LEARNING TO COMBINE PRACTICE AND RESEARCH: AN EMERGING ROLE IN OCCUPATIONAL THERAPY

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(ABSTRACT)

Clinical research has been identified with key occupational therapy issues such as professionalization and establishing the efficacy of practice within the competitive health care marketplace. The natural clinical practice setting provides the optimum environment for conducting research pertaining to practice, and a small but growing number of practitioners have managed to integrate research and practice in such an environment. While there has been a significant amount of literature advocating research involvement for practitioners primarily involved in clinical practice, no formal studies existed of the complex factors affecting a therapist's ability to integrate research with practice.

This exploratory, descriptive study investigated an emerging role in occupational therapy: therapists who combine practitioner and researcher roles in their daily work with patients in clinical settings. Four major research questions were posed: (a) How does an occupational therapy practitioner adopt the practitioner/researcher role? (b) What activities constitute research in clinical settings? (c) How does the clinical environment affect research activities? and

(d) What educational experiences do practitioner/researchers describe as important for accomplishing research in clinical settings? Goals were to develop an understanding of the emerging role by identifying personal, environmental, and educational factors, and determining their importance for current practitioners while obtaining recommendations for others.

A custom-designed questionnaire was sent to the practitioner/researcher population (N = 116); the response rate was 89% (103). Quantitative analyses included measures of central tendency and variability. The Number Cruncher Statistical System computer program assisted with quantitative analyses and the Ethnograph computer program assisted written questionnaire analyses. Demographic information was collected to enhance data interpretation.

Major findings include: (a) learning circumstances focusing on performance and application of clinical research were important for adopting a dual practice/research role; (b) research activities reflected the evolving character of the role; (c) support from facility administration and a personal commitment to research were critical for success; (d) formal courses were important for current research, but so were informal discussions regarding application and problem solving. A lack of opportunities for continuing education in research was reported. Implications for university curricula, continuing education, and clinical environments are discussed. Recommendations for future research are presented.

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INTRODUCTION

In the increasingly competitive health care marketplace, evidence that one's practice is effective is not only valued--it has become essential. Discussion of issues such as the validation of treatment techniques, or the theory upon which occupational therapy practice is based, are no longer limited to academic circles. For example, these issues have most recently become of concern in the arena of health care economics (Christiansen, 1983; McGourty, 1986; Rausch & Melvin, 1986).

Occupational therapy experts and scholars have sent a clear message: there is an urgent need for clinically-based research that supports the practice of occupational therapy (Christiansen, 1983; Baum, 1987; Llorens & Gillette, 1985). The validation of occupational therapy through research is considered necessary for the field's continued growth and development. Occupational therapists differ in terms of their levels of formal education, practice settings, primary work responsibilities, and extent to which research is a workplace expectation or requirement. Currently, there is a great need for occupational therapy research that addresses the problems of clinical practice--that is, the problems that clinical practitioners face in their work with patients.

Background of the Study

Modern health care for rehabilitation offers a variety of specialized therapeutic services to supplement the services provided by physicians. Examples of medical rehabilitation practitioners include nurses, social workers, vocational counselors, psychologists, rehabilitation engineers, physical therapists, speech therapists, and occupational therapists (Fuhrer, 1983). This study concerns occupational therapy, which approaches patient rehabilitation by focusing on the concept of "occupation," the component of human behavior that concerns goal-directed, intrinsically gratifying, and culturally appropriate activity (Evans, 1987, p. 627).

Within the occupational therapy literature, the need for clinical research may be viewed as part of a larger issue concerning occupational therapy practice: What makes occupation a unique form of therapy? The question of uniqueness, and consequently the need for clinical research, is typically addressed by means of two major literature themes: (a) the process of professionalization in occupational therapy, and (b) occupational therapy as part of the larger health care environment.

Related to the professionalization process are three areas where clinical research has a profound effect. First, clinical research can help clarify and define the knowledge that is specific to the practice of occupational therapy. Second, clinical research is an important part of establishing the theory upon which

practice is based; and, third, professionalization includes educating practitioners who are not only competent providers of therapy, but are also capable of consuming, contributing to, or producing clinical research.

In the late 20th century health care environment, the activities of practitioners are increasingly being influenced by external parties who were once on the periphery of practice. For example, the health insurance companies that pay for rehabilitative services want to be assured that they are paying for a therapy that "works." Clinical research on a particular therapeutic intervention or strategy is but one way to demonstrate that occupational therapy works for a patient's individual, health-related problem. For this study, the term "clinical research" is central to understanding the joint practitioner/researcher role.

The Nature of Clinical Research

In occupational therapy, clinical research centers on the problems of practice. Described by Royeen (1988), clinical research addresses questions affecting the theory and practice of occupational therapy, most often focusing on subjects who "deviate from normal" (p. 6). Other authors (Ottenbacher, 1986a, Ottenbacher & York, 1984; Royeen & Seaver, 1986; Ottenbacher, 1986b; Hacker, 1980; Barlow, Hayes, & Nelson, 1984; Goldfried, 1984) acknowledged the importance of clinical research in the daily practice of a service to patients or clients. These same authors, however, also pointed to the difficulties of applying

traditional research methodologies to clinical populations.

Clinical research has been characterized as pragmatic because it reflects the diverse problems encountered by practitioners in the natural setting of the treatment environment (Ottenbacher, 1986a). Practitioners have been said to have the best opportunities for generating clinical research because they have "first-hand" experiences with the problems and situations of occupational therapy practice (Dunn, 1985)

Evolution of Clinical Research

Occupational therapy was formally organized in 1917. Early in occupational therapy's history, practitioners were urged--by leaders within and outside of the field--to document their work with patients. William Rush Dunton, often referred to as the "founder" of occupational therapy, called for a "spirit of research" as early as 1928 (p. 347). Dunton (1928) recommended that a scientific basis of knowledge and practice be established for occupational therapy.

Practitioners were advised to keep permanent records that described their occupational therapy practice as well as the techniques they used for treatment (AOTA, 1923). Therapist-created records, containing documentation of "occupation" as treatment, have been referred to as early forms of research (Dunton, 1928, 1934; Noble,1937).

The literature contains few references to clinical research until the 1960's and '70's, when there was a noticeable increase of articles and opinion pieces. Most literature in that period pointed to a serious lack of both basic and applied research for occupational therapy. Leaders in the field predicted that the growth needed by occupational therapy to achieve professional status would be stunted if research remained a peripheral or neglected activity (Reilly, 1960; West, 1976; Yerxa & Gilfoyle, 1976).

Efforts to engage practitioners in clinical research greatly increased in the 1980's. Research became a topic that dominated a great deal of the occupational therapy literature. Factors such as health care cost containment, accountability, and treatment efficacy gave clinical research an economic as well as academic catalyst (Christiansen, 1983; Baum, 1987; Yerxa, 1984). Health care specialties with strong research and theoretical foundations were projected to be the "survivors" in an increasingly competitive health care arena (Fuhrer, 1983).

The Professionalization Process

Clinical research is thought to be a critical part of the ongoing process of professionalization. Whether or not occupational therapy is a "full-fledged" profession continues to be a controversial issue in the occupational therapy community. Grady (1987) maintained that the more important issue is not whether occupational therapy can be classified a profession in the sociological

sense, but rather where occupational therapy is situated along the professional continuum. Rogers (1982) summarized the overall importance of research in the professionalization process: "Research in occupational therapy has been seen as a vehicle for improving the interventions, developing the scientific basis of practice, and establishing occupational therapy as a profession" (p. 3).

In a discussion of the history of occupational therapy, Kielhofner and Burke (1977) utilize Kuhn's (1962) characterization of paradigm and scientific revolution to describe occupational therapy's position in the pursuit of professionalization. They contended that occupational therapy has undergone a transition from a paradigm based on humanistic and holistic principles to a paradigm that embraces scientific principles and reductionistic technology. This gradual transition reflects the broader trends in health care and is said to have placed occupational therapy in a current state of "crisis" (Shannon, 1977; Christiansen, 1981). Therapists have been said to have "strayed" from their original roots of "occupation" as a unifying theory of practice (Parham, 1986, 1987; Llorens, 1984; Evans, 1987; Kielhofner & Burke, 1977).

Several authors have stated that a lack of a unifying theory suggests that occupational therapy will have difficulty laying claims on the specialized use of occupation as a form of therapeutic treatment (Grady, 1987; Christiansen, 1986b). Clinical research has been said to contribute to the establishment of a unifying theory by verifying the approaches to practice used by occupational therapists

(Fuhrer, 1983; Ottenbacher, 1990). A practice based on principles of theory, which are proven to be clinically sound, will have a significant impact on professionalization (Ottenbacher, 1985), as theory tends to emerges from practice (Argyris & Schön, 1974). Specialized knowledge that is empirically based and grounded in theory is characteristic of a profession (Schön, 1983; Schein, 1972; Dingwall & Lewis, 1983).

Related to the need to verify the knowledge that is specific to the practice of occupational therapy are discussions pertaining to the need for occupational therapy to gain the status of an academic discipline. According to Yerxa (1987), an academic discipline is "a particular field of scholarship that contributes to the knowledge universe of the entire university and also gains knowledge from other academic disciplines within that universe" (p. 415). Gilfoyle and Christiansen (1987) stated that "mechanisms to encourage research for the development of occupational therapy as an academic discipline should have highest priority" (p. 7).

Those who advocate upgrading occupational therapy to an academic discipline make a compelling argument, based on the recent cost-containing measures that have swept academia. Between the years of 1971-1987, for example, fifteen major research universities and liberal arts colleges closed their occupational therapy departments (Yerxa, 1987). Yerxa contended that such decisions can be made solely on the basis of conceptual or scholarly grounds.

A graduate education is generally agreed to be the basic education needed for clinical research in occupational therapy. The first Master's level graduate program was established in 1947 at the University of Southern California (American Occupational Therapy Association, 1989). According to the current guide for graduate education published by the American Occupational Therapy Association, graduate students learn to develop the "knowledge, skills, and attitudes that pertain to scholarly endeavors" (American Occupational Therapy Association, p. II.46). Graduate students are prepared for "specialized roles" that include research.

Various authors have suggested that the approach to teaching research in graduate programs should be one that points out the similarities between occupational therapy practice and research (Rogers, 1982; Llorens & Gillette, 1985; Mitcham, 1986). These authors have suggested that there are many similarities between the research and practice process. For example, occupational therapy practice usually begins with an evaluation that serves as the basis for problem identification. Questions regarding the problem are then formulated. A treatment plan or "method" for addressing the problem is identified, treatment data is collected and analyzed, and recommendations for either continuing or terminating are made. Mitcham (1986) suggested that, if educated about the similarities between the research and practice process, students will be better able to integrate both activities once they leave the classroom.

The Health Care Environment

The competition for health care dollars grew dramatically during the 1980's. Cost-containment efforts placed the activities of health care practitioners under close scrutiny. Health care efficacy was a recurring concern, as third-party insurance companies sought documentation that the services they were paying for were "proven" to be effective (Rausch & Melvin, 1986; McGourty, 1986; West, 1990).

Christiansen (1983) anticipated competition for the health care dollar. He suggested that research efforts be drastically increased, because research would grant a "competitive edge" to occupational therapists. Christiansen and others (Baum, 1980, 1987; Fisher, Kielhofner & Davis, 1989) have asserted that unless therapists have positive attitudes toward research, they will not be able to meet the demands of a changing health care marketplace. Ottenbacher, Barris, and Van Deusen (1986) stated that the relationship between clinical research and the knowledge base of occupational therapy has a direct bearing on the quality and effectiveness of the care that patients receive.

In applied, treatment-oriented health care practice, practitioners must often learn to overcome conditions that are not supportive of research activities. Ottenbacher et al. (1986) characterized health care environments as settings where research activities are secondary to the practice activities that comprise patient care. Nonetheless, and despite environmental obstacles, some

occupational therapists have learned to incorporate clinical research activities into their practice environments.

Baum, Boyle, and Edwards (1984) acknowledged the difficulties that therapists face when they attempt to integrate research activities in the clinical setting. They described the major difficulty as stemming from the fact that therapists often have a full "caseload" of patients in addition to any research activities. One solution they offer for facilitating clinical research focuses on a management intervention: therapists must be granted sufficient time for research activities.

Ottenbacher and Hasselkus (1988) described the importance of the therapist's work environment for determining success in clinical research. These authors suggested that the presence of positive supports can greatly influence and facilitate clinical research in occupational therapy practice environments. They note that influences such as positive role models and peer recognition in the work place can help practitioners become more involved in clinical research.

The Occupational Therapy Practitioner/Researcher

The "scientist-practitioner" model has been recommended for occupational therapy graduate education (Polatajko & MacKinnon, 1987; Wood & Madill, 1985; Rogers, 1982; Christiansen, 1986; Ottenbacher et al. (1986). Polatajko and MacKinnon (1987) offered a definition proposed by Barlow et al. (1984) to

describe the scientist-practitioner:

> The scientist-practitioner is a clinician or practitioner who can not only directly assist people with their problems, based on knowledge developed within his or her profession, but also contribute to the collective knowledge, thereby improving practice (p. xi).

The definition of the "scientist-practitioner" proposed by Barlow et al. (1984) describes very well the practitioner/researcher proposed by leaders in occupational therapy. No more specific definition has been offered in the occupational therapy literature. Occupational therapists who are both practitioners and researchers are formally educated for clinical practice. They have responsibilities for patients and direct provision of services. Research activities may comprise a portion of the work functions, but typically they complement rather than predominate over patient responsibilities. Thus, the work activities that constitute clinical practice are combined with activities of clinical research.

Statement of the Problem

Occupational therapy faces some critical challenges. There is a need to document efficacy of practice to secure a position in an increasingly competitive health care marketplace. There is consensus among occupational therapy's leaders that acceptance as an academic discipline is needed for long-term survival

in the university. In addition, occupational therapy continues in the process of professionalization, striving for recognition and status as a full-fledged, autonomous profession.

The shortage of research is considered a major obstacle to improving occupational therapy's position. In particular, clinical research is needed because it can contribute to establishing a unifying theory for the practice of occupational therapy by verifying approaches to practice used by therapists. Although relatively few occupational therapists actually participate in clinical research, a small but growing number of practitioners have begun to incorporate research activities into their daily practice with patients. Very little is known about this emerging group. An increased understanding should help facilitate their role, and in doing so encourage other practitioners to engage in research activities.

While there has been a significant amount of literature advocating research activities and researcher roles for therapists who are primarily involved in clinical practice, the literature does not include any formal studies of the complex factors that affect a therapist's ability to integrate research activities with practice. The explanations in the literature for how practitioners become involved in clinical research are based on opinion, speculation or anecdotal evidence, rather than systematic study. The influences of the work environment have yet to be explored. The specific research activities engaged in by practitioners should be documented. In addition, the influence of education and training on research has

not been studied from the practitioner's perspective.

In short, unless practitioner/researchers are better understood, their contributions to the field will be limited and the field may be denied the increased research it needs to improve its status and position in the health care marketplace. Thus, the problem to be studied is: How do occupational therapists combine practice and research?

Purpose

The purpose of this study was to investigate an emerging role in occupational therapy: therapists who combine practitioner and researcher roles in their daily work with patients in the clinical environment. The aim was to develop an understanding of this emerging role by identifying relevant personal, environmental, and educational factors, and determining their importance for current practitioner/researchers while obtaining recommendations for others. From the findings of this study, recommendations were made to the providers of education and training, to occupational therapy managers and administrators, and to individual practitioners who wish to increase involvement in clinical research.

Research Questions

Four major questions were explored in this study:

1. How does an occupational therapy practitioner adopt the role of practitioner/researcher in the clinical setting?
    a. What circumstances contributed to their interest or involvement in clinical research?
    b. How do they think other therapists could become more interested and involved in research in their work settings?
2. What activities constitute research in clinical settings?
3. How does the clinical environment affect a practitioner's research activities?
    a. What factors facilitate research activities in clinical settings?
    b. In what ways do practice and research activities conflict in the clinical work environment?
    c. In what ways do they complement each other?
4. What educational experiences do practitioner/researchers identify as important for accomplishing research in clinical settings?
    a. What experiences from formal education were useful for current clinical research activities?
    b. What educational experiences are recommended?

c. What workplace learning activities are suggested for advancing the practitioner/researcher role?

Significance

The results of this study should provide critical information for the planning and design of research experiences for occupational therapists who are also clinical practitioners. Educators and trainers should be able to modify curricular materials to better reflect the experiences (and thereby address the needs) of occupational therapists in their work settings.

By examining the clinical practice environment from a research perspective, therapists may become more adept at recognizing and solving the problems that thwart research efforts. Therapists and educators may develop a better understanding of how research activities are successfully implemented. The problems of clinical research in occupational therapy settings may become more visible and therefore be able to be addressed before they thwart research efforts. Resources that advance clinical research may also be better utilized.

Because information regarding the specific activities that comprise clinical research were obtained directly from the practitioners, recommendations for including or integrating learning activities in curricula can be made with greater conviction. Faculty of graduate programs in occupational therapy and providers of continuing education may be able to make research-based curricular decisions

regarding course content and learning experiences.

The results of this study contributed to the overall body of occupational therapy knowledge by developing an understanding of how the emerging role of practitioner/researcher could become more established. There is a greater chance that more practitioners could become involved in clinical research. The ultimate result may be that therapists can make greater strides in documenting the efficacy of practice, thus contributing to the expansion of knowledge and theory critical for improving occupational therapy's position in the health care marketplace. Finally, the study may help to contribute to the overall establishment of occupational therapy as an recognized, autonomous profession.

Definition of Terms

The following terms are defined for this study:

Clinical Environment: The setting for patient treatment, which is comprised of the objects, persons, and events that form a unique system of interaction between practitioners and patients.

Clinical Practice Setting: The work environment where an occupational therapy clinician works. It includes both human and non-human attributes.

Clinical Research: A specialized form of applied research distinguished by particular characteristics, such as subjects who deviate from "normal" in some way, and a focus on questions or phenomena regarding the theory and practice with

subjects who deviate from normal (Royeen, 1988, p. 6).

Clinical Research Activities: The activities associated with clinical research that are directly relevant to practice, including research findings that are applicable to the practice of occupational therapy.

Occupational Therapy: A specialized health care service in which therapists enable persons to maintain and change their function by facilitating their participation in selected occupations. Participation in selected occupation (activities) helps individuals to overcome or adapt to physical, emotional, or developmental disabilities (Kielhofner, 1985). Occupation is defined as the active or "doing" process of a person engaged in goal-directed, intrinsically gratifying, and culturally appropriate activity" (Evans, 1987, p. 627).

Occupational Therapist: A health care specialist who has completed a formal curriculum in occupational therapy, fieldwork placement, and has successfully passed a national certification exam in occupational therapy.

Practitioner: One who practices in the field of occupational therapy. Practitioners are found in a variety of settings such as academia, public or private organizations, or among the clinical settings affiliated with health care. This study focuses on the last category, i.e., occupational therapists who administer or provide direct services to patients, students, or clients in a treatment or rehabilitative setting.

Practitioner/Researcher: An occupational therapist who works directly with patients and has combined the practitioner role with researcher functions. The practitioner/researcher may be a participant or investigator in collaborative or independent research projects.

Assumptions

The primary focus of most clinical environments is occupational therapy practice. Research is an activity that may be successfully performed or integrated, but remains secondary to the practice of occupational therapy and patient treatment.

