuld, 1995). It focuses on identifying gaps between clients' desires and their situations (Altschuld & Witkin, 2000).

Needs assessment is particularly important in identifying the nature and consequences of new types of disabilities or new circumstances affecting persons with disabilities, and in identifying problems not previously recognized or understood. For example, studies recently indicated that human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) increasingly affects individuals from disadvantaged minority populations, and individuals with histories of mental illness, substance abuse, poverty, limited education, and limited work experience (Centers for Disease Control and Prevention [CDC], 2000; Karon, Felming, Steketee, & De Cock, 2001; Kates, Sorian, Crowley, & Summers, 2002). Research has also shown that while newer drug therapies have lowered AIDS mortality, the chronic disabling aspects of the disease and numerous associated conditions continue to pose challenges for those affected (CDC, 2000). Many people with HIV/AIDS struggle to overcome personal, financial, and social challenges that impact their desire to live independently and return to the workforce (McReynolds & Garske, 2001). Moreover, despite these general characteristics of the AIDS population, a needs assessment study also demonstrated that individuals' perceptions of needs differed by race, ethnicity, and gender (Sankar & Luborsky, 2003).

Together these studies indicated that persons with HIV/AIDS would potentially benefit from an individualized intervention designed to help them achieve independent living and employment as they envisioned it. These studies provided a foundation on which to propose a study of such an occupational therapy intervention which is in process as the book goes to press (Paul-Ward, Braveman, Kielhofner, & Levin, 2005).

Developing and Testing Occupational Therapy Theory that Explains Practice

Every profession makes use of theories that underlie and explain its practice. By definition, the explanations offered by a theory are always tentative. By testing these explanations, research allows theory to be corrected and refined so that it provides increasingly useful explanations for practice. As will be discussed in the next chapter, ideas about how research refines and tests theory have evolved over the centuries, but research remains the primary tool by which a theory can be improved.

In professions, theories are ordinarily organized into frameworks or models that are used to guide practice. These theories explain problems that therapists address and to justify approaches to solving them that are used in therapy. Consequently, the testing and refinement of such theories through research contributes to advancing practice. Therapists should always judge and place their confidence in the explanations provided by any theory in relation to the extent to which that theory has been tested and developed by research.

A wide range of research can be used to test and develop theory. No single study can ever test all aspects of a theory. The following kinds of studies are ordinarily used to examine and develop theory:

- Studies that aim to verify the accuracy of the concepts. These types of studies ask whether there is evidence to support the way the concept describes and/or explains some phenomena.
- Studies that ask whether there are relationships between phenomena as specified by the theory.
- Studies that compare different groups of participants on concepts that the theory offers to explain the differences between those groups.
- Studies that examine the potential of the theory to predict what will happen.

Over time, as the evidence accumulates across such studies, informed judgments can be made about the accuracy and completeness of a theory. Findings from such research ordinarily lead to alterations in the theory that allow it to offer more

accurate explanations. Since the theories used in occupational therapy typically seek to explain problems that therapists encounter in practice and to explain how therapists go about solving those problems, these types of studies directly inform practice.

The following is an example of research that tests theory with implications for practice. Occupational therapy practice with persons who have central nervous system damage has been guided by a theory of how people control movement, the motor control model. Toward the end of the 20th century, this model, which previously saw the control of movement as being directed exclusively by the brain, began to change. A new conceptualization (Mathiowetz & Bass-Haugen, 1994, 2002) argued that movement is a result of the interaction of the human nervous system, the musculoskeletal system, and the environment. This theory emphasized the importance of the task being done and of the environment (e.g., the objects used) in influencing how a person moves. The implication of this theory was that the tasks chosen and the objects used in therapy would have an impact on recovery of coordinated movement. Occupational therapists conducted research that illustrated clearly that the nature of the task being done and the environment do affect the quality of movement (Lin, Wu, & Trombly, 1998; Mathiowetz & Bass- Haugen, 1994; Wu, Trombly, & Lin, 1994). These and other studies (Ma and Trombly, 2002; Trombly & Ma, 2002) now provide evidence that tasks involving meaningful objects and goal-oriented activities positively influence performance and motor learning.

Providing Evidence About the Nature and Outcomes of Therapy

Many types of studies examine aspects of occupational therapy practice and its outcomes. The most typical of these studies are those that:

- Are undertaken to develop and test assessments that are used in practice,
- Examine the clinical reasoning of therapists when they are making decisions about therapy,
- Determine the kinds of outcomes that result from therapy,
- Examine the process of therapy, asking what goes on in therapy, or
- Use participatory methods to investigate and improve services in a specific context.

Below we examine each of these kinds of studies in more detail.