Delimitations

The study was exploratory in nature. The research questions were designed to identify and describe the factors that are relevant to the emerging role of the occupational therapist practitioner/researcher. Therefore, research questions were used to verify the existence of--rather than explain--relationships or influences on particular variables.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Searches of the Nursing and Allied Health Data Base, the ERIC Index, Medline, the Psychological Abstracts, Sociological Abstracts, Dissertation Abstracts, and the OT Source (an occupational therapy data base) identified an abundance of literature relevant to the practitioner/researcher role. Although much literature was relevant, very little was specific for the role in occupational therapy. Most relevant literature was theoretical, and with the exception of a scant handful of studies, the literature was devoid of systematic studies pertaining to the role of interest in this study.

In a broad sense, the literature related to the practitioner/researcher role falls under two major themes: the process of professionalization and the role of occupational therapy within the larger health care environment. In Chapter One, these two major themes were considered as part of the greater practice issue concerning "occupation" as a unique form of therapy. Chapter Two reviews the related literature, with the objectives of (a) presenting a conceptual framework from which to view the practitioner/researcher role and (b) further establishing the need for an exploratory study because of the lack of systematic data.

The chapter begins, however, with a discussion of the scientist-practitioner model used in clinical psychology. The scientist-practitioner model is useful for gaining a broad understanding of both the advantages and disadvantages of performing research in a clinically-based practice profession. As an established model used in the education and training of clinical psychologists, the scientist-practitioner concept has been the subject of considerable analysis and debate (Marwit, 1983; Perry, 1979; McNett, 1982; Stricker, 1975; Caddy, 1981; Barlow, et al. 1984; Stern, 1984; Goldfried, 1984; Hoch, Ross, & Winder, 1966). Additionally, there are several historic parallels between the earlier establishment of the scientist-practitioner model in clinical psychology and the current discussions regarding a dual practice-research role in occupational therapy.

The Concept of Practitioner/Researcher

The literature lacks a formal definition of the dual practitioner/researcher role for occupational therapy. A proposal by Polatajko & MacKinnon (1987) for the establishment of an occupational therapy graduate curriculum based on the "scientist/practitioner model" is most closely related to the practitioner/researcher role addressed in this study. Their proposal was addressed to "therapists who are in clinical practice and wish to remain there, but wish to acquire further research skills in order to participate more effectively in the development and assessment of clinical methods" (p. 122).

Despite the absence of a formal definition, a conceptual understanding of the dual practitioner/researcher role may be gained through examination of the "scientist-practitioner model" that has been advanced by clinical psychology for over forty years. Although there have been various accounts of the scientist-practitioner model for clinically-based practice professions such as nursing (McGuire, Foley, Gow, & Richards, 1983) or social work (Reid, 1979; Bloom & Block, (1977), the model's use in clinical psychology is the most well established.

The Scientist-Practitioner Model

Development of the model in the late 1940's stemmed from a prevailing attitude among the leaders in clinical psychology (Barlow, et al. 1984). At that time, clinical psychology's leaders felt that psychotherapy was an unclear procedure and that the work of clinical psychologists was difficult to define, replicate, or verify (Raimy, 1950). Thus, a new model for the education and training of clinical psychologists was proposed and implemented.

The new model for the education and training of clinical psychologists was considered unique. The uniqueness of the educational model centered on the emphasis on the integration of science and practice for application in clinical environments (Goldfried, 1984). The primary purpose was to produce clinical practitioners who were capable of generating and utilizing scientific findings in their practice (Raimy, 1950).

Advocates of the scientist-practitioner model believed that practitioners could become more accountable for the results of their interventions with clients or patients (Barlow, et al. 1984). The model's advocates maintained that, at the very least, an emphasis on the scientific as well as clinical aspects of psychology would encourage practitioners to be active consumers of current research as it related to practice (Barlow, et al. 1984; Stern, 1984). Additionally, the model's advocates believed that students who received a dual research-practice education could utilize as well as generate clinical research studies once they became practitioners (Raimy, 1950; Goldfried, 1984).

Issues Concerning Use of the Model

While the scientist-practitioner model continues to be the established model for the education and training of clinical psychologists, it has been found to be more difficult to implement in practice than was originally anticipated. Substantial issues regarding the model have surfaced over the past forty years (Barlow, et al. 1984; Stern, 1984; Biba ce & Walsh, 1983; Meltzoff, 1984; Goldfried, 1984). These issues have included the applicability of traditional quantitative research methods, the overall "interest" expressed by clinical practitioners in conducting research, and the practicality of performing research in clinical work settings.

Research methodologies. A central issue pertained to the use of traditional research methodologies: practitioners found that the research methods they learned as students were not easily applied in clinical settings (Caddy, 1981; Hoch, et al. 1966; McNett, 1982). Bibace & Walsh (1983), and Barlow, et al. (1984) suggested that the use of traditional research methodologies results from a formal education and training that is strongly oriented towards quantitative methodologies. These authors also suggested that many of the quantitative methodologies that most students had been taught were more appropriate for use in laboratories with animals than for use with humans. Additionally, Meltzoff (1984) noted that when practitioners were polled, they tended to have the opinion that most research they were exposed to as students was not relevant to their "real-life" practice.

Personalities of "people-oriented" professionals. A second issue relates to the "type" of student who is typically interested in joining a people-oriented profession. Meltzoff (1984) maintained that clinical psychology tended to attract students who were more inclined to be interested in the applied, treatment-oriented aspects of practice rather than the research aspects. Other authors (Barlow, et al. 1984; Strupp & Bergin, 1969; Wilson, 1981) presented perspectives that were similar to Meltzoff's (1984) regarding the personalities of the "typical" clinical psychology student and lack of interest in performing a dual scientist-practice role. Goldfried (1984) also pointed out that there have been relatively

few role models from which students could learn the "workings" of establishing a scientist-practitioner role in clinical settings.

Clinical settings. A third issue found in discussions of the scientist-practitioner model pertains to the type of environments in which clinical psychologists work. Various authors have pointed to the fact that research is secondary to the patient-centered activities that are typical of many clinical environments, and that factors such as time and resources tended to be obstacles to performing research in practitioners' work settings. (Goldfried, 1984; Barlow, et al. 1984; Peterson, 1976; Stern, 1984; Strupp & Bergin, 1969; Meltzoff, 1984).

Relevance to Occupational Therapy

There are, of course, well-defined differences between occupational therapy and clinical psychology. The most obvious difference is the formal education of psychologists and occupational therapists: the entry-level degree for practicing psychology is a doctorate, while an occupational therapists may enter clinical practice with a bachelor's degree. The impetus for promoting a dual research-practice role, however, is the same for occupational therapy today as it was for clinical psychology some forty years ago: to establish empirical support for a clinical practice largely based on "intuition" and "experience" (Polatajko & MacKinnon, 1987).

Although a handful of early occupational therapy authors (Dunton, 1934;

Duvall, 1952; Goodrich, 1954; Jantzen, 1958; Reilly, 1960) discussed clinical research in terms of its significance for the field's future, their discussions lacked the urgency-of-need found in more contemporary literature. Contemporary proponents of researcher roles for occupational therapy practitioners have already addressed similar issues to those identified in clinical psychology (Royeen, 1986; Rogers, 1982; Gilfoyle, 1987; Christiansen, 1986; Ottenbacher, 1985; Grady, 1987; Yerxa, 1987; Llorens & Gillette, 1985).

Research methodologies. Although the occupational therapy research community has acknowledged the need to promote research designs that are more appropriate for the study of clinical problems (Merrill, 1985; Kielhofner, 1982a, 1982b; Schmid, 1981), most published occupational therapy research continues to favor quantitative methodologies and designs. Ottenbacher (1985) discussed the tendency for researchers--including occupational therapy investigators--to favor particular research designs and statistics without consideration of the problem under study.

Ottenbacher & Hasselkus (1988) made the observation that students who were taught to concentrate on "statistical significance" rather than "clinical significance" tended to lose their enthusiasm for research once they experienced practice in clinical settings. In addition, Ottenbacher (1985) suggested that clinical practitioners are faced with numerous difficulties when they try to follow the experimental designs that are often portrayed as the "models" for conducting

research in many educational settings.

The research methodology issue has continued as a focal point among scholars in the field. Recently, Carlson & Clark (1991) presented a discussion of two methodological traditions often used in performing social science research: a positivistic or quantitative orientation; and naturalistic inquiry or qualitative form research. Instead of presenting the two methodologies as "rivals," they discussed the best features of both and suggested ways in which they could be used to advance the ultimate goal of establishing a sound, scientific basis for practice.

Personalities of occupational therapists. Like clinical psychology, occupational therapy's main emphasis is on the clinical or practice aspects of therapeutic treatments and interventions. Madigan (1985) noted that occupational therapy tends to attract students who have a strong desire to provide practice-based clinical services to others. She studied the characteristics of students enrolled in technical-level (two-year associate degree) and professional-level (bachelor's degree) occupational therapy programs. She found that among the students' work values, the characteristic of "altruism," i.e., wanting to work with people and be helpful to them, was higher than any other work-related value.

Clinical settings. Taylor & Mitchell (1990) randomly surveyed 270 occupational therapists who on the 1986 AOTA Member Survey identified their primary or secondary role as "direct patient service." They found that the practitioners had a low level of involvement in research activities such as data

collection, reading research articles, and generating research ideas. Of particular interest, however, was their finding that practitioners had a positive attitude towards research. Taylor and Mitchell also found that even though practitioners regarded research as a priority, factors such as limited time, financial constraints, research skill, and a lack of support from management interfered with the ability to participate in clinical research activities. Of further interest was an affirmation made by Taylor and Mitchell: research is an attitude that can be "cultivated" in practice.

Fisher's (1986) study found similar research perspectives among practitioners. She studied the research values of two groups of randomly-selected occupational therapists--clinicians and "experts" (as identified in the literature)--and found "strikingly little" difference in their research values. Both groups of subjects felt that research was essential for continued growth of occupational therapy. Fisher concluded that the increase in the number of publications pointing to the need and importance of clinical research was not limited to "a few experts making a lot of noise" (p. 28).

Clinical Research and the Professionalization Process

Whether or not occupational therapy will grow into a full "profession" or an "academic discipline," scholars agree that clinical research is essential for continued growth (Rogers, 1982; Christiansen, 1986a; Yerxa, 1987; Grady, 1987;

Ottenbacher, 1986). Parham (1987) pointed to the greater implications of the continued lack of true professional status. She suggested that occupational therapy advocates would have difficulty convincing state legislators of the need to have licensed practitioners, and that third-party insurance providers consider occupational therapy practitioners to be dependent on the judgment of more established professionals such as physicians. One topic that parallels discussions pertaining to professionalism, and that has direct relevance to clinical research, is the need to establish a foundation of knowledge that is specific to the practice of occupational therapy. The literature reviewed next contains a discussion of professionalism and the related issue of professional knowledge in occupational therapy.

Professionalism

Freidson (1983) told of the special place reserved in history for the three occupational groups referred to as "professions" in English--the medieval universities of Europe, where the three learned professions of medicine, law, and the clergy were generated. Rueschemeyer (1983) suggested that these three have remained the "status" professions, and contended that they still hold a separate distinction from the contemporary "occupational professions" that have gained popularity in recent years. Contemporary professions were analyzed by Glazer (1974), who conducted an analysis of the professional groups that have emerged in

Western societies since the beginning of the twentieth century. Glazer referred to these newer groups as the "minor professions", and further described them as "occupations which touch on serious things--health and illness, happiness and misery, enlightenment and ignorance" (p. 346). A central idea in Glazer's analysis was that newer occupations have had difficulty securing an established place within the university. He gave two reasons for this difficulty. The first concerned the overall lack of "sanctioned" knowledge that allowed the newer professions to be differentiated from one another. The second difficulty pertained to fluctuations seen within the university, which reflected the overall changes occurring in society. Among the fluctuations he reported were the university's opinions of what comprised appropriate knowledge to be imparted in its colleges and "professional" curricula.

According to Moore (1970), "professionals" comprised the fastest growing occupational category in developed economies. A finding by Houle (1980) confirmed Moore's assertion. Houle provided an approximation of the rise in the number of professionals in the work force based on U.S. census data between 1910 and 1976. Houle reported that although the work force increased by 137% between the years 1910 and 1976, the occupational category of "professional" increased by 660% during that same time.

The status and privileges enjoyed by the established professions of law, medicine, and the clergy have been subjected to in-depth sociological analyses

(Hoffman, 1989; Bucher & Strauss, 1960; Dingwall & Lewis, 1983; Moore, 1974; Gross, 1984). Engel & Hall (1973) emphasized the importance of such analyses because of the elevated position of "power" that society has granted to these professions. Engel & Hall also addressed the subsequent issue of society's dependence upon the services provided by the professions.

Moore (1974) looked at the sociological criteria of professionalism and noted a number of variations among the "scholarly" definitions. Moore did find one commonality, however: most definitions included the criteria of autonomy. Moore concluded that professional autonomy was the "ultimate value for self-identified members of an occupational category" (p. 16). Freidson (1983) pointed out that the direction towards which an occupation is progressing may add clarity to the definition problems that have been experienced by sociologists.

Freidson (1983) described how the colloquial use of the term "profession" has tended to cause confusion and misinterpretation. According to Freidson, this confusion stems from two distinct concepts of the term "profession." The first concept is that a profession implies a "broad stratum of ... occupations whose members all have had some kind of higher education ... and are thus identified more by their status than by their occupational skills" (p. 23). The second concept is that a profession constitutes a limited number of occupations which have "particular institutional and ideological traits more or less in common" (p. 23). Freidson suggests that the second concept is what is typically referred to when one

uses the terms "professional" or "professionalism." He also pointed out that most major theoretical literature regarding professions and professionalism has been focused on the second, more popular concept.

It is Freidson's (1983) description of the second concept of a profession that has sparked current occupational therapy research interests. One of the main reasons behind this interest stems from the fact that the ideological "traits" that depict occupational therapy practice have long been an issue of discussion and debate. Discussions that included references to the elusive nature of practice, i.e., how occupational therapy "works," appeared as early as 1934. One of these early discussions was presented by William Rush Dunton, a psychiatrist and early supporter of the occupational therapy "movement" (Bing, 1992). In a presentation before fellow physicians, Dunton (1934) described the value of occupational therapy in helping psychiatric patients function more productively. In the same presentation, however, Dunton also detailed the problems inherent in measuring the "emotional responses" of a person engaged in an activity provided by the occupational therapist. Dunton's point was that occupational therapy treatment was an active process, one in which "cause and effect" was difficult to determine. Aside from noting the lack of sophisticated instruments for measuring the patient's emotional responses, Dunton highlighted the difficulties one faces when attempting to "capture" aspects of an active process such as engaging in an activity for therapeutic purposes.

Similar references regarding the need to document and establish the characteristics or "traits" of practice appeared only sporadically in the literature prior to World War II (Noble, 1937; Wilson, 1938). Following the war, the subject of establishing practice characteristics reappeared. In 1954, physicians and psychologists who were experienced in scientific methods conveyed the importance of documenting practice because they had witnessed first hand the positive effects occupational therapy had on their patients in clinical settings (AOTA, 1954). They stressed the need to better understand the therapeutic changes that patients experienced from occupational therapy interventions, and the greater need for the medical community to better understand the value of services provided by practitioners (AOTA, 1954).

The next significant discussion regarding the need to document practice characteristics was provided by Reilly (1960). Reilly's account included some candid observations: "We have known for a long while that because of the environment in which we practice, and the aspirations which we have for our profession, we must become scientific" ... "The harsh facts ... are that no group can become scientific by an act of wishing" (p. 206).

The post-war generation of leaders in occupational therapy pondered the question of what constituted a "scientific practice." They were faced with a unique dilemma because the treatment used for the practice of occupational therapy involved ordinary activities experienced by patients in their daily lives. At the

same time, therapy using these ordinary activities was administered in clinical settings that were growing in technical complexity due to advances made during and after World War II (McGuire, et al. 1983). The post-war era launched a new approach to working with patients: one that was highly specialized and focused on technology.

The post-war era has been described by Kielhofner & Burke (1977) as the "scientific era in occupational therapy." Guided by the epistemological model proposed by Kuhn (1962), who viewed knowledge as a dynamic collection of beliefs, values, attitudes, and methodologies that influenced scientific inquiry, Kielhofner and Burke provided an historical account of the shifts in occupational therapy knowledge during its 60-year history. They stated that occupational therapy, in the mid-seventies, was a health service suffering from the effects of the ideological "reductionism" that had permeated health care culture since the 1950's. Kielhofner & Burke (1977) described reductionism as a style of rational inquiry first used in the physical sciences and later applied to the life sciences. It represented a mode of inquiry focused on reducing behavior to the "least common denominator" for interpretation" (p. 681).

As a result of their historical inquiry, Kielhofner & Burke (1977) suggested that the knowledge used by occupational therapists had become very fragmented, to the extent that it was close to becoming inadequate to assist "whole persons" with disabilities adapt effectively to their social environments. The post-war

scientific era helped magnify and bring attention to the already seasoned issue of defining knowledge that was specific to occupational therapy practice. Kielhofner & Burke (1977) suggested that occupational therapy reconsider its theory base, move away from the mechanistic-reductionistic paradigm, and reconsider the original philosophy and teachings of occupational therapy. Schwartz (1992) maintained that the original philosophy of occupation had dual origins in the 19th century European Moral Treatment movement as well as the American progressive education movement of the early 20th century.

In the later part of the 1970's, an effort was made within the occupational therapy community to unify the philosophical tenets of practice. In 1979, the Representative Assembly of the American Occupational Therapy Association adopted a resolution that defined "occupation" as the common core of occupational therapy (AOTA, 1979). Efforts such as those taken by the Representative Assembly were needed because practitioners at the time had both been educated and tended to work in health care environments where the philosophy of Positivism prevailed. The effects of a mechanistic-reductionistic paradigm described by Kielhofner & Burke (1977) on clinical research can be understood by looking into the source from which it was derived: the philosophy of Positivism first proposed by Auguste Comte in the 17th-century. As proposed by Comte, Positivism was a philosophical system concerned with recognized or "positive facts" that are scientifically established. Excluded were speculations

regarding the origins or ultimate "causes" of the facts under consideration (Reichenbach, 1951).

Positivism and Its Effect on Current Clinical Research Efforts

Because of the nature of occupational therapy practice and the types of environments where practitioners work, the philosophy of Positivism has most likely had an impact on clinical research. Ottenbacher & Hasselkus (1988) suggested that one reason therapists lose their enthusiasm for clinical research may have to do with their perceptions of research as one of an "absolutist approach" to research design. An absolutist approach, as described by Ottenbacher & Hasselkus, is one that is based in positivistic philosophy and leaves little room to deal with the complex variables that may be present in clinical settings. In fact, a number of authors have stated that the current culture of health care is itself rooted in the philosophy of positivism, and that students are first exposed to that cultural model during their formal education (McGuire, et al. 1984; King, 1984). Occupational therapy, like other health care disciplines, educates its practitioners according to the "professional model" of education adopted by medicine in the early part of the 20th century (McGuire, et al. 1983). Often credited to the Flexner Report of 1910, the professional model of education is an outgrowth of the positivistic tradition (King, 1984).

The professional model blended easily with advances being made in bacteriology and related physical sciences during the latter part of the nineteenth century (Schön, 1983; Horobin, 1983). As a result of these 19th century advances, the already "professional" practice of medicine gained a tangible body of knowledge that was grounded in an established and popular philosophical stream of thought. According to Rueschemeyer (1983), developments made in the physical sciences provided the autonomy that medicine needed to be disassociated from mid-19th century perceptions of physician "quackery." Positivism, as a mode of inquiry upon which the practice of medicine was based, has continued to be both the trusted and normative model for knowledge acquisition and theory development among the contemporary life sciences (Rueschemeyer, 1983; Schön, 1983; 1987).

Schön's Perspective on the Current State of Professional Knowledge

Schön (1983; 1987; 1991) has argued that positivistic philosophy has created a "crisis" in the confidence of current, professional knowledge. Schön (1987) contends that the crisis stems from nearly a century of belief that a "correct" theory of practice (epistemology) is one that is based in positivistic philosophy, and built on "technical rationality." In this type of practice, Schön identified the practitioner's main focus as being on the instrumental (technical) aspects that can be quantified with methodologies espoused by sanctioned

positivistic procedures. The real crisis, according to Schön, is that practitioners have tended to ignore the knowledge they have accumulated over time--the type of knowledge that makes them an "expert" in their field.

Schön (1987) delineated a "hierarchy" of knowledge, based on the curricula used for medical education. He stated that the following knowledge hierarchy has become the standard academic curricula for practice professions:

Basic Science
Applied Science
Technical Skills of Day-to-Day Practice (p. 9).

A essential point made by Schön is that although practitioners may have a clear understanding of the basic and applied sciences upon which their practice is based, they are less certain of the unique contributions made on a day-to-day basis as a practitioner in a specific field of study. To address this area of uncertainty, much of Schön's work since 1983 has focused on the process of "reflecting" on one's practice. He views the process as a means of addressing problems that are vital to building an epistemology of practice, and also as a way to help practitioners determine what they already know and understand (1991). Expert practitioners, Schön (1987) explained, possess a special type of knowledge that they apply to unusual problems that turn up in the workplace. Schön also makes clear that unique practice knowledge is not "taught" or part of the university's curriculum. He calls this special knowledge "professional artistry," and

further described it as "the kinds of competence ... displayed in unique, uncertain, and conflicted situations of practice ... a high-powered, esoteric variant of the more familiar sorts of competence" (p. 22). Schön (1983; 1987) argued that professional artistry can be recognized through the process of "reflecting-in-action." Through reflection, practitioners may become aware of the "tacit dimension" of knowledge that they use on a daily basis (1983; 1987).

Clinical Reasoning as a Source of Occupational Therapy Knowledge

In an address given before the occupational therapy membership, Rogers (1983) reported that there had been a gross lack of attention to the thinking that guided practice. She also reported several findings on preliminary research that she conducted on the cognitive processes used to direct in occupational therapy practice: "My preliminary research ... suggests that (practitioners) regard their cognitive processes as intuitive and ineffable" (p. 404). Rogers (1983) also maintained that cognitive processes used in clinical reasoning were "private" because they were rarely verbalized by the practitioner.

Rogers (1983) proposed that the "reasoning process" used by practitioners should be explored. She outlined three interrelated dimensions of clinical reasoning: the scientific, the ethical, and the artistic. The scientific dimension, according to Rogers, is comprised of the appropriate techniques used to address a patient's dysfunction. The ethical dimension consisted of a collaborative

agreement between patient and therapist for a plan of treatment that was congruent with the patient's values and goals. The artistic dimension comes into play when practitioners employ "broad strategies for grappling effectively with the uncertainties inherent in clinical practice" (p. 614). Barris (1987) stated that clinical reasoning was an "elusive" process, and an "integral part of practice in fields where problem design or problem solving was involved" (p. 147). The goal of clinical reasoning according to Rogers (1982; 1983) is to arrive at a course of occupational therapy treatment that is individualized for each patient.

Roger's (1982) portrayal of the artistic dimension of clinical reasoning incorporated a great deal of Schön's (1983) work on the reflective practitioner. His work was especially meaningful for occupational therapy because his characterizations of "tacit knowing" or the "knowing-in-practice" used by practitioners responded to the difficulty-in-articulating-practice dilemma that had historically been a challenge to the field. Glaser (1984) reviewed research on expert problem solving and its related focus on knowledge. He summarized one aspect that was particularly important in becoming aware of expert thinking: one must examine the attributes as well as influences of the expert's established knowledge structures that have accumulated with experience. The development of expert knowledge, learned through the process of reflection, has a rather interesting history. It appears to stem from the age-old philosophical debate regarding the relationship between theory and practice.

Philosophical Origins of "Reflection"

German sociologist Jürgen Habermas has provided contemporary scholars in practice fields with a philosophical system from which to view the contributions of their expert practitioners. Recent philosophical inquiry has focused on current perceptions of professional expertise as a source of knowledge and the processes engaged in by practitioners to draw upon that knowledge. McCarthy stated that Habermas (1976/1979) believed there was a distinct shift in philosophical thinking regarding the relationship between theory and practice from classical to modern times: "direct access to practice" was replaced with "a purely technological understanding of the theory-practice relationship" (p. ix). Largely from the works of Immanuel Kant and Georg Hegel, and to a lesser degree from Karl Marx and Sigmund Freud, Habermas formulated a theory of knowledge that he designated "critical social theory" (1968/1971). According to critical social theory, there are three areas in which people function on a day-to-day basis that contribute to the overall generation of knowledge: the technical, the practical, and the emancipatory.

Table 1 shows that the process of reflection, as a means by which one comes to "know," has deep philosophical roots, extending back to the classical philosophies of Socrates, Plato, and Aristotle. Since the advent of modern philosophy, however, the 19th-century "Frankfurt School" has been the principal force behind the exploration of reflection as a phenomenon of inquiry and

Table 1

The Philosophical Origins of the Process of Reflection as a Means of Learning and Source of Knowledge

Classical Philosophy	Socrates	(470-399 B.C.) The dialectic search for meaning through question and answer.
	Plato	(427-347 B.C.) Platonic Theory of Knowledge: Knowledge emerges from thinking through, seeking reason, understanding, then re-thinking.
	Aristotle	(384-322 B.C) Three types of human activity where knowledge is created: theoria (theory), praxis (practical life) and poesis (the productive life). Wisdom from praxis results from two conditions: action and reflection.
18th and 19th Century Philosophical Influences	Kant	(1724-1804) Transcendental Dialectic (Transcendental Idealism): Knowledge stems from the mind's interpretation of phenomena from objective reality and external objects; thought as transcendental experience--independent of "self."
	The origins of critical philosophy:	Critique as a basis for developing reason
	Hegel	(1770-1831) (Absolute Idealism): Knowledge arises from the phenomenological self-reflection of the mind, but cannot separate the "instrument" (self) of thought from the experience.
Critical Social Theory	Habermas	(Mid-1950's) Re-examined 19th century critical philosophy; identified three cognitive features used to generate knowledge: 1. Technical (instrumental action) 2. Practical (communication for meaning) 3. Emancipatory (critical reflection of the Technical and Practical)
Critical Theory of Adult Education	Mezirow	(1981) Knowledge, as developed through adult learning, occurs within three domains. Based on Habermas, identified three interrelated functions of adult learning: 1. Instrumental (task or problem orientation; empirical deduction of facts) 2. Dialogic (communicative learning; search for meanings; understand through critical reflection) 3. Self-Reflective (transformative learning through changed perspectives; emancipatory knowledge and action)
The Reflective Practitioner	Schön	(1983) Focus on the knowledge used by practitioners. An epistemology of professional practice can be derived from attention to professional "artistry." Artistry involves the process of reflection-in-action and critical reflection on reflection-in-action. Study of the practitioner's artistry may reveal the tacit phenomena of professional practice.
Clinical Reasoning for Occupational Therapy	Rogers	(1983) Largely derived from Schön, artistry may be a source of knowledge that is specific to the practice of occupational therapy. Artistry may be uncovered by reflecting on the clinical reasoning used by expert practitioners. Identifying practice knowledge contributes to the theory, and ultimately the professionalization, of occupational therapy.

knowledge (Argyris, Putnam, & Smith, 1975). The philosophers of the Frankfurt School have been credited with developing critical theory, which evolved during the time when the two dominant philosophical streams of European thought were idealism and positivism (Habermas, 1976).

In general, critical theory can be viewed as the critique of "reason." Sabia and Wallulis (1983) (cited in Cervero, 1988) suggested that the more contemporary use of the word "critical" relates to the current application of critical theory to various areas of human behavior. The chief approach used for the critical position is the "dialectic" (Cervero, 1988). Shapiro's translation of Habermas (1968/1971) pointed to the importance of distinguishing between the differences English and German uses of "reflection," especially in the way that the process was interpreted by the philosophical thought of German Idealism:

> In English, the word 'reflect' tends to mean, aside from 'mirror,' either 'bend back' or 'recurve,' or the mental operation of reflecting on something (albeit the self) that is external to the act of reflection." "In German, particularly as developed by German Idealism and its dialectic of subject and object, the word 'reflect' expresses the idea that the act in which the subject reflects on something is one in which the object of reflection itself recurves or bends back in a way that reveals its true nature" (pp. 319-320).

Habermas (1976/1979) described the methodology that is unique to critical theory as an "interpretive schemata" that must be deciphered for each individual situation. Among the characteristics considered by the interpretive schemata are one's acquired values, social ideals, role models, and perspective of the world. At

the heart of the interpretive schemata is the quest to know and understand why in addition to simply knowing how actions transpire.

Mezirow's Perspective of Reflection for Adult Education

From an adult educational standpoint, reflection-in-action may be viewed as but one process of learning. Mezirow (1978) discussed familiar, but different types of learning, and characterized a function of learning that is unique to adults and to their development. He designated the unique function of this type of learning as "perspective transformation," and he has since proposed a critical theory of adult learning and development based on Habermas' concept of the three areas of human interest where knowledge is generated (see Table 1). Mezirow (1981) urged educators to acknowledge the interrelationship among the "knowledge-constitutive" areas of human interest. He maintained that each area involved "different ways of knowing" and each area was unique enough to require its "own mode of inquiry and educational strategy and tactics" (p. 17).

Mezirow's more recent work on adult learning (1991a; 1991b) has primarily focused on the transformatory process (perspective transformation)--originally a component of his self-reflective domain of learning. Perspective transformation leads to emancipation from one's internalized conceptions that inhibit new learning and knowledge acquisition. These conceptions, according to Mezirow, are grounded in cultural myth and are deeply embedded in societal institutions

(1978; 1981; 1985; 1991a). Transformation results from critically reflecting on experience not only to derive meaning, but to also obtain new or revised perceptions of one's experience (1991a).

Clinical Research and Occupational Therapy Education

Glazer (1974) stated: "The student knows the profession initially from the point of view of the practitioner" (p. 353). He added that this is especially true in professions where much of the teaching is done "on-the-job," and that conflicts develop when students, practitioners, and professors have different ideas about what constitutes important "knowledge." Coleman (1986) conducted an historical study of the formation of occupational therapy educational values between the years of 1915 and 1981. She described curricula as having been influenced by two groups or segments with "polarized" values--the "elite" and the "populists". The elite group, who were also the founders of occupational therapy, endorsed exclusive recruitment and an intense training program that was primarily academically-oriented. On the other hand, the populists were in favor of more general recruitment practices with shorter, more available, and technically-oriented training. Following analysis of the influences on education, Coleman concluded that both segments have been necessary for the continued growth and development of occupational therapy as a profession.

Conflict over the inclusion of research in occupational therapy curricula

has become less of a debated literature issue during the past decade. It appears that both groups described by Coleman (1986) now generally agree that research competencies are needed for students entering practice with either a bachelor's or master's level degree. Fleming & Piedmont (1989) conducted a random survey of 2000 members of the AOTA, 300 state association presidents, and AOTA committee members to determine perceptions regarding the current and future status of education and practice. Respondents were asked questions regarding their own education, the education of current graduates, and the elements that they felt should be stressed in the future. Eight hundred and eleven responses were received. Piedmont & Fleming interpreted the results to indicate that respondents believed they were adequately prepared for practice, but not prepared for research. Of additional interest were findings concerning attitudes towards two areas believed to be currently in need of change: research for practice and evidence of the effect of occupational therapy service.

Specific research competencies for educators and clinicians, as well as skills to be fostered in educational curricula, were identified in 1983 by the American Occupational Therapy Foundation (AOTF), the branch of the membership organization dedicated to research. The AOTF recommended that students pursuing a bachelor's degree (basic professional education) be taught the application of existing clinical knowledge to practice, be consumers of research, and assist the investigator in research functions (p. 45). The recommendation for

students functioning as clinicians who had obtained a master's-level entry degree or master's degree in occupational therapy (advanced professional education) was that they have beginning researcher skills as well as the skills needed to be a research consumer. Beginning researcher skills were identified as the ability to "assist in the development of new knowledge and utilize methods of program evaluation" (p. 45).

Learning Activities for Clinical Research

Christiansen (1986a) discussed educating students for the scientist-practitioner role by starting the research socialization process during formal education. He called for more role models in academia who were familiar with research, as well as experienced research practitioners who could function as mentors in the practice setting. Mitcham (1985; 1986) suggested that early in their studies students be taught the similarities between the occupational therapy process and the research process because they are both centered on the process of problem-solving. Ottenbacher & Hasselkus (1988) provided an observation about the relatively low presence of clinical research in practice settings. They identified that in order for clinical research activities to be successful, there must first be a conscious attempt to develop motivation and positive attitudes towards research among practitioners.

Dunn (1985) identified a number of activities that practitioners at a variety of educational levels could take on to begin a transition to clinical researcher. Included were collaboration with others in research, study group participation, and supporting research projects advanced by occupational therapy organization. Oakley (1988) also provided a number of recommendations for practitioners to begin a transition to clinical research. She proposed that research activities could be integrated with the practitioners' ongoing clinical activities. Included were recommendations for developing local study groups either within or external to the work facility, participating in available research conferences or symposiums, and identifying the human resources within the work site who could be available to provide direction or counsel. Additionally, Oakley suggested a number of collaborative research efforts between professional associations and persons in academia.

Fuhrer (1983) addressed the importance of both discussing and using research in medical rehabilitation, stating that there was a problem in converting findings from applied research studies to the practice of rehabilitation practitioners. Halpert (cited in Fuhrer) alluded to a common informal learning activity that often transpires in work settings: "practitioners often find it easier to learn by looking, listening, and talking than by reading" (p. 608).

Clinical Research and the Health Care Environment

Economic Considerations

Ottenbacher (1986b) stated: "In the current economic and political climate, no heath care professional can hope to defend his or her discipline against skepticism and accusations of inefficiency or questionable ethical integrity unless its treatment programs demonstrate therapeutic results" (p. 4). Rausch & Melvin (1986) made a similar point, noting that in the current economic climate ancillary health care services such as occupational therapy will increasingly be subjected to scrutiny. In a discussion of the current and future environment of health care, Del Polito (1986) identified three major trends that impact on health care. One of these was cost-containment, which according to Del Polito continues to create competition among practitioners for monetary resources, while having the potential to raise concerns regarding the quality of health service delivery.

Baum (1986) credited the Medicare legislation enacted in 1963 with reorganizing health care practice to an "acute model," where payment to practitioners is given for providing a segment of specialized care. McGourty (1986) stated that occupational therapy practice has become a "business" that leaves little time for activities such as clinical research. She asserted that the "theory of reimbursement" was the dominant theoretical orientation of many clinical settings. The "dollar theory," McGourty stated, directly bears on the

practitioners' ability to fully utilize the theoretical orientations learned during formal education: "Reimbursement concerns of consumers and facilities are so strong that it is easy for therapists and students to lose track of our basic beliefs, theories, and ethics of the profession" (p. 128). Although clinical research is considered an important activity and appropriate to the practice environment, limited resources such as time and therapists' concerns with financial matters such as therapist productivity made research less of a priority in many clinical settings (Taylor & Mitchell, 1990).

Baum, et al. (1984) considered the factors that restricted clinical research in the health care environment, and provided suggestions for managers. They proposed a system that included several objectives for integrating clinical research with practice: developing funding sources; providing resources to assist in the research process; obtaining support from the managerial hierarchy; establishing collaborative relationships with universities; and instructing staff in the scientific approach (p. 267). Christiansen (1986a) suggested that the health care environment could be made more conducive to clinical research by implementing collaborative research between practitioners and faculty. He stressed the importance of having administrative support for research, and the unfortunate potential for departmental monetary constraints to limit the resources that are available to conduct clinical research. Among the long-term gains of collaborative research efforts proposed by Christiansen was the socialization of young

practitioners into researcher roles. Christiansen also stressed one condition that must be present for collaborative research to work: the setting must be one where research is an activity valued by both management and practitioners, and the informal interaction among employees should include support of each other's research.

Workplace Learning

Socialization into a researcher role, as described by Ottenbacher (1986a), or instructing staff in the scientific method, as identified by Baum et al. (1984), are but two examples of the many ways in which learning can occur in a work environment. Workplace learning is becoming increasing important because, as stated by Marsick (1991), employees at all levels are being challenged to think differently about their worker roles due to rapid economic and social changes. Marsick identified the transformation of one's personal frame of reference as being essential in the development of new knowledge and skills needed in work settings. Marsick's work (1987; 1988; 1991) draws upon Mezirow's (1981) domains of learning, as well as Argyris and Schön's (1974; 1978) conceptions of action learning, to offer an approach to workplace learning. Marsick (1991) delineated three inter-related components of workplace learning that she called the "action learning/facilitation process": action, reflection, and the building of one's own theories (p. 32). She also suggested the importance of action learning

as a transformatory process that affects the overall growth and character of an organization. She noted, for example, that an individual's personal meaning schemes contribute to the overall meaning schemes and "culture" of an organization.

Houle (1980) focused on the concept of lifelong learning among professionals. Specifically, he considered how lifelong education contributed to the overall process of professionalization. He stated that professionals involved in lifelong learning use one or more of three methods he described as major "modes" of professional learning. Houle characterized the modes as:

> Inquiry: The process of creating some new synthesis, idea, or technique, policy, or strategy of action. Sometimes this mode is employed in a structured fashion; discussion and encounter groups, seminars, clinics, and guided experiences can be used to help people achieve new ideas or new ways of thinking (p. 31).
>
> Instruction: The process of disseminating established skills, knowledge, or sensitiveness. Those who use it assume that the teacher (a person, a book, or any other source) already knows or is designed to convey everything that the student will learn (p. 32).
>
> Performance: The process of internalizing an idea or using a practice habitually, so that it becomes a fundamental part of the way in which a learner thinks about and undertakes his or her work (p. 33).

Since the professionals' modes of learning first appeared in 1980, several empirical studies have added validity to Houle's original descriptions. Of particular interest are two studies on the activities of health care practitioners. Cervero and Dimmock (1987) studied the educative activities of nurses employed

in a major medical center. They found that the typology portrayed an accurate representation of types of activities in which the nurses were involved, but that the mode of instruction could be better identified as "group" and "self" instruction. Another pertinent study of Houle's typology focused on the educative activities of clinical laboratory scientists (Polancic 1987). Her study also found that Houle's typology provided an appropriate way in which to view a professional's learning. In 1987, Houle recommended a revision in the original typology for the mode of performance, because after several years of using the three modes to describe professionals' learning, he had concluded that the word "performance" implied both a method and an execution of a particular behavior in the work setting. Cervero (1988) suggested that Houle's modes of learning would be more accurately described as "modes of participation" since "learning" is of a process of cognitive changes rather than simply a type of activity.