Studies that Test Assessments Used in Therapy

A number of interrelated forms of inquiry are used to develop and test assessments used in the field; the aim of such research is to ensure the dependability of those methods (Benson & Schell, 1997). Dependable assessments are reliable—that is, they yield consistent information in different circumstances, at different times, with different clients, and when different therapists administer them. A dependable information-gathering method must also be valid—that is, it must provide the information it is intended to provide. Typical of studies examining whether an assessment is valid are those that:

- Ask experts whether the content of an assessment is coherent and representative of what is intended to be gathered (i.e., content validity).
- Analyze the items that make up an assessment to determine whether they coalesce to capture the trait they aim to measure.
- Ask whether the assessment correlates with measures of concepts that are expected to concur and whether it diverges from those with which no relationship is expected.
- Determine whether they can differentiate between different groups of people.

In addition to studies that examine reliability and validity of assessments, there are studies that examine the clinical utility of assessments. Such studies may ask therapists and/or clients whether they find the assessments informative and useful for identifying problems and making decisions about theory. The development of any assessment ordinarily involves a series of studies that contribute to the ongoing improvement of the assessment over time.

Studies of Clinical Reasoning

Occupational therapists work with clients to identify their clients' problems and choose a course of action to do something about them. This process is referred to as clinical reasoning (Rogers, 1983; Schon, 1983). An important area of research in occupational therapy has been investigations that examine clinical reasoning.

One of the most influential studies of clinical reasoning by Mattingly and Flemming (1994) identified different types of reasoning that characterized occupational therapy practice. Their research has served as a framework for understanding how occupational therapists make sense

of and take action with reference to their clients' problems and challenges in therapy.

Outcomes Research

Outcomes research is concerned with the results of occupational therapy. Investigations that examine the outcomes of occupational therapy services include:

- Investigations of a specific intervention strategy or technique,
- Studies of comprehensive occupational therapy programs, and
- Inquiries that examine the contribution of occupational therapy to an interdisciplinary program of services (Kielhofner, Hammel, Helfrich, Finlayson, & Taylor, 2004).

The study of occupational therapy techniques and approaches helps refine understanding of these discrete elements of practice. This type of research examines outcomes specific to an intended intervention. Such studies may also seek to determine the relative impact of different techniques or approaches (e.g., comparisons between individual versus group interventions).

Studies of comprehensive occupational therapy programs ask whether an entire package of services produces a desired outcome. Such studies typically examine the impact of services on such outcomes as independent living, employment, or enhanced school performance. A well-known example of this type of research is a study by Clark et al. (1997), which documented the positive outcomes of an occupational therapy program for well elderly persons. Finally, studies that examine the impact of interdisciplinary services can also document the impact of the occupational therapy component of such services.

Inquiry Into the Processes of Therapy

It is important not only to understand whether interventions work, but also to know why they work or do not work. Studies that examine the impact of interventions increasingly focus on identifying the underlying mechanism of change (Gitlin et al., 2000). Often an important prelude to designing intervention outcome studies is to examine what goes in therapy in order to improve upon services before they are more formally tested.

An example is a study by Helfrich and Kielhofner (1994) that examined how client occupational narratives influenced the meaning clients assigned to occupational therapy. This study showed how the meanings of therapy intended by therapists were often not received by or in concert with the client's meaning. The study findings underscored the importance of therapists having knowledge of the client's narrative and organizing therapy as a series of events that enter into that narrative. Such studies of the process of therapy provide important information about how therapy can be improved to better meet client needs.

Participatory Research

A new and rapidly growing approach to investigation is participatory research. This approach involves researchers, therapists, and clients doing research together to develop and test occupational therapy services. Participatory research embraces the idea of partnership in which all the constituents work together and share power and responsibility to investigate, improve, and determine the outcomes of service. It also involves innovation in which new services are created to respond to problems that are mutually identified by researchers and therapists/clients.

This type of research is especially useful for contributing knowledge that practitioners can readily use and that consumers will find relevant to their needs. A recent example of this kind of study involved developing and evaluating a consumer-driven program for individuals with chronic fatigue syndrome. This program provided clients with an opportunity to learn self-advocacy skills; improve quality of life, functional capacity, and coping skills; acquire resources; and achieve increased quality of life (Taylor, 2004).

Conclusion

This chapter introduced the necessity of research for occupational therapy. We saw that research gives clients and the public reason to have confidence in occupational therapy. We also saw that it provides the rationale for administrators and policymakers to support the occupational therapy services.

The chapter also examined how research creates the knowledge and know-how that therapists use in practice by testing theory and practice. Figure 1.5 summarizes the dynamic relationship between theory, research, and practice. As it illustrates, each of these key elements of the profession has an influence on the other. Theory and research evidence guides practice. Practice raises problems