Summary of Related Literature

The relevant literature more than adequately makes the case for an expansion of the practitioner/researcher role in the occupational therapy field. Their work is an important part of the process of professionalization in occupational therapy, and it is crucial to the identification and development of the knowledge specific to occupational therapy. They have participated in specific activities that demonstrate an exemplary purpose of lifelong learning.

Although the conceptual framework for viewing the role of practitioner/ researcher has been well developed by a number of scholars, what this review of the literature has revealed is that to date the exploration of this issue has been at a relatively abstract level and has not focused in on the concrete situations this group has experienced in establishing their role. The body of literature in this area would benefit from a formal study of how this emerging group learns to integrate research into the clinical practice setting.

CHAPTER III

METHOD

This chapter contains a discussion of the methods used for the study. The research design is reviewed, followed with a description of the population, instrument, and plan for collecting data. The procedures used for data analysis are also discussed.

Research Design

Initially, the research design included two methodological strategies: (a) a mail questionnaire and (b) a focus group interview. It was originally believed that the two strategies were needed because at the time when the research proposal was submitted, the predicted population of occupational therapy practitioner/researchers was thought to be no larger than thirty. Later, more current information regarding the population became available. In late December of 1990, the population fitting the "practitioner/researcher" description was found to number 116. After 100 members of the population responded with useable questionnaires and the questionnaire data were analyzed, it was clear that the combination of scaled items and personalized, written comments provided ample data to address the research questions examined in this study.

Population

The 1990 Member Data Survey of the American Occupational Therapy Association (AOTA) was used to identify the census population of practitioner/researchers. There are more than 40,000 members of the AOTA, and about 39,000 occupational therapists that are currently in the work force. Close to 20,000 AOTA members returned the 1990 Member Data Survey (I. Silvergleit, personal communication, December 13, 1991). The AOTA Member Data Survey contained descriptors used to classify occupational therapists' primary and secondary work functions. Thus, the descriptors used to pinpoint the practitioner/researchers for the study were taken from the Member Survey. Therapists who checked one of the following combinations of descriptors were identified: Primary Function either (a) direct patient/client service or (b) research; and Secondary Function either (a) research or (b) direct patient/client service.

Initially, 118 therapists were identified as practitioner/researchers and sent a questionnaire package that consisted of a cover letter, coded questionnaire, and pre-addressed, postage-paid return envelope. One therapist telephoned and another returned the packet and indicated that they were not involved in clinical research activities. Their misidentification was apparently caused by a Member Data Survey coding error, and their names were deleted from the original list provided by the AOTA. The final population count for study purposes was 116.

Instrumentation

This section provides a description of the questionnaire, which consisted of six separate sections designated as Parts A through F. Parts A through E corresponded to the research questions presented in Chapter I. Part F was used to supplement Parts A through E while providing demographic information. Questionnaire development procedures suggested by Zemke & Kramlinger (1989), Fowler (1988), Babbie (1973), and Galfo & Miller (1970), were utilized. A complete copy of the instrument can be found in Appendix A.

Questionnaire Design

The questionnaire was designed to generate two types of data. First, numerical data were obtained from the numerically-scaled items and from tabulation of demographic items that appeared in Part F. Secondly, text-based, personalized data were obtained from comments written in response to specific open-ended items.

The questionnaire was seven pages long and designed exclusively for this study. Content reflected the major topics or "themes" that emerged following in-depth review and analysis of literature pertaining to clinical research in occupational therapy. In addition to the available literature, resources from telephone interviews conducted by the American Occupational Therapy Foundation (1988) on the barriers and supports to research were useful. A study

conducted by Craig (1985) also helped suggest content for questionnaire items. Most items that appeared in Parts A, C, D, and E contained four-category-scaled items designed to be completed in two parts. The first part was designed to obtain the degree of importance the item had for the respondents' own experiences; the second part was to obtain their recommendations for others.

Following is an overview of each questionnaire part and discussion of the items contained within. Although it is customary to first discuss or review demographic information, the overview will parallel the order of the questionnaire. Part F: Personal/ Demographic Information was intentionally placed at the end of the instrument because it was believed that some respondents may have been "uncomfortable" answering such information. While a respondent always has the option to choose not to answer a certain item, the decision to place personal/demographic information at the end of the questionnaire was yet another strategy taken to ensure a good return rate. Although not a specific research question, personal/demographic information was collected to help clarify and enhance research questions one through four. Additionally, a description of the population under study is useful because it provides a more comprehensive illustration of the phenomenon of interest.

Part A: Research Experiences and Recommendations

Part A of the questionnaire considered how the respondents became

interested or involved in clinical research. Part A corresponded to the first research question and included common circumstances by which therapists may become interested or involved in performing clinical research. The circumstances consisted of workplace environmental/cultural factors, learning activities, and a workplace role function. The circumstances were summarized in eleven separate items.

Part B: Research Activities in the Clinical Environment

Part B, which corresponded to the second research question, examined the extent of respondents' involvement in activities that constitute a researcher role for occupational therapy practitioners. An introductory item asked respondents to estimate the "overall" percentage of time spent on their research activities. The 11 listed activities characterized a number of basic functions for success throughout the research process such as planning/preparation, maintenance, and communication of research. Respondents were requested to indicate the extent of their involvement in each activity over the past three-year period.

Part C: Factors Affecting Research in the Clinical Environment

Questionnaire Part C, related to research question three, examined factors in the clinical work environment and their influence on respondents' research activities. Factors were framed according to their "appearance," i.e., the

respondents' opinion as to whether or not a factor existed in their experiences. Workplace environmental/cultural factors were comprised of: (a) advocacy, as in the form of administrative or collegial support of one's clinical research; (b) acknowledgement of one's research, as in the form of "rewards;" and (c) resources, either human or material. Respondents were asked to indicate the degree to which a factor was "present" and then asked to note their belief regarding the "importance" of the factor. Part C also contained four "asterisked" items with directions for completing four related open-ended questions. These items were chosen because of the expected amount and variety of individualized responses.

Part D: Education and Training for Clinical Research

Part D dealt with common research-related educational experiences that may or may not have been part of the respondents' formal occupational therapy education. Part D corresponded to research question number four, specifically sub-questions 4 (a) and 4 (b). Respondents were again asked to indicate the degree of importance for their own experiences and to give their opinion about the importance for other occupational therapists' experiences. Part D differed slightly from the other two-part sections (Parts A and C) in that respondents were instructed to "skip" the first part (importance for own) if they did not have experience with a particular educational experience.

Part E: Activities for Learning More About Research in Clinical Settings

Part E contained seven items having to do with workplace activities that may facilitate learning more about research in clinical settings. This section corresponded particularly to research sub-question 4(c). Part E further inquired into the respondents' ratings of the importance of their experiences and opinions for others.

Part F: Personal/Demographic Information

Personal/demographic data were collected because they are necessary for a thorough understanding of an emerging professional group. As mentioned earlier, the personal/demographic data were also collected to help clarify and enhance research questions one through four. Part F contained 12 items, seven of which were open-ended because the possible responses expected were too numerous to list in the instrument. Open-ended items collected descriptive data such as the respondents' years of occupational therapy and clinical research experience, state where employed, institution where occupational therapy education was received, number of research and related courses, and age. Four other personal/ demographic items contained instructions for either circling, inserting a number, or checking the appropriate response.

Respondents were asked to identify their primary and secondary clinical populations from a list of six choices. These six descriptors were chosen following

a review of a variety of Official Documents published by the AOTA and suggestions provided by the "expert jury" during the content validity process. The following six populations were used--they represent the predominant areas of occupational therapy clinical practice: (a) Developmental Disabilities; (b) Mental Health; (c) Work/Vocational; (d) Physical Dysfunction; (e) Geriatrics; and (f) Pediatrics. There are a tremendous variety of conditions that receive occupational therapy intervention, and the terminology used in health care settings is by no means standardized. Health care professionals in general often describe their practice according to a "specific" area of clinical practice. Consequently, an "other" category with ample space was provided to allow respondents to write-in a description they felt would best describe their clinical population.

Procedures

Pilot Testing for Content Validity

Questionnaire items were submitted to an expert jury of five content "experts" for their evaluation and comment. Procedures suggested by Kerlinger (1973) and Zemke & Kramlinger (1989) were followed. Five content experts (expert judges) were identified from the Department of Rehabilitation Medicine at The National Institutes of Health. Each judge chosen had attained national recognition for his/her work in clinical research and practice. In addition,

the judges had considerable experience working with occupational therapists in both clinical and research capacities. A final draft of the questionnaire, along with instructions and a pilot data collection tool, was submitted to the expert judges. A copy of the materials for establishing content validity can be found in Appendix B.

Following return of the data collection tool by the content experts, a meeting was held with each to discuss their comments and reactions. Revisions to the draft questionnaire were made according to the collective suggestions of the content expert jury. Changes suggested were fairly minor and included: (a) the addition of asterisked items in Part C to elicit more inclusive, individualized responses; (b) addition of demographic items noting where respondents received their occupational therapy education; and (c) changes in the wording of items to help define or describe the factor of interest. It was thus decided that the items contained in the instrument designed specifically for this study had sufficient content validity.

Design of Cover Letter

Copies of the letters sent to respondents are found in Appendix C. Respondents were assured of confidentiality and given the option to remove the "code" from their questionnaires. Although the study was partially funded with a research grant obtained from the American Occupational Therapy Foundation, it

was decided that, for this study's purposes, Foundation support should not be mentioned in the cover letter. This decision to exclude sponsorship was made following a meeting with two of the expert judges and an "informal poll" taken among a variety of occupational therapy practitioners.

The cover letter invited respondents to contact the researcher or her dissertation chair if desired. No calls concerning the study were received with the exception of the one respondent mentioned earlier who telephoned to say that she was not involved in clinical research. Additionally, no questionnaires were returned with the respondent identification code removed.

Distribution of Questionnaire

Table 2 contains a summary of the data collection procedure. Data collection was accomplished in three phases as suggested by Galfo & Miller (1970) with a slight variation: telephone follow-up calls were not made following Phase Two. Respondents' phone numbers were considered confidential information and could not be released from the AOTA Member Services Department. Instead, respondents were sent a third cover letter and questionnaire (Phase Three) as a follow-up.

Table 2

Summary of Questionnaire Data Collection

Date	Activity	Comments
• January 1, 1991	**Began Phase One** Part One: 118 questionnaire packets mailed; requested return by January 20, 1991	**Phase One Comments:** Received 85 responses (72% response rate), including a total of 83 usable questionnaires. One potential subject called and stated that she was not involved in research.
• January 8, 1991	Part Two: Sent reminder post cards to all respondents	
• January 29, 1991	**Began Phase Two** Part One: Second questionnaire packet mailed to 33 non-respondents; requested return by February 19, 1991	**Phase Two Comments** Received 13 responses; all 13 questionnaires usable
• February 5, 1991	Part Two: Reminder post cards sent to the non-respondents	
• February 19, 1991	**Began Phase Three** Third packet sent to the 20 non-respondents; requested return by March 5, 1991.	**Phase Three Comments** Received seven responses; four questionnaires were useable. One questionnaire returned with a comment indicating a possible mistake in the coding of her work functions in the 1990 Member Data Survey.
• March 5, 1991	**End Data Collection**	**Comments:** 89% response rate (103/116); total of 100 useable questionnaires for data analysis and interpretation.

Demographic Characteristics

Demographic information was collected to obtain a comprehensive description of the practitioner/researcher population. Of particular interest to the study were general characteristics such as: (a) gender; (b) age; (c) highest formal educational level; (d) number of years worked as an occupational therapist; and (e) number of years of involvement in clinical research.

More specific personal/demographic information regarding respondent characteristics was collected to develop an extensive profile of the practitioner/researcher population. Specific information included: (a) geographic details such as states where practitioner/researchers were employed; (b) identification of the educational institution where their occupational therapy education was received; and, (c) data on the "type" of facility where they worked. Additionally, one item in Part F (number two) was designed specifically to determine the amount of professional activity pertaining to research publications and presentations.

Data Analysis

Statistical analyses were accomplished with the assistance of the Number Cruncher Statistical System software developed by Hintze (1987). Measures of central tendency and variability were applied to all data where appropriate. Qualitative, open-ended questionnaire items were analyzed with the Ethnograph,

software for analysis of text-based data (Seidel, Kjolseth, & Seymour, 1988). Written responses to "other" items were not numerically treated and instead are reported in tables appearing in the appendix. Initially planned to determine if a difference existed between respondents' experiences with particular research factors and their recommendations of the factors for others, the Chi-square analyses produced data that were not usable because too many cells had expected frequencies of less than five. The main objective of the study was then addressed from a similar perspective: frequency tables were constructed to display proportional differences in respondents' ratings of importance with their recommendations for others. The results of the study are presented in the next chapter.

Importance of a Factor

The term *importance* was defined for the respondent to assist in answering specific questionnaire items. The following explanation prefaced Parts A, C, D, and E:

> Each question has two parts. The first part asks you to indicate the importance a circumstance (or experience, situation, or learning activity) has had for your own situation. The second part asks your opinion or belief as to the importance the circumstance should have for other occupational therapists, i.e., practitioners who may have the potential to become interested or involved in research. Thus, the two parts differentiate between the actual and the normative: the difference between the way things have actually been for you and the way you believe it should be for the prototype of practitioner/researcher.

Thus, the intent was to obtain data to contrast two circumstances of a factor from the respondents' perspective: comparisons of the degree of importance a factor had in the respondents' situation versus the importance they believed the factor should have for others. The degrees of importance were determined by combining responses 1 and 2 (not important at all or slightly important) to establish the category of "Less Important." Responses 3 and 4 (important or very important) were combined, thus creating the category of "More Important." Data were similarly treated in Part C; combining responses 0 and 1 produced a classification of "Less Present;" 2 and 3 were combined to form the "More Present" category. Frequency tables, showing the proportion of importance responses, were then constructed. Descriptive analyses were also performed and included measures of central tendency and dispersion.

Respondents' Written Comments

Several respondents provided answers or descriptions that contained names that identified their facility or work environment. Data containing proper names were reported only when thought to be beneficial and informative to readers--such as the name of a specific clinical evaluation measure or treatment technique.

Written comments were first assembled and coded. Data were then arranged into descriptive matrices, as suggested by Miles and Huberman (1984). Specific "themes" related to the questionnaire item were thus generated from

respondents' written comments. The Appendices contain a compilation of the comments contributed by the respondents. The appendices are referred to in the corresponding Chapter 4 discussions.

Descriptive Categories for Determining "Type" of Questionnaire Item

Because one aim of this study was to highlight a specific process, *learning*, questionnaire items comprised of learning circumstances, activities or formal educational experiences (Parts A, D, and E) were qualitatively assessed using pre-determined categorical matrices as suggested by Miles and Huberman (1984). The categories for the matrices were based on Houle's (1980; 1987) conceptualization of three major and overlapping modes of learning used in lifelong education for professionalization. Qualitative assessment of an item's content was performed with the intent of simply suggesting one, major mode of participation that was likely to have been experienced by a respondent. Houle's modes of learning were discussed thoroughly in Chapter II.

Categorical matrices were also used for assessment of items appearing in Parts B and C, with one variation: the categories were descriptive (emerged from items content), rather than pre-determined. Part B listed activities that served a research specific function in the work setting. Part C included factors or conditions found in the workplace that had the potential to affect one's research efforts.

Summary

This chapter has outlined the method used for the study. The study's design, instrumentation, and procedures for data collection were presented. Techniques used for data management and analysis were also introduced. A change was made in the original research design because the population of occupational therapy practitioners was almost four times larger than originally anticipated. The results of the study are presented in the next chapter.

CHAPTER IV

RESULTS

The chapter describes the population and presents the results corresponding to the study's four major research questions. The results and concurring types of analyses used for specific questionnaire items are presented. These analyses included: (a) descriptive measures to obtain item means and standard deviations; (b) frequency tables for establishing proportions in response categories; and (c) qualitative analysis to discern specific patterns and themes of respondents' written comments for construct formulation.

A total of 103 surveys were returned, yielding a response rate of 89%. Final analyses were performed on 100 questionnaires. The three questionnaires that were not used were returned blank with the following written explanations: "No longer involved in research and do not wish to participate;" "Have not been involved in clinical research for 8 years...;" "Respondent left the county and cannot be contacted" (written for respondent by another person).

Demographic Characteristics

Table 3 contains a review of personal/demographic characteristics that describe the population. There were two items in Part F to learn more about the respondents' professional and research-related activities. This information was

Table 3

Demographic Characteristics of the Occupational Therapy Practitioner/Researcher Population (N=100)

Characteristic		Number	%	μ	σ	M_{dn}
Gender (N=100)	Male	7	7			
	Female	93	93			
Age (N=97)				33½	8	32
Range of Years:	23-30	39	40			
	31-40	38	39			
	41-50	14	15			
	51-60	4	4			
	61-70	2	2			
Highest Educational Level (N=96)						
Bachelor's Degree		64	66			
Master's Degree		29	31			
Doctoral Degree		2	2			
Other: MD		1	1			
Working on Masters's		11	17			
Years Worked as O.T. (N=97)				9	7	8
Range of Years:	1-5	39	40			
	6-10	27	29			
	11-15	15	15			
	16-25	15	10			
	45	1	1			
Years in Clinical Research (N=91)				4	5	2
Range of Years:	3 or fewer	64	70			
	4-7	18	21			
	8-15	4	4			
	16-20	4	4			
	40	1	1			

compiled to help answer research question number two, and will be discussed under that heading.

General Personal/Demographic Characteristics

Table 3 shows that females made up most (93%) of the practitioner/researcher population. This finding is not surprising because historically occupational therapy has had a very high female to male ratio. That trend has continued because, as reported in the 1990 AOTA Member Data Survey, 94.3% of occupational therapists were female (AOTA, 1991). Males comprised 7% of the practitioner/researcher population, only slightly more than the 5.7% of the total occupational therapist population reported by the AOTA Survey in 1991.

The ages of the respondents (N = 97) ranged from 23 to 68, with the mean age being 33½, and the median age was 32. The majority (79%) were between the ages of 23 and 40. This majority was almost equally divided between respondents who were in their twenties (40%) and those who were in their thirties (39% of the total practitioner/researcher population). As compared to the general population of occupational therapists, the practitioner/researchers tended to be somewhat younger: The 1990 AOTA Member Survey reported that only 20.5% of registered therapists were in their twenties (AOTA, 1991).

Educational Level

Table 3 provides a summary of the highest educational levels held by the respondent population. Two-thirds (66%) identified the Bachelor's degree as their highest educational level. An interesting finding was that although the questionnaire did not specifically ask respondents to indicate if they were currently pursuing another degree, 17% of the Bachelor's-level respondents spontaneously remarked that they were working on a Master's degree.

Thirty-one percent of the respondents identified the Master's as their highest educational level. This finding shows that the proportion of Master's-level practitioner/researchers is almost twice as large as that seen in the general population of occupational therapists. The 1990 Member Data Survey reported that 17% of occupational therapists had the Master's degree as their highest educational level. Only two (2%) of practitioner/researchers had doctorates. Additionally, one respondent said that his/her highest educational degree was the Doctor of Medicine.

Years of Experience

Years worked as an occupational therapist. Table 3 shows that the number of years respondents (N = 97) worked as occupational therapists spanned four decades: from one year of experience to 45, with a mean of 9 years. The largest percentage of respondents (40%) had worked for five or fewer years as an

occupational therapist. The next largest percentage (29%) had worked between five and 10 years. It is not surprising that the data obtained for years worked as an occupational therapist shows that the majority (69%) of respondents had worked for less than 10 years--a finding that is consistent with the data obtained for the practitioner/researcher ages.

Years of Involvement in Clinical Research

Table 3 also shows the number of years that respondents were involved in clinical research. Several observations regarding clinical research involvement are pertinent. First, although the mean years of involvement was four, the majority of respondents (70%) were involved in research for less than three years, and in fact, the median was two years. Second, a look at the next largest percentage of years of involvement (21%) reveals that when this proportion is combined with the first, a total of 91% of the respondents had seven or fewer years of clinical research involvement. Thus, nearly the entire population had a maximum of seven years of clinical research involvement.

Geographic Regions for Practice and Education

Geographic locale was considered to be a meaningful variable for formulating a description of the population. Twenty six states and the District of Columbia had occupational therapists working as clinical practitioner/researchers.

Respondents reported attending a total of 35 different colleges and universities for their occupational therapy education, and they are listed by name in Appendix D. Additionally, three persons named a country for their occupational therapy education, and six listed the name of the state rather than identifying the institution by name. It should be noted that several therapists had a bachelor's and master's-level occupational therapy education, and both are represented in Appendix D.

A striking finding was observed in the Western region of the country. This region had only four states listed, but it was the region in which most practitioner/researchers worked (N=31). It should be noted that California was the largest single state reported for education (N=14) and practice (N=18). The Northeast region of the country had the greatest variety of states where respondents' practiced (N=9), but it was second-largest in terms of actually employing practitioner/researchers (N=26).

Table 4 provides the geographic regions for where the respondents received their occupational therapy educations and practiced (if respondent listed different regions for bachelor's and master's-level educations, the master's region was used for cross-tabulation purposes). It is notable from Table 4 that when the regions for education and practice are contrasted, there was one general tendency: over one-half (59%) of practitioner/researchers remained in the same region. This tendency was especially true in the West, where 92% of respondents who

Table 4

Geographic Regions for Education and Practice

		REGION WHERE PRACTICED				
		NE	**S**	**MW**	**W**	*N*
REGION WHERE RECEIVED DEGREE	**NE**	14 61%	5 22%		4 17%	23
	S	4 23%	10 59%	1 6%	2 12%	17
	MW	7 23%	3 9%	19 59%	3 9%	32
	W	1 4%		1 4%	22 92%	24
		26	18	21	31	96

were educated in that region also remained there to practice. Another finding of interest from Table 4 was that most (32%) respondents received their educations in the Midwest, and Appendix D revealed that one-third of this same group obtained their occupational therapy education from Eastern Michigan University.

Researcher Roles and Functions

Table 5 summarizes the types of researcher roles and functions held by the 94 respondents. There were 65 respondents who said they had a single researcher role, and 29 who indicated involvement in more than one role and researcher function. The largest number (42%) of practitioner/researchers indicated a single researcher role, functioning as a "co-investigator" or "collaborator." Of those who reported involvement in more than one type of role and function, the two most common responses included "assistant/co-investigator" (21%) and "co-investigator/ primary investigator" (21%). Additionally, one respondent described his/her researcher role and function as "statistician."

Primary Clinical Population

Table 6 contains the descriptions of the "typical" clinical population provided by respondents who identified a primary clinical population only. (Table 7 gives the descriptions of both "primary" and "secondary" populations.) There were 95 responses to this item, and Table 6 shows that more than one-third (37%)

Table 5

Researcher Roles and Functions

CO-INVESTIGATOR or COLLABORATOR in a research study, performing some functions independently and other functions with supervision

ASSISTANT to an investigator, carrying out specified research functions with supervision

INDEPENDENT INVESTIGATOR, not responsible for directing others

PRIMARY INVESTIGATOR, responsible for directing the activities of others who are involved in a research study

ROLE	NUMBER	PERCENT*
Single Role (N=65)		
Co-Investigator or Collaborator	27	42%
Assistant Investigator	17	26%
Independent Investigator	11	17%
Primary Investigator	10	15%
Two or More Roles (N=29)		
Asst/Co-Invest	6	21%
Co-Invest/Primary	6	21%
Asst/Co-Invest/Prim	4	14%
Co-Invest/Prim/Indep	3	10%
Asst/Co-Invest/Indep	3	10%
Asst/Co-Invest/Prim/Indep	3	10%
Co-Invest/Indep	2	6%
Primary/Independent	1	4%

*Deviation from 100% due to rounding

Table 6

Primary Clinical Populations (N=35)

Primary Population (37% identified a primary population only)	Number of Responses	Percent*
Physical Dysfunction	10	29
Head/Hand Injury**	7	20
Pediatrics	3	9
Geriatrics	3	9
Mental Health	2	6
Work/Vocational	2	6
Head Injury**	2	6
Spinal Cord**	2	6
Developmental Disabilities	1	2
Head and Hand Injuries**	1	2
Burns**	1	2
Occupational Therapists	1	2

* Deviation from 100% due to rounding
** An "other" population descriptor provided by respondent

of the respondents who answered the item specified a "primary" clinical population only. Of this 37%, more than one-half (60%) chose from the selections listed on the questionnaire. The clinical population described as "Physical Dysfunction" was provided by the largest proportion of respondents (30%) identifying only a primary population. This is not surprising because 83.4% of the general population of occupational therapists work with a variety of physical dysfunctions (AOTA, 1991).

The remaining 40% of responses listing a primary clinical population only were placed in the "other" category. It is interesting to observe that 13 of the 14 respondents who selected the "other" option wrote-in a specific type of physical health problem that they felt best described their clinical population. This observation suggests that over two-thirds (69%) of the primary clinical populations could be described under the heading of physical dysfunctions, the exception being the one respondent who wrote that "occupational therapists" were his/her clinical population for "research purposes."

Primary and Secondary Clinical Populations

Respondents' primary and secondary clinical populations are found in Table 7. The larger portion of the table (above the thick line) shows that for all combinations, 58% of primary clinical populations were within the area of physical dysfunction. The lower portion of the table illustrates that Pediatrics was

Table 7

Primary and Secondary Clinical Populations (N=60)

Primary	Secondary	Number of Responses	%
Physical Dysfunction	Geriatrics	11	17
Physical Dysfunction	Pediatrics	6	10
Physical Dysfunction	Hand/Upper Extremity**	4	6
Physical Dysfunction	Work/Vocational	3	5
Physical Dysfunction	Neonates**	2	3
Physical Dysfunction	Burns**	1	2
Physical Dysfunction	Head Injury**	1	2
Physical Dysfunction	Learning Disabled Adults**	1	2
Physical Dysfunction	Mental Health	1	2
Physical Dysfunction	Post-Polio**	1	2
Hand Therapy**	Physical Dysfunction	3	5
Burns**	Pediatrics	1	2
Geriatrics	Physical Dysfunction	6	10
Pediatrics	Developmental Disabilities	6	10
Pediatrics	Physical Dysfunction	4	6
Mental Health	Geriatrics	3	5
Work/Vocational	Physical Dysfunction	2	3
Developmental Disabilities	Pediatrics	1	2
Geriatrics	Mental Health	1	2
Mental Health	Physical Dysfunction	1	2
Mental Health	Work/Vocational	1	2

* Portion above thick line represents primary clinical population in area of physical dysfunction

** An "other" population descriptor provided by respondent

the next most frequent primary population, although it comprised only 16% of the total. Geriatrics constituted 12% and Mental Health 9% of primary clinical populations for respondents listing both primary and secondary population. Of the 21 secondary clinical populations found in Table 7, nine were in the area of Physical Dysfunction. It is notable that two respondents reported having primary and secondary populations described as "Mental Health" and "Physical Dysfunction" and "Physical Dysfunction" and "Mental Health." The combination is rare in the occupational therapy field.

Type of Facilities Where Practitioner/Researchers Work

Ninety-seven respondents described the type of facility in which they worked. In several cases, a respondent wrote the specific name of his/her facility. The name of the facility was not used in the reporting data. Instead, the facility "type" was inferred and placed in an analogous category. Table 8 provides a compilation of the results for the four specific response categories listed on the questionnaire. A surprising finding was that when all facility types are considered (Table 8 and Appendix E), more respondents reported they worked in facilities not affiliated with a university (48%) than those that were (36%). Additionally, 23% of all facility types imply some support with public monies such as federal, state, or county resources. Because this item contained an "other" category, a variety of distinct facility descriptions were given. Appendix E contains a

Table 8

Facilities Where Practitioner/Researchers Work* (N = 97)

Type	Number	Percent
Private, Non-University Affiliated	35	37
University Affiliated	24	25
Federally Supported	7	7
State/County Supported	7	7
Other**	24	24

* From the four responses categories listed on questionnaire

** See Appendix E for "other" descriptions

complete listing of the types of facilities written for the "other" response. Facilities suggesting private, individual ownership such as "private practice" were least represented in Appendix E.

Summary of Demographics

One hundred and three questionnaires were received from a census population comprised of 116 occupational therapy practitioner/researchers. The practitioner/researchers worked in 26 states and the District of Columbia. One hundred surveys were usable for data analyses; either all or most of the items were completed.

Practitioner/researchers were overwhelmingly female (93%) and below the age of forty (77%). Sixty-six percent of practitioner/researchers said the Bachelor's degree was their highest educational level and 17% of Bachelor's-level respondents indicated they were pursuing a Master's degree. Thirty-one percent of respondents said their highest educational-level degree was the Master's. Only two percent of the population had doctorates. No single college or university dominated the institutions where occupational therapy education was received, although the University of Southern California was reported most often (8%).

Most respondents (69%) had worked as an occupational therapist for 10 years or less, and almost the same proportion (70%) had been involved in clinical research activities for three or fewer years. Three times as many worked in the

state of California than the next largest state represented. Respondents were as likely to work in private, non-university affiliated facilities as facilities having a university affiliation. The great majority of practitioner/researchers worked with patients having physical dysfunctions.

Research Experiences and Recommendations

Research question number one dealt with the broad question of how occupational therapy practitioners adopted the role of practitioner/researcher in clinical settings. Sub-questions included: (a) What circumstances contributed to their interest or involvement in clinical research? and (b) How do they think other therapists could also become interested or involved in research in their work settings?

The Importance of Research Circumstances

Figure 1 contains the proportional frequencies of the respondents' ratings of "importance" of all 11 items in Part A from two perspectives: the importance a factor had in the respondents' own circumstances and their ratings of importance (recommendations) for others. For Figure 1, the four possible response values were collapsed into important v. not important. The actual frequencies of responses for the individual items can be found in Appendix F.

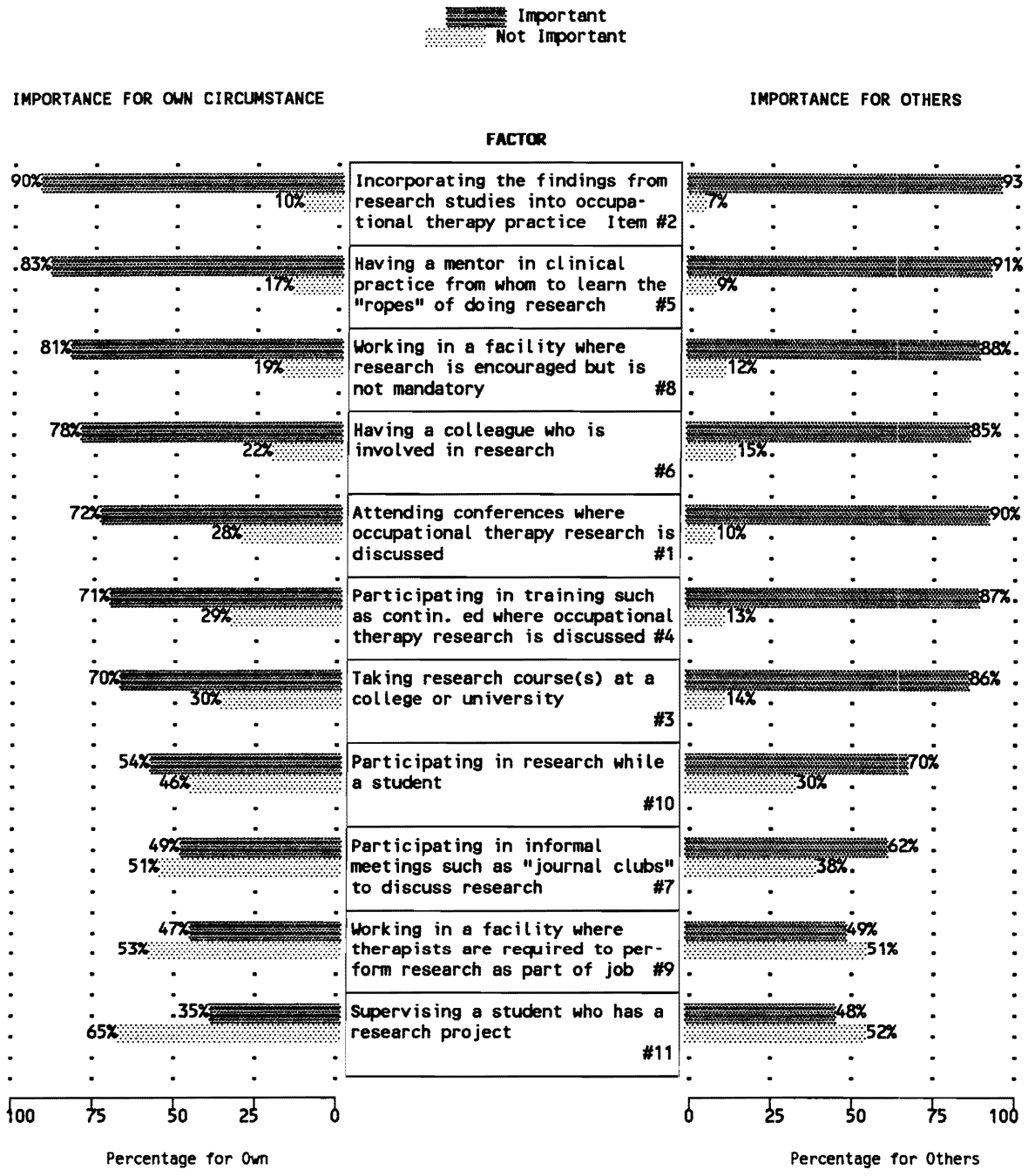

Figure 1. Proportional Frequencies of Importance: Ratings of the Respondents' Own Circumstances for Research Interest or Involvement Versus their Recommendations for Other Practitioners.

An overall scan of Figure 1 reveals a consistent pattern: importance ratings were always higher for others than for the respondents' own circumstances. This pattern suggests that, regardless of extent of personal involvement, almost all circumstances were deemed "important" for other therapists' becoming interested and involved in clinical research. The learning activity of "attending conferences where occupational therapy research is discussed" was the item that had the greatest differences in ratings of importance for respondents' circumstances and ratings for others (72% important for own v. 90% important for others). The finding that only 72% of respondents said this was important for their own circumstances may reflect the scarcity of research sessions at occupational therapy conferences.

Figure 1 also shows an interesting pattern regarding the workplace factor of "mandatory research practice" (item # 9). The topic of mandatory research has periodically surfaced in the occupational therapy literature, and it has been an issue that has sparked heated debate from those with opposing positions. That the respondents were close to being divided in their recommendations of importance for others (49% important v. 51% not important) suggests that the mandatory research topic is an issue even among practitioners who are involved in clinical research.

Table 9 provides a rank ordering of the 11 items for Part A according to the item mean. Again, one general observation is that the item means reveal that

Table 9

Rank Ordering of Item Means* for the Importance of Respondents' Circumstances for Becoming Interested or Involved in Research

CIRCUMSTANCE		Own μ σ	Others μ σ
Incorporating the findings from research studies into occupational therapy practice	Item #2	3.5 .9	3.6 .7
Having a mentor in clinical practice from whom to learn the "ropes" of doing research	#5	3.3 1	3.5 .7
Working in a facility where research is encouraged but is not "mandatory"	#8	3.2 1	3.3 1
Having a colleague who is involved in clinical research	#6	3.1 1	3.2 .7
Taking research course(s) at a college or university	#3	3.0 1	3.2 .7
Attending conferences where occupational therapy research is discussed	#1	2.9 .9	3.2 .6
Participating in training such as continuing education where occupational therapy research is discussed	#4	2.9 1	3.2 .7
Participating in research while a student	#10	2.6 1	3.0 .9
Participating in informal meetings such as "journal clubs" to discuss research	#7	2.5 1	2.8 .9
Working in a facility where therapists are required to perform research as part of job	#9	2.3 1	2.4 .9
Supervising a student who has a research project	#11	2.1 1	2.4 .9

* Scale: 1=Not Important at all 2=Slightly Important 3=Important 4=Very Important

recommendations of importance were greater for others than for the respondents' own circumstances. One finding from Table 9 warrants discussion because of the similarities found in Figure 1 and Table 9. First, the top four item means for the respondents' own circumstances were above 3.0--indicating a level of "important." Secondly, Figure 1 showed that these items were considered "important" by more than three-quarters of respondents' own research circumstances, and Table 10 will show that they were described as types of learning activities. An additional note from Table 9 is that standard deviations for Others were smaller than for Own, suggesting less variability in respondents' ideas of what should be important circumstances for stimulating research interest or involvement by other practitioners.

Types of Research Circumstances

To further assist with understanding the relationship between research experiences and recommendations, the content of items for Part A were examined and placed into descriptive categories. The rationale and structure used to examine items was discussed earlier in Chapter III.

Eight of the items in Part A illustrated a type of learning activity. For the learning activity items, Houle's (1980; 1987) conceptualization of the three major modes by which professionals learn in lifelong education was used to suggest how these circumstances may be learned in clinical settings. The three remaining

items were types of workplace environmental or "cultural" factors. Table 10 lists the types of research circumstances found in Part A and resulting rank according to the item's mean.

The two items most important for respondents' research circumstances were learning activities within the mode of performance/reinforcement. These activities were "incorporating research findings into practice" (item # 2) and "having a mentor from whom to learn the 'ropes' of doing research" (item # 5). Although Houle (1987) stated that the performance/reinforcement mode of learning is the most common "type" of learning found in clinical settings, there are two reasons why the two top-ranked items are of particular interest to this study. First, the most important item: "incorporating research findings into practice" depicts the ultimate goal of clinical research, which is to have an empirically-based practice of occupational therapy. Second, the next highest-ranked item: "having a mentor from whom to learn the 'ropes' of doing research" describes the process by which the ultimate goal may be realized.

Of least importance were two items that characterized workplace environmental/cultural factors, describing research circumstances that may be "imposed upon" a practitioner. These items were "working in a facility where therapists are required to perform research as part of the job" (item # 9) and "supervising a student who has a research project" (item # 11).

Table 10

Types of Circumstances Leading to Interest or Involvement in Clinical Research

Learning Activities	Rank of Items*
Performance/Reinforcement	1, 2, 4, 8
Instruction	5, 6, 7
Inquiry	9
Workplace Environmental/Cultural Factors	
Voluntary Research Practice	3
Mandatory Research Practice	10
Student Supervision of Research	11

It is interesting to note that the other workplace item in Part A read: "working in a facility where research is encouraged but is not "mandatory" (item # 8). This factor was ranked third in importance for respondents' becoming interested or involved in clinical research.

Written Comments

A twelfth question allowed respondents to write in a research circumstance that did not appear in Part A of the questionnaire. Data from 13 responses to this question fell into four main categories: (a) activities in the workplace; (b) conference activities; (c) therapists' personal traits; and (d) conditions present in the workplace. It was observed following analysis that a number of respondents' suggestions were closely related to other research situations or factors that appeared in latter parts of the questionnaire. A listing of the actual respondent comments is found in Appendix G. Following is a brief summary of the analysis.

Specific activities for the workplace were suggested, and all but one respondent highlighted learning experiences conducted with other persons in the workplace. The exception to the workplace activities was a suggestion that practitioners be "exposed to research in other fields." This suggestion may be very helpful in settings or situations where access to occupational therapy research is not possible. Another respondent mentioned a conference learning activity that

may often be overlooked as a valuable source of invoking interest in clinical research. This respondent suggested "participating in informal discussions regarding research" while attending conferences as an important factor.

Other factors concerned personal attributes of the practitioner, such as a "desire" or "motivation" to learn about clinical research. Two suggestions of workplace conditions were made: obtaining administration "support" and having a "time commitment from supervisor prior to beginning research." It should be noted these two suggestions appeared later in questionnaire Part C, and these items in particular generated a great deal of written comments.

Research Activities in the Clinical Environment

The second research question was aimed at identifying the specific research activities that respondents performed in their clinical settings. It read: "What activities constitute research in clinical settings?" Questionnaire Part B, designed to address question two, contained an introductory question regarding the typical amount of time spent on research activities while at work. The questions that followed asked about the extent of involvement in specific research activities over the past three years. There was also a research activity item that appeared in questionnaire Part F (Personal/Demographic Information, number 2). The purpose of the Part F item was to obtain more detailed information pertaining to the professional activities of publishing and presenting one's research. The results

of these two activities are discussed later and displayed in Table 13 that follows the discussion.

Table 11 summarizes the results from research activity involvement. A remarkable finding was that almost three-quarters (72%) of respondents spent less than 25% of their work time on research activities. This finding clearly demonstrates that for most respondents occupational therapy practice takes priority over research in clinical settings.

The item means displayed in Table 11 illustrated that respondents were, at the most, only "moderately" involved in the 11 research activities, which is consistent with the amount of time actually devoted to research activities. Most item means were between 2.0 and 2.9, and standard deviations for corresponding items fairly uniform (.7 to 1.0). Although the activity receiving the highest position (data collection and input: $\mu = 3.2$; $\sigma = .8$) may imply a "moderate" level of involvement, Appendix H suggests that respondents may have a higher level of involvement. The actual frequency of responses to each of four item choices illustrates that close to half (45%) of respondents said they had spent a "substantial" amount of time in data collection and input over the past three years. None of the ten remaining items contained a mean that would suggest levels of involvement that were other than the associated item-scale descriptor.

Table 11

Rank Ordering of Item Means* for Research Activities in the Clinical Environment

Overall what percentage of work time do you usually spend on research activities?
less than 25% (72%) 26-50% (16%) 51-75% (5%) more than 75% (7%)

RESEARCH ACTIVITY	μ σ
Data collection and input Item #5	3.2 .8
Searching and reviewing literature #1	2.9 .7
Data analysis #6	2.6 .8
Presenting findings to fellow staff members or "in-house" presentations #7	2.5 .8
Identifying problems for research #2	2.5 .8
Enlisting support of non-occupational therapy staff for patient participation in research #11	2.3 .9
Presenting findings to others who are external to your facility #8	2.2 .9
Developing instruments for research #4	2.1 1
Writing for publication #9	2.1 .8
Documenting data in patient's record #10	2.0 1
Writing for research funding #3	1.5 .8

* Scale: 1=Never 2=Minimal 3=Moderate 4=Substantial

Because most practitioners spent less than one-quarter of their time on research activities while at work, separate analyses were run on the small percentage (12%) of respondents who said they spent more than one-half of their work time on research. When this small group was examined independently of the overall population of practitioner/researchers, they were found to spend more time on all research activities, although the differences were rather small (.1 to .9). The three activities with the most differences in levels of involvement were: (a) "developing instruments for research" (item means 2.1 v. 3.0); (b) "data analysis" (2.6 v. 3.4); and (c) "writing for research funding" (1.5 v. 2.3).

Categorization of Activities According to Research Function

Categories that furthered described and differentiated the specific "function" of the activity were developed. Functional activities typically have a goal-orientation in clinical settings. Three main categories of activity function emerged: (a) Planning/Preparation Activities; (b) Activities for Research Maintenance; and (c) Communication of Research. Because there were several forms of communication listed among the research activities, sub-classifications of "oral or written" were used. The sub-divisions used to further describe communicative activities were selected because of the degree of groundwork implied under "typical" circumstances. For example, an "in-house" presentation may require less preparation (and consequently less time away from clinical

responsibilities) than a "scholarly" communication such as submitting a written piece to a refereed journal. Table 12 contains a ranking of research activities according to the type of function it serves in facilitating clinical research. The two research maintenance activity functions are among the top three rated in terms of involvement (item number 5: $\mu=3.2$, $\sigma=.8$; Item number 6: $\mu=2.6$, $\sigma=.9$). The lowest rated item (number 3: $\mu=1.56$, $\sigma=.8$) was an activity having a communicative function. The activities used to communicate the respondents' research produced some findings that merit a brief discussion.

First, the majority of research activities in clinical environments had communicative functions (six out of 11). Second, all (item numbers 3, 7, 8, 9, 10, & 11) but one (number 7) item with a communicative function had an average rating of 2.3 or less, indicating close to a minimal level of involvement. An interesting theme appeared from these findings: the two highest rated items (numbers 6 & 7) were either oral or written and "in-house" (smaller audience suggested), and the three lower rated items (numbers 9, 10, & 3) were "written" forms of communication having the potential to reach larger audiences of readers. Appendix H shows that a weighty proportion of respondents selected "never" as their level of involvement in the lower-ranked communication activities. It should be noted that item number 10 ("documenting data in patient's record") is a written activity performed in-house, but it often becomes a valuable document reviewed by outside persons representing health care organizations such as insurance

Table 12

Types of Research Activities According to Function

Descriptive Category	Rank*
Research Maintenance	
Data Collection and Input	1
Data Analysis	3
Planning/Preparation	
Literature Search	2
Problem Identification	4**
Instrument Development	7
Communication	
Oral/Written: In-House	4**, 6, 7, 10
Written: Scholarly	9, 11

*Ranked according to item mean

**Item numbers seven and two were tied for fourth position

providers, review boards, or accreditation groups. Additionally, two of the three items with the least amount of participation (numbers 9 & 3) were regarded as "scholarly" forms of writing. A low amount of scholarly publication has direct implications for professionalization.

Professional Publications and Presentations

Before discussing Table 13, it should be noted that at first glance, the means present a somewhat distorted picture of professional research-related activities. The distortion stems from data provided by one respondent who consistently reported a very high number of publications and presentations. An additional note is that the numerical categories represent the actual data, and were not "artificially" created.

Table 13 summarizes the respondents' reporting of their professional publications and presentations. More than one-half (53%) of the respondent population said they had not published or presented their clinical research. It is notable, however, that of the 27 respondents who had published their research, close to three-quarters (74%) said their publications were in a refereed journal. The actual number of publications were small--70% of respondents had one or two publications, but this finding is very important. It is significant because documentation of clinical practice in a refereed journal contributes to professionalization. It is also significant that a portion of a largely

Table 13

Professional Publications and Presentations of Research

Description of Professional Activity	Number	%*	μ	σ
Published or Presented Clinical Research (N=98)				
Yes	46	47		
No	52	53		
Research Publications (N=27)			5	14
3 or Fewer Publications	21	78		
4 to 6 Publications	4	15		
10 Publications	1	4		
80+ Publications	1	4*		
Research Publications in Refereed Journal (N=20)			4	8.6
2 or Fewer Publications in Refereed Journals	14	70		
3 Publications in Refereed Journals	3	15		
4 Publications in Refereed Journals	1	5		
40 or More Publications in Refereed Journals	1	5		
Research Presentations (N=42)			3	4
3 Presentations or Less	31	74		
4 to 6 Presentations	8	19		
10 Presentations	1	2*		
15 Presentations	1	2		
20 Presentations	1	2		
Research Presentations Following Refereed Review (N=14)			4	10
1 Presentation Following Refereed Review	6	43		
2 Presentations Following Refereed Review	5	36		
3 Presentations Following Refereed Review	1	7		
6 Presentations Following Refereed Review	1	7		
40 Presentations Following Refereed Review	1	7		

*Deviation from 100% is due to rounding

young and emerging group of practitioners have experienced the refereed publication process.

Also described in Table 13 are the findings regarding the respondents' presentation of their clinical research. The results are somewhat surprising as compared to the publication data, because of the 91% of respondents who indicated they had either published or presented their clinical research, only 15% of presentations were given following a refereed review. This finding sparks two sobering impressions. First, refereed-reviewed presentations are typical for reputable professional conferences where large audiences may attend. Second, as reported earlier in the discussion of circumstances for becoming interested or involved in clinical research, respondents showed that a variety of conference activities were important for cultivating interest and involvement in research.

Written Comments on Research Activities

Thirteen (13%) of respondents indicated an additional clinical research activity. Activities fell into two categories: (a) Preliminary Research Activities; (b) Activities Supporting the Continuation of Clinical Research. Appendix I contains a summary of the actual respondent comments. Most of the activities provided could be categorized as having either "planning/preparation" or "maintenance" functions, but one activity was very insightful. The activity described was actually a process comprised of a variety of experiences:

"Identifying the workings of a research program."

Several respondents wrote comments in addition to answering the item on their number and type of research publications and presentation. Generally, their comments referred to professionally-related activities that were in progress, such as having an article submitted for publication (n=2) or being in the process of writing an article (n=2). One respondent wrote that he/she had published a test battery, and two comments were given by respondents who appeared to be quite involved in research presentation activities (they wrote: "I have given many presentations of various aspects of my research in the form of workshops to other professionals" and "My presentations have been too numerous to count.")

Factors Affecting Research in the Clinical Environment

Research question number three asked: "How does the clinical environment affect a practitioner's research activities?" Sub-questions included: (a) "What factors facilitate research in clinical settings?" (b) "In what ways do practice and research activities conflict in the clinical work environment?" and (c) "In what ways do they complement each other?" "Factors" in the clinical environment may be understood as both human and non-human influences having the potential to affect a respondent's ability to perform research. It should be noted that the scales used to measure items for factors affecting research in clinical environments differed from similar scales used throughout the

questionnaire. The scale used to answer the first part of the item ranged from zero-to-three rather than one-to-four. Therefore, item means for "importance" (the second part of the two-part items) may appear, at first glance, to be almost twice as large.

Figure 2 demonstrates that almost all (98%) of the respondents said that support from the facility's administration was important, and close to 3/4 selected "very important" in describing their perceptions of the factor's importance level (see Appendix J). Close to the same percentage (93%) felt that support from their occupational therapy administration was important, and, as described in Appendix J, even more respondents (77%) chose the "very important" descriptor when answering the item.

Figure 2 also shows that three factors (item numbers 6, 7, & 11) clearly had a limited presence for the majority of respondents. When percentages of the importance respondents assigned to these items are examined, however, only two of the three factors were considered "important" by the majority of respondents (item numbers 6 & 11). The factor deemed "not important" in addition to being "not present" was "getting rewards for doing research." This finding may appear to suggest that "rewards" are subordinate to workplace factors (65% "not important"), but actual responses to the item shown in Appendix J indicate that respondents' assignments of the factor's importance-levels were fairly uniform.

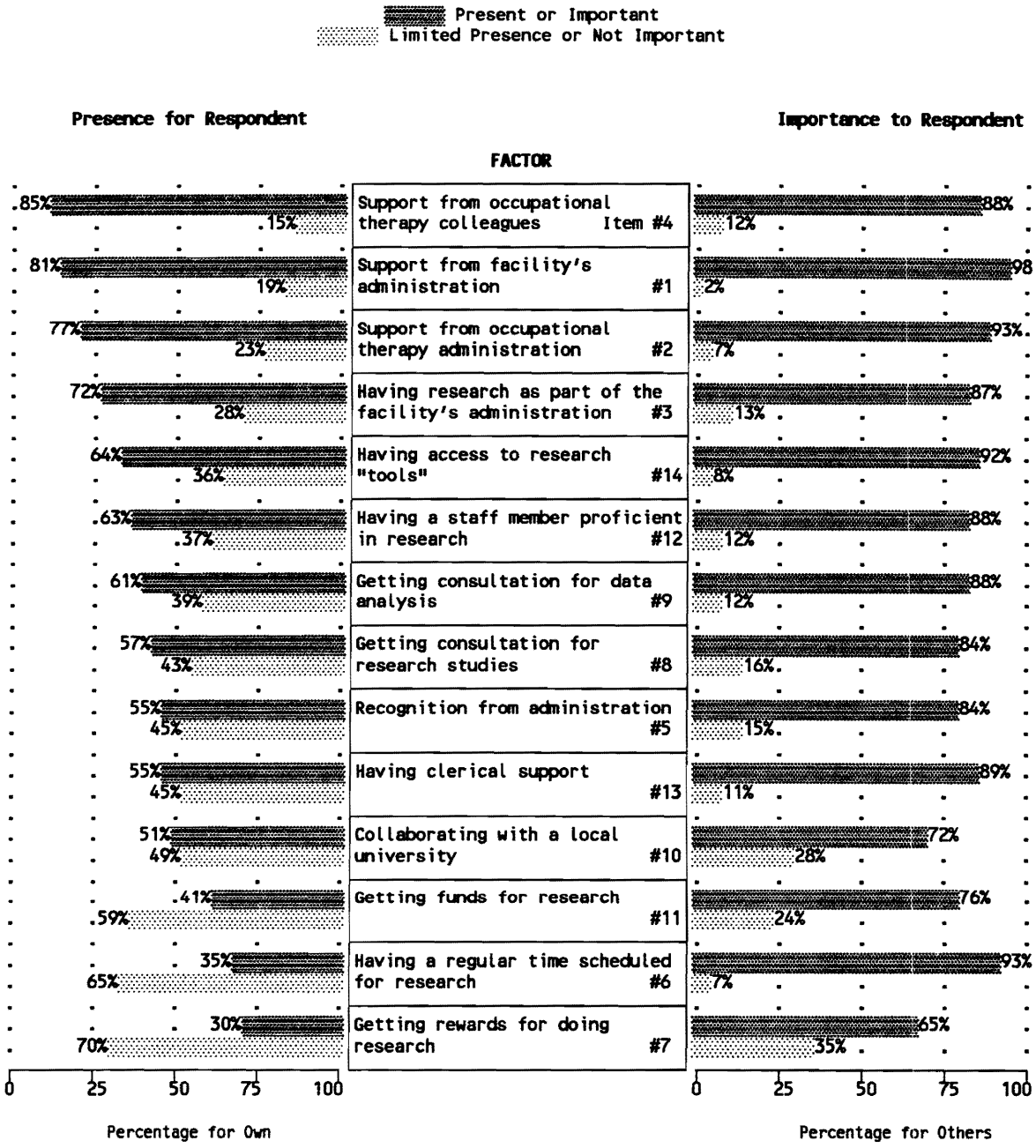

Figure 2. Proportional Frequencies of Importance: The Presence of Factors Affecting Research in the Clinical Environment Versus the Importance of the Factor to Respondents.

Overall, the item means in Table 14 suggested a limited presence of factors that support clinical research, as the highest mean was 2.3 on a scale ranging from zero to three. An additional, overall finding was not only were the factors deemed more important than present (item means 3.04 to 3.72), the standard deviations suggested less variation among respondents' ratings. The same observation is exhibited in Appendix J (percentages of actual responses).

Types of Factors According to their "Appearance" in Clinical Settings

To aid in distinguishing supportive workplace factors, items for Part C were examined according to how a factor may "appear" in clinical settings, and descriptive categories were thus generated. It should be noted that one's interpretation of "support" is clearly subjective, and results should be interpreted with that subjectivity in mind.

Three major classifications of a factor's appearance emerged from analysis: (a) Advocacy; (b) Acknowledgement; and (C) Resources (either Material or Human). Sub-classifications for Advocacy were: (a) Administrative and (b) Collegial. Although only one factor was classified as "Acknowledgement," a sub-descriptor was used to decrease confusion with the advocacy factors. Resources were further classified as (a) human; (b) material; and (c) a "place," e.g., a local university. More information regarding specific resources in a specific place was obtained from the written portion of Part C, and are discussed later under the

Table 14

Rank Ordering of Item Means* According to the Factor's Presence in Respondents' Clinical Environments

FACTOR	Presence μ σ	Importance μ σ
Support from facility administration Item #1	2.3 .9	3.7 .4
Support from occupational therapy colleagues #4	2.2 .8	3.3 .7
Support from occupational therapy administration #2	2.1 1	3.6 .6
Having research as part of the facility's administration #3	1.9 1	3.3 .7
Having access to research "tools" #14	1.8 1	3.5 .6
Having a staff member proficient in research #12	1.7 1	3.4 .7
Getting consultation for data analysis #9	1.7 1	3.4 .7
Getting consultation for research studies #8	1.6 1	3.3 .7
Having clerical support #13	1.5 1	3.3 .7
Recognition from administration #5	1.5 1	3.2 .8
Collaborating with a local university #10	1.4 1	3.0 .9
Having a regular time scheduled for research #6	1.2 1	3.5 .6
Getting funds for research #11	1.1 1	3.1 .9
Getting rewards for doing research #7	.9 1	2.8 .8

*Scale for "Presence:" 0=Totally Absent 1=Seldom Present 2=Sometimes Present 3=Fully Present

*Scale for "Importance:" 1=Not Important at All 2=Slightly Important 3=Important 4=Very Important

heading of "Respondents' Written Comments."

Earlier, Figure 2 showed that there were four factors present for nearly 3/4 of respondents (item numbers 1, 2, 3, & 4). Table 15 shows that these factors were types of support given through types of "advocacy." Two of the material resources (item numbers 6 & 14) followed. The material resource considered most important by 93% of respondents' was "time." The mean for time (μ=3.52, σ=.6) exhibits a level midway between important and very important. Again, Appendix J shows that the majority (61%) selected the highest level of importance for the time resource.

The position relative to other factors for item number 10 (collaborating with a local university resource) was somewhat surprising. It was not expected that the item would appear second to last in terms of importance. Collaboration was important for 72% of respondents and present for 51%, suggesting that less than one-quarter or greater of those who did not have this resource thought that it was an important factor that could affect research in clinical settings. This small segment was surprising because university-clinical collaboration has long been suggested as a way to facilitate research in clinical settings.

Written Comments on Workplace Factors

Respondents were asked to describe their experiences with four "asterisked" factors in Part C of the questionnaire: (a) recognition from

Table 15

Types of Factors Affecting Research in Respondents' Clinical Environments

Description of Factor	Rank of Items
Advocacy	
Administrative	1, 3, 4, 10
Collegial	2
Human Resources	
Expertise	6, 7, 8
Clerical Assistance	9
Material Resources	
Privileges	5
Time	12
Funding	13
Human/Material Resource	
Local University Collaboration	11
Acknowledgement	
Research "Rewards"	14

*Rank according to the item mean of presence in respondents' clinical setting

administration; (b) rewards for research involvement; (c) funds for research; and (d) access to research "tools." Although the asterisk that appeared in Part C, item five read: "Recognition from Administration," the corresponding fill-in portion allowed for more general descriptions of recognition. The fill-in portion asked: "What forms of recognition have you had?" and "What forms would you suggest?" An abundance of written comments were obtained from the four factors. The actual comments given by respondents appear in Appendices K through N. A brief summary of the comments appears below under the corresponding heading.

Recognition from Administration

Comments regarding recognition received and recognition suggested were given by 59% of the total respondents. Following qualitative analyses, seven categories emerged to describe the forms of recognition reported by respondents. The seven categories were: (a) general "support" such as the type of support one receives from colleagues or associates; (b) increased opportunities to pursue research activities; (c) in-house recognition--that is, increased recognition within one's clinical facility; (d) recognition outside or external to the clinical facility; (e) monetary recognition, such as a pay or merit increase; (f) "subsequential" recognition, a form of recognition that occurs as a result of one's research; and, (g) "help," as a form of recognition suggested. A complete listing of respondent comments are found in Appendix K.

General support included support from persons within a clinical facility such as physicians, peers, and related medical staff. One respondent suggested that support be given for research from the academic community. Increased opportunities for research included work-related benefits such as travel, continuing education funding, and opportunities to work with experienced researchers. Forms of support also included "more time" for pursuing research. Forms of in-house recognition were diverse and unique. For example, one respondent both received and suggested that a "social activity" be given to honor research efforts. Other respondents mentioned that recognition from "appreciative clients or patients" had been received. External recognition included a variety of publications and presentations of research, and one respondent said that he/she had received an "award plaque" from an external organization.

Monetary recognition consisted of promotions, a pay bonus, and in one case "receiving tenure." Subsequential forms of recognition were noticed by one respondent through an "increase in amount of referral to the occupational therapy department," and another said that recognition came in the form of having his/her research findings applied to clinical practice in the facility. Two examples of "help" were suggested; the implication was that one should be "recognized" when one attempts clinical research. Forms of "help" were recommended to come from the "AOTA" and "experienced researchers."

Rewards for Research Involvement

Appendix L contains the reporting of respondent rewards received and suggested for research involvement. Forty-three (43%) respondents described a type of reward from their involvement in clinical research. Twenty-one (49%) of the respondents who described a reward also provided a suggestion for clinical research "rewards". Qualitative analyses found five categories of rewards: (a) various privileges; (b) forms of recognition; (c) professional opportunities; (d) monetary rewards; and (e) personal satisfaction. Suggestions for research rewards were the same as reported for "rewards received" with the exception of one respondent who recommended that involvement in research be accepted for the continuing education credits needed for state licensure renewal.

Rewards in the form of privileges included increased time for research, travel, and "access to otherwise off-limit patient records." Recognition was also considered a form of reward for performing research and involved being "known locally" and "recognized" for one's efforts. Other rewards in the form of recognition cited by respondents included "an author listing on publication," "winning a local research contest," and being "acknowledged" by colleagues, administration, and facility personnel.

Other respondents characterized their rewards as "professional opportunities." Such opportunities included "assisting with a publication" for the most esteemed occupational therapy journal, and being able to work with

experienced researchers or physicians on special projects. Monetary rewards were similar to those mentioned in other written sections such as conference monies, salary increases, and merit/pay increases. The exception was one respondent who wrote that he/she received money from the facility to complete his/her project.

Personal satisfaction was a reward mentioned by a number of respondents and the descriptions reflected some of the altruistic characteristics found among persons who enter "helping" professions. One respondents said that his/her reward was a "sense of accomplishment" felt from "knowing that my research will contribute to the body of occupational therapy knowledge." Other rewards included forms of personal "satisfaction" and "gratification." Of particular interest was a comment that revealed the personal sense of fulfillment derived from the culmination of one's research efforts. The respondent simply stated: "learning that [my] research premises were accurate."

Obtaining Funds for Clinical Research

If the respondent indicated prior experience with obtaining funds for clinical research, he or she was asked to elaborate on that experience. Forty-one (41%) respondents provided written comments regarding their experiences with funding for clinical research. Responses fell into four descriptive categories following analysis: (a) funds obtained from a sponsoring organization; (b) funds from a specific grant source; (c) comments regarding persons or resources who

assisted with obtaining funds; and (d) general comments pertaining to funding experiences. Appendix M contains the specific comments provided by respondents.

In some cases, respondents' research was sponsored by a formal organization. Several of the reported organizations are listed by name in Appendix M. As mentioned earlier in the study, the most creative funding source came from a telethon that was contacted by the respondents' clinical department. A number of comments concerned persons or resources that helped the respondent with his/her funding efforts. Of particular interest were the comments describing collaboration efforts. These efforts represent yet another resource to assist novice researchers. General comments pertaining to individual experiences were offered. Two of these comments revealed that respondents were willing to fund their own research, and one other comment was an astute reminder of the potential richness of the resources many clinicians have on hand: "One does not need funds when good records, a good library, and research knowledge are present."

Research Tools

Respondents were asked to describe what it was they considered to be their "research tools." Sixty-two (62%) respondents contributed written descriptions. Their descriptions fell into six major categories: (a) clinical

evaluation measures; (b) treatment equipment, technology, and techniques; (c) tangible or material resources; (d) environmental resources; (e) significant persons; and (f) the researcher's personal assets. A complete listing is found in Appendix N.

Clinical evaluation measures that are a routine part of occupational therapy practice were among the "tools" described by respondents. These are the types of measures that are used on a daily basis, and in most cases: the processes involved are a basic part of occupational therapy education. Specifically named clinical measures tended to be among the few measures widely used in practice that are either standardized or contain preliminary reliability data. Respondents also named an assortment of treatment equipment and, again, the equipment tended to be of the standardized, calibrated variety that contained well-established procedures for use in practice.

Technology such as computers and software was listed, and one respondent described a treatment "technique." A number of material or environment resources mentioned earlier were used by respondents to describe their research tools. Interestingly, numerous respondents said the research tool to which they had access was a specific person in their clinical setting. Among the persons included were physicians, statisticians, and colleagues; one respondent stated: "Other health care personnel who are advocates for occupational therapy research." Additionally, a surprising finding was that some respondents said that a

type of personal asset was a research tool. Such assets included personal "energy," "knowledge," "persistence," and "critical thinking skills."

Summary of Written Comments for Workplace Factors Affecting Research

First, one interesting observation deserves mentioning: respondents provided an abundance of written comments in response to the asterisked items for Part C. This is remarkable because the questionnaire was quite long (7 pages) and the respondents were asked to write at a point when they had another three pages of information to complete. Another remarkable factor was not only the amount of information received, but the quality of comments.

It is important to notice that for each of the four factors respondents listed persons such as experienced researchers or administrative staff members almost as often as they listed material factors. Additionally, comments regarding one's "personal characteristics" were often reported.

Qualitative data regarding the factors that affect research in clinical environments demonstrated that the population of practitioner/researchers is quite resourceful. They are able to use the resources at hand regardless of the limitations that exist. This emerging group of researcher had highly ingenious ideas for the continuation of clinical research in occupational therapy. Most importantly, they demonstrated ways in which clinical research could be integrated with practice, and offered splendid suggestions that addressed many of the

disadvantages common in practice settings.

Education and Training for Clinical Research

Research question number four asked: "What educational experiences do practitioner/researchers identify as important for accomplishing research in clinical settings?" Sub-questions included: (a) "What experiences from education or training were useful for current clinical research activities?" (b) "What other educational experiences do practitioners recommend?" and (c) "What workplace learning activities are suggested for advancing the practitioner/researcher role?" Questionnaire parts D and E were designed to address question four. Part D focused on experiences or activities that may or may not have been present during formal education, and Part E contained activities related to workplace or clinical learning.

Figure 3 summarizes respondents' ratings of importance for research-related educational experiences. There is one overall finding pronounced in Figure 3: none of the research experiences were overwhelmingly important (95% or more) for respondents' experiences. The experience deemed most important for them was item six: Taking a course in statistical methods (89% important). Yet, this ranked ninth in terms of importance for others, being so rated by only 75% of the respondents. The second most important factor from their own experience was "learning how to design studies for clinical practice" (77% rating it

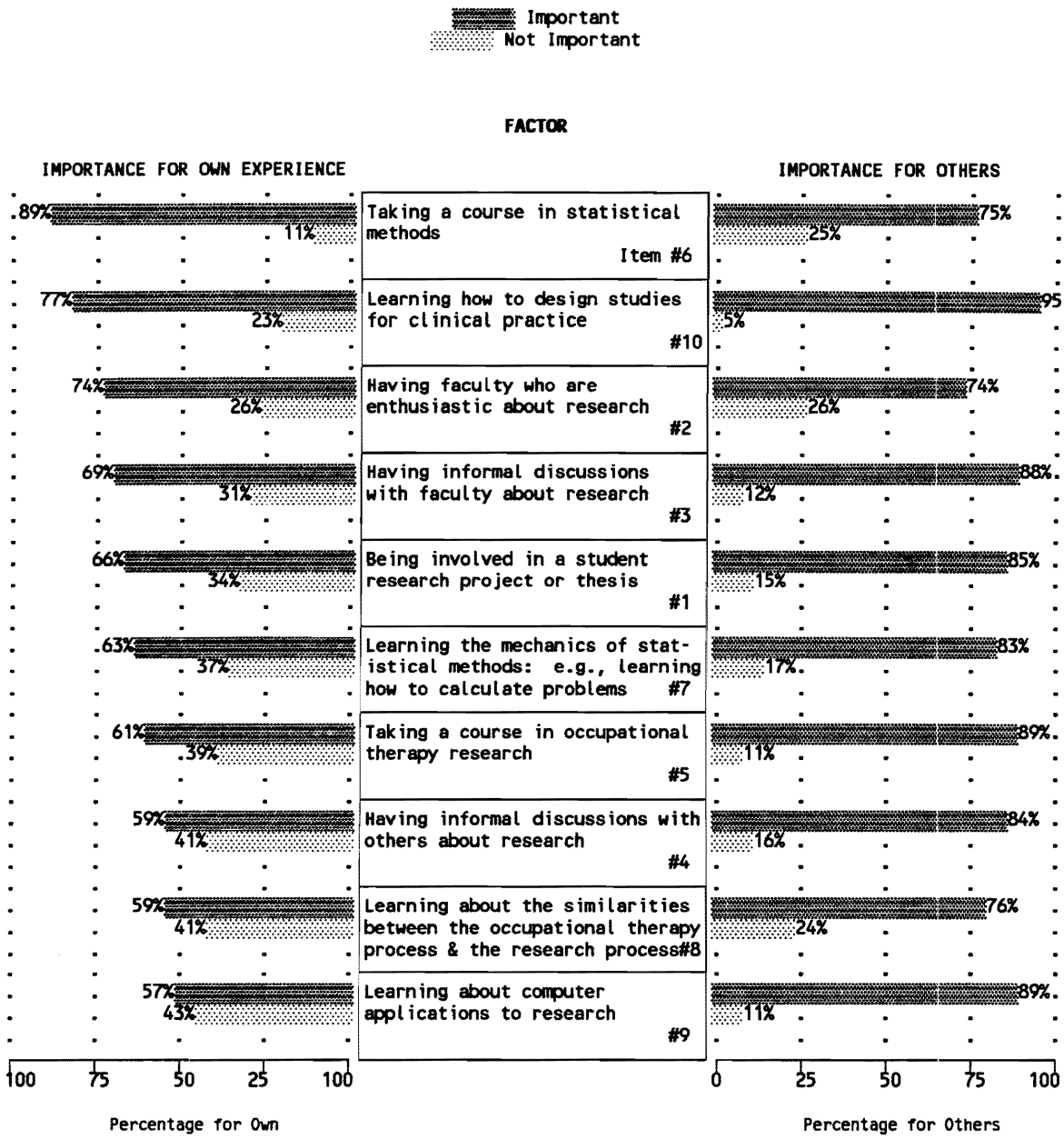

Figure 3. Proportional Frequencies of Importance: The Importance a Research-Related Educational Experience had for the Respondents' Own Circumstances Versus the Importance the Respondents Believe the Experience Should have for Other Practitioners.

important). Of interest is that this item was rated as the most important factor for others (95%). Of additional interest from Figure 3 is that although all items were rated important for others by at least 75% of respondents, only the top three were important for 75% of their own experiences.

These findings may reflect the status and overall progression of research in formal occupational therapy education. That they received ratings of importance as high as one-half is probably due to the ratings of younger practitioner/ researchers having more current formal educational experiences.

In terms of the overall importance of the educational experiences for others, none of the items were considered less than "important." Table 16 shows that item means for all ten experiences were above 3.0, and standard deviations were not greater than .8. This observation suggests answers were less varied, an observation confirmed by the actual percentage of responses found in Appendix O. Another interpretation of these data is that practitioner/researchers are more convinced of the importance that specific research-related educational experiences have for performing clinical research.

Learning Modes for Education and Training Experiences

Items were assessed to further explore and suggest the mode of learning used for the item's content based on the Houle (1980; 1987) typology of the

Table 16

Rank Ordering of Item Means* for Clinical Research Education and Training According to Respondents' Experiences

EXPERIENCE	Own μ σ	Others μ σ
Taking a course in statistical methods Item #6	3.1 .9	3.3 .7
Having faculty who are enthusiastic about research #2	3.1 1	3.5 .6
Learning how to design studies for clinical practice #10	3.1 1	3.6 .5
Having informal discussions with faculty about research #3	2.8 .9	3.2 .6
Learning the "mechanics" of statistical methods, e.g., learning how to calculate problems #7	2.8 1	3.2 .8
Being involved in a student research project or thesis #1	2.8 1	3.3 .7
Taking a course in occupational therapy research #5	2.8 1	3.3 .7
Learning about computer applications to research #9	2.7 1	3.2 .8
Having informal discussions with others about research #4	2.7 .9	3.1 .7
Learning about the similarities between the O.T. process and the research process #9	2.6 1	3.0 .8

Scale: 1 = Not Important 2 = Slightly Important 3 = Important 4 = Very Important

professional's modes of lifelong learning. Table 17 shows that five of the ten items suggested a fit into Houle's instructional mode of learning; four were in the inquiry mode; and one in performance/reinforcement. The ranking implies that respondents' experiences were comprised of structured activities, directed by an expert resource with specific, task-oriented outcomes or goals that were measurable--as might be expected in formal educational settings. The four activities within the suggested inquiry mode received importance ratings between slightly important and important for respondents. It is encouraging because, according to Houle (1980; 1987), these activities are spontaneous and lead to the development of new ways of thinking.

Suggestions for Research-Related Learning Experiences

Sub-question (b) from research question number four asked: "What other (research-related) educational experiences do practitioners recommend?" Fifteen (15%) respondents suggested additional educational experiences. Qualitative analyses of their suggestions resulted in the establishment of three types of experiences: (a) on-the-job research learning experiences; (b) learning from other persons; and (c) specific activities to learn more about clinical research.

Generally, the experiences suggested appeared in earlier portions of the questionnaire, although they may not have been designated as such. Two responses given for educational experiences were not previously mentioned. One

Table 17

Types of Experiences for Clinical Research Education and Training

Learning Experience	Rank* of Items
Instruction	1, 3, 5, 7, 8
Inquiry	2, 4, 9, 10
Performance/Reinforcement	6

*Rank according to item mean for Own (respondent) experiences

suggestion described learning experiences with other persons--liaisons with professional associations. Another respondent suggested a specific activity described as "learning to manage both practice and research roles." A complete listing of suggestions is found in Appendix P.

Workplace Learning Activities

Seven items were designed to answer research sub-question (c): "What workplace learning activities are suggested for advancing the practitioner/ researcher role?" These appeared in Part E of the questionnaire. Two additional items (numbers ten and eleven from Part F: Personal/Demographic Information) helped to address this sub-question.

Figure 4 shows seven activities for learning more about research in clinical settings. That there were only seven, specifically-identified activities reflects the scarcity of references to workplace learning activities for research in the literature. Figure 4 presented an interesting observation that corresponded to the lack of literature: no activity was important for more than 70% of respondents. This observation suggests that respondents had less experience with questionnaire items for Part E than with the items that appeared elsewhere.

The two activities most important for the majority of respondents were also the most highly recommended for others. These activities included "consulting with research 'liaisons' or persons who are not affiliated with the facility," and

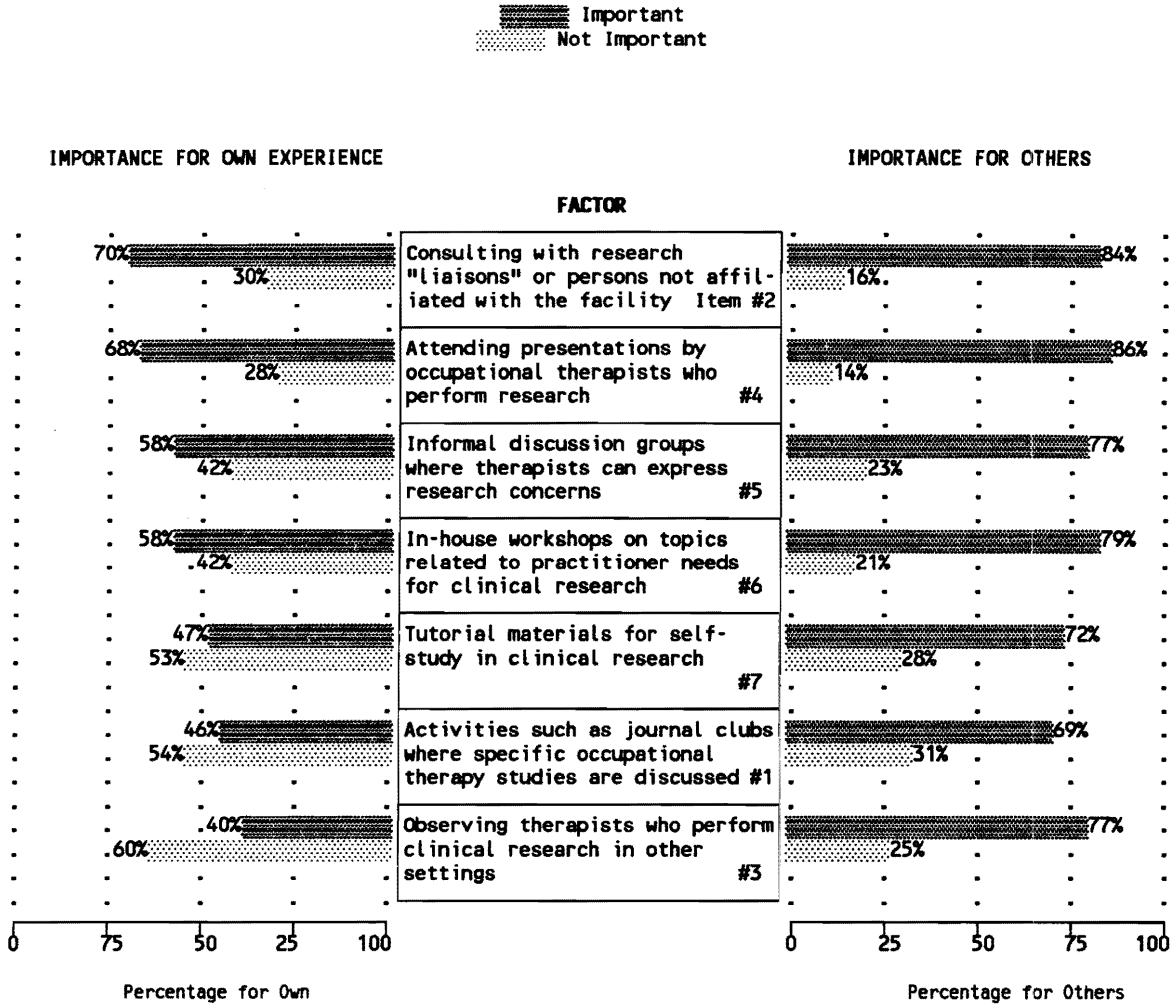

Figure 4. Proportional Frequencies of Importance: Ratings of the Respondents' Own Experiences with Research Learning Activities versus their Recommendations for Other Practitioners.

"attending presentations by occupational therapists who perform research." Implications for the presentation activity have already been discussed in earlier sections of Chapter IV. Basically, the practitioner/researcher population once again underscored the importance of communicating one's research with audiences having similar interests as well professional affiliation.

When the item means listed in Table 18 are compared to the actual responses in Appendix Q, they are somewhat deceptive. Appendix Q shows that for most activities, the respondents experiences were close to being evenly spread across the four response categories. In their recommendations for others, however, the majority of respondents (between 2/3 and 3/4) gave a response of either three or four, suggesting that the activity should be important for others. One further comment from Table 18 should be made: the standard deviations for respondents' recommendations for Others were smaller than for Own. This observation implies less variability in what respondents' considered important for the experiences of others. Finally, when ranking according to item means are considered, item number 1 (activities such as 'journal clubs' where specific occupational therapy studies are discussed) moves up to fourth place, thus suggesting that this is also a relevant experience for learning more about research.

Analysis of the types of workplace learning activities based on the Houle (1980; 1987) typology resulted in only two categories: Instruction and Inquiry. Instructional modes of learning received the top two rankings of importance for

Table 18

Rank Ordering of Means* According to Respondents' Experiences With Activities for Learning More About Research in Clinical Settings

EXPERIENCE		Own μ σ	Others μ σ
Consulting with research "liaisons" or persons who are not affiliated with the facility	Item #2	2.9 1	3.0 .7
Attending presentations by occupational therapists who perform clinical research	#4	2.8 .9	3.2 .7
Informal discussion groups where therapists can express research concerns	#5	2.6 1	3.0 .8
Activities such as "journal clubs" where specific occupational therapy studies are discussed	#1	2.4 1	2.8 .8
In-house workshops on topics related to practitioner needs for clinical research	#6	2.4 1	3.1 .8
Tutorial materials for self-study in clinical research	#7	2.3 1	2.9 .8
Observing therapists who perform clinical research in other settings	#3	2.2 1	2.9 .7

*Scale: 1 = Not Important 2 = Slightly Important 3 = Important 4 = Very Important

respondents' experiences as well as the fifth and sixth position. Inquiry modes were suggested for the items that ranked third, fourth, and seventh. Clearly absent from this portion of the questionnaire were learning situations in the clinical setting that fostered the mode of performance/reinforcement. Other portions of the questionnaire (Parts A and C) described activities that would allow for performance/reinforcement as a mode of learning. This is an important observation because Houle (1980) and Cervero (1988) have both contended that the majority of workplace learning experiences are accomplished within the mode of performance/reinforcement.

Suggestions for Learning More About Research in Clinical Settings

Eight (8%) respondents listed specific learning activities, and they are listed in Appendix R. All were learning activities that have already been mentioned or discussed, with one exception. One respondent said that he/she had observed physical therapy students in their department performing research. This activity may serve as a suggestion for yet another resource to learn about clinical research.

Formal College/University Research Courses

Ninety-two respondents reported the number of formal courses taken for research purposes in Part F. Table 19 shows that the mean number of courses

Table 19

Formal College/University Courses for Research

Number of Courses*	Number Reported	Percent**
0 (No formal courses)	13	14
1 course	28	30
2 courses	21	23
3 courses	16	17
4 courses	9	10
5 courses	1	1
8 courses	3	3
10 courses	1	1

* Total N=92; $\mu = 2$; $\sigma = 1$

**Deviation from 100% due to rounding

was two (σ = 1.0). Nearly one-half of respondents had taken either one or two formal research courses, and over one-quarter (27%) had taken either three or four courses. It is interesting to note that 14% of the practitioner/researcher population had not taken any formal research courses.

Continuing Education Sessions. Eighty-eight respondents (88%) reported the number of continuing education courses that they had taken for research purposes. Table 20 shows that the largest percentage of those (36%) had not taken any continuing education sessions specifically for research purposes. This finding may suggest the need for more continuing education sessions specifically designed for clinical research, or that the sessions are not convenient to these respondents. Although the mean number of sessions for all respondents was three (σ = 5), most respondents (57%) took between one and five continuing education sessions for research purposes. Only four attended more than 10 continuing education sessions.

Summary

Four questions were designed for this study in an effort to examine and describe the emerging role of occupational therapy practitioner/researcher. Additional demographic data were collected to obtain a profile of those who fit the emergent role. A brief summary of the study's findings follows.

Table 20

Continuing Education Sessions For Research Purposes

Number* of Sessions	Number of Responses	Percent**
0 (no sessions taken)	32	36
1 session	15	17
2 sessions	14	16
3 sessions	3	3
4 sessions	5	6
5 sessions	7	8
6 sessions	4	5
7 sessions	1	1
10 sessions	3	3
12 sessions	1	1
18 sessions	1	1
20 sessions	1	1
40 sessions	1	1

* N=88; μ =3; σ = 5

**Deviation from 100% due to rounding

The practitioner/researcher population was mainly comprised of females (93%) who were either in their twenties (40%) or thirties (39%). Two-thirds (66%) of them identified the Bachelor's as their highest educational-level degree. Sixty-eight percent had worked as occupational therapists for under ten years, and the majority (40%) of the under ten-year group had worked between one and five years. Close to three-quarters (70%) had been in the dual practitioner/researcher role for less than three years.

Clinical practice was the prime focus for respondents--nearly three-quarters (72%) spent less than 25% of their work time on research activities. Close to one-third (29%) described their researcher role and function as "co-investigator or collaborator," performing some activities independently and other research activities with supervision. Nearly three-quarters (72%) of the practitioner/ researchers described their primary clinical population as patients who had a type of physical dysfunction. More than one-third of respondents (37%) worked in private, non-university affiliated facilities. Practitioner/researchers were moderately involved in research activities whose function could be characterized as "research maintenance" (data collection/input and data analysis) or "planning/preparation" (searching and reviewing the literature). Research activities that had a communicative function of a "scholarly nature" (publication or writing for research funding) received ratings that indicated the least amount of respondent participation (minimal or less). Of the 27 respondents who had

published their research, 70% did so in a refereed journal, and of the 42 who had presented their research work, only 14 presentations were made following a refereed review.

The circumstance describing one of the ultimate goals of clinical research--incorporating the findings from research studies into occupational therapy practice--was rated most important for generating respondents' interest or involvement in clinical research. Most circumstances (8/11) that provoked respondent interest or involvement could be best described as types of learning activities. With regard to workplace circumstances, respondents were clear that working in an environment where research was encouraged, but not "mandatory," was important for promoting research interest or involvement interest. Respondents also suggested additional circumstances for furthering interest among other practitioners. These suggestions were concentrated on learning experiences that could be conducted with other persons in the workplace.

Of the 14 factors thought to affect and therefore facilitate research in the clinical environment, none were described as being "fully present" for respondents. Least present were factors depicting types of material resources, including having a regularly-scheduled time for research, obtaining funds, and receiving "rewards" for one's involvement in clinical research. Additionally, respondents rated all factors as being more important than they were actually present. Their written comments emphasized the importance of having adequate research time

and stressed that the most worthwhile reward for doing research is one that is "personal," e.g., gaining a sense of professional accomplishment or satisfaction from one's contributions.

From formal education, three of the ten research-related experiences were important for over 75% of respondents. Most important were: (a) taking a statistics course; (b) learning how to design studies for clinical practice; and (c) having faculty who were enthusiastic about research. In terms of their recommendations for other practitioners, all ten experiences listed were rated important by at least 75% of respondents. Over one-half (53%) had taken either one or two college/university research courses, and 14% of the population had not taken any formal courses for research purposes. Other (research-related) educational experiences that were suggested included developing liaisons with professional associations and learning how to manage both practice and research roles.

In terms of workplace learning activities, none of the seven activities listed were described as important by more than 70% of respondents. Most highly recommended, as well as most important for respondents, were consulting with research liaisons and attending presentations by occupational therapists who perform research. Over one-third (36%) of respondents had not taken any continuing education sessions for research purposes. The same percentage (36%), however, had taken either one or two continuing education sessions. The mean number for continuing education sessions related to clinical research was three.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

After summarizing the nature of and methodology of this study, this chapter sets forth the study's conclusions based on the results found in Chapter 4. It then discusses the implications of these conclusions for occupational therapy and ends with specific recommendations for future research.

Summary of the Study

Clinical research has been identified with key occupational therapy issues such as professionalization and establishing the efficacy of practice within a competitive health care marketplace. The natural setting of clinical practice provides the optimum environment in which to conduct research pertaining to practice, and a small but growing number of practitioners have managed to integrate research and practice in such an environment. This emerging group has experienced first-hand the numerous factors thought to affect clinical research. Additionally, these practitioners have had specific educational and personal experiences that may have contributed to their ability to combine both practice and research roles.

Although the literature has been strong in advocating the need for more

clinical research, it lacks systematic study of the factors thought to increase practitioner involvement in clinical research in the field of occupational therapy. Specific suggestions have been made regarding circumstances, activities, workplace conditions, and educational experiences, but they are largely based on opinion or speculation. There exists a gap between the recommendations made by the experts and the actual experiences of conducting both practice and research from the perspective of the practitioner.

This study was exploratory and descriptive in nature, designed to address the lack of systematic study regarding practitioner involvement in clinical research. It was also designed to help fill the gap between abstract suggestions or recommendations and actual practitioner experiences. The main purposes were to develop an understanding of the dual practice/research role by identifying factors thought to influence a practitioner's ability to perform clinical research and to determine the extent of their importance. The goal was to develop an understanding of the emerging role by identifying relevant personal, environmental, and educational factors and determining their importance for current practitioner/researchers while obtaining recommendations for others. To achieve the study's goal, a mail questionnaire specifically designed for this study was sent to the identified practitioner/researcher population (N=116). One hundred and three questionnaires were returned, yielding a 89% response rate.

The population was comprised mostly of females (93%) below the age of

forty (77%), who named the bachelors's degree as their highest educational level (66%). They had primarily worked for ten years or less (69%), been involved in research activities for three years or less (70%), and were somewhat more likely to work in private, non-university affiliated facilities (37%) than in facilities having a university affiliation (33%). Close to two-thirds (64%) worked with patients having a type of physical disability.

Important for adopting a dual research/practice role were learning circumstances that focused on the actual performance and application of clinical research. This study suggested that an occupational therapy practitioner was more likely to adopt a researcher role if he/she worked with physical disability patients and perceived that research was a professional responsibility. Research was clearly secondary to practice, and the type of activities performed in the clinical setting reflected the current, evolving nature of clinical research in occupational therapy. The highest involvement was with planning/preparation activities. Additionally, there were high levels of involvement with research maintenance activities, thus reflecting the responsibilities of an assistant or co-investigator/collaborator researcher role.

In the clinical environment, it was essential that support for research be obtained from the facility's administration. Adequate time for research was also essential, as was support from peers and colleagues. Perhaps most important in the clinical environment was that the practitioner have a personal commitment to

performing research. Courses in research were important from one's formal education, but nearly as important were informal discussions with persons in academia regarding research application and problem solving.

Workplace learning for clinical research is still in its infancy. There is much more that needs to be learned about using the workplace as a resource for research application and problem solving in occupational therapy. At the present time, there is a reported lack of availability or access to continuing education for increasing one's research involvement.

Conclusions

A number of specific conclusions may be drawn from the study's findings. The following conclusions are presented with regard to the research question with which it corresponds.

How is a Practitioner/Researcher Role Adopted?

The first research question dealt with the broad question of how occupational therapy practitioners adopted the role of practitioner/researcher in the clinical setting. Part A of the questionnaire dealt with the importance of particular circumstances thought to provide therapists with research exposure. While a cause-and-effect relationship cannot be definitively established, the data on research circumstances leads to several inferences regarding how respondents

had entered into a dual research/practice role.

Learning Circumstances. For the majority of respondents, research interest or involvement was influenced by learning circumstances that focused on the performance and application of research. Experienced persons already involved in research were identified with the more important learning circumstances. Additionally, respondents were clear in stating that the environment in which their interest was spurred was one in which involvement in research was encouraged but not required. Written comments by respondents indicated that workplace learning activities and a conducive work setting were also important in fostering interest. These findings appear to reflect a preference for what Houle (1980; 1987) called the "performance mode" of a professional's lifelong learning--acquired through practice, and eventually becoming a way of thinking. The results of the learning circumstances that helped generate research interest are consistent with a finding by Taylor & Mitchell (1990) that the clinicians' first choice for continuing education and research activity was "research projects with experienced researchers (p. 353)."

The most important circumstance selected for generating research involvement was an item that read: "incorporating findings from research studies into practice." This finding was very encouraging because it underscores the basic intent of clinical research, i.e., to have an empirically-based practice, and it is consistent with Fleming & Piedmont's study conducted in 1989. These authors

found that among the general population of occupational therapists there were two areas (among others) believed to be in need of improvement: research for practice and evidence of the effect of occupational therapy service.

Workplace circumstances. In order to clarify perceptions regarding the kinds of workplace circumstances by which a dual research/practice role may be acquired, two circumstances pertaining to having research as a workplace requirement need to be considered. First, the great majority of respondents (88%) recommended that the facility remain supportive but not "mandate" research involvement: in fact, this type of setting (non-mandatory research involvement) was important in stimulating interest among 81% of respondents. Second, the circumstance that read "working in a facility where therapists are required to perform research as part of the job" resulted in almost equally divided recommendations: 49% said it should be required; 51% said it should not. When the findings of these two workplace circumstances are viewed together, it appears that a notable segment of the population so strongly believes that practitioners should perform research that they would make it a workplace expectation.

Rather than suggesting the existence of a "mandatory versus voluntary" research issue, it may be more accurate to conclude that there is consensus that research should be a part of the workplace, but about one-half of respondents are more convinced of the need for practitioner involvement than the other half. It could also be that those who said research should be "part of the job" simply

believe it to be a professional responsibility.

Sense of professional responsibility. There were two findings from the personal/demographic section of the questionnaire that point to the likelihood that part of the population views research as a professional responsibility. The findings regarding formal education were that two-thirds identified the bachelor's degree as their highest educational-level, and 17% of bachelor's-level therapists were also pursuing a master's degree. Thus, 42% of the total practitioner/ researcher population had been exposed to the increased research values imparted at the graduate level. An additional consideration is the number of years respondents were involved in clinical practice: 69% had worked as an occupational therapist for ten years or less. In 1983, the American Occupational Therapy Foundation presented its recommendations for specific research skills and competencies to be taught in basic professional educational curricula (bachelor's-level degree). This implies that even without exposure to graduate education, over two-thirds of the population became familiar with the need for and value of clinical research during their formal education. It should also be mentioned here that actual participation in research as a student was considered important for interest or involvement in research by slightly more than one-half (54%) of respondents.

Not only has a good deal of literature written by experts in the field proposed some degree of research involvement for practitioners, but experts have

proposed that it is a professional responsibility (Christiansen, 1983; Gilfoyle & Christiansen, 1987; Parham, 1987; Moersh, 1984; Dunn, 1985). The findings of this study strongly suggest the possibility that respondents share those views. It is clear from the experts' discussions, however, the term "research" is understood broadly. On the one extreme, being involved in research can mean reading about a study; on the other extreme, research involvement can mean functioning as a primary investigator of a study. In retrospect, it may have been better if the questionnaire item regarding required research involvement in the workplace were worded more precisely, to read: "Working in a facility where therapists are required to *conduct* research as part of job."

Type of clinical population. Another perspective for considering how practitioners enter into researcher roles may involve the clinical population with whom they work. A third demographic factor revealed that close to two-thirds (64%) of respondents checked the "physical dysfunction" descriptor or wrote the name of a physical disorder/disease to identify their clinical population. Additionally, when respondents were asked to describe their "research tools" (from questionnaire Part C), they named a variety of clinical measures and equipment, allowing the more technical aspect of treatment to be correlated with a numerical category. The suggestion from these findings is that the availability of quantifiable measures used in practice helped respondents to apply research designs with which they were most likely familiar. This finding agrees with

Ottenbacher's (1985) assertion regarding the approach to research in occupational therapy: the quantitative framework is frequently taught in the behavioral sciences as the definitive approach to research.

Recommendations for other practitioners. Based on the mean scores from the respondents' recommendations of the circumstances thought to increase research interest or involvement among other practitioners, all were considered more important for others than were actually present in their own experiences. Additional circumstances involving other, more experienced persons in the work setting were also recommended. Once again, respondents emphasized the importance on-the-job learning experiences have for generating research interest or involvement.

What Activities Constitute Research in Clinical Settings?

The aim of the second research question was to identify the specific research activities performed by respondents in their clinical settings. It was striking that close to three-quarters (72%) of the practitioner/researchers spent less than one-quarter of their time on research activities. In terms of actual involvement, the greatest amount of time was spent on data collection and input, followed by searching/reviewing the literature and data analysis. This finding clearly indicated that the respondents were more involved in clinical practice than in research.

Activities and researcher role. The top three activities had the research function of either planning/preparation or maintaining one's clinical research. These are the kinds of activities that might be expected of practitioners who describe their researcher role as either co-investigator/collaborator or as assistant investigator. An interesting finding, and one that seems to consistent with the types of activities in which they were most involved, was that 42% of the respondents said their researcher role and function was "co-investigator/ collaborator" (performing some functions independently and other functions with supervision). An additional 27% described their role as "assistant" to an investigator, carrying out specified research functions with supervision. Thus, 69% of the respondents were receiving supervision, presumably by a more experienced researcher.

The findings regarding researcher roles and functions tended to correspond with the kinds of research competencies recommended by the AOTF (1983) for therapists educated at the basic professional (bachelor's) level. AOTF recommended that practitioners at the bachelor's level develop the skills needed to assist an investigator and participate as a member of the research team (pp. 45-46).

Activities with a communicative function. Possibly the most significant finding regarding research activities related to the broader issue of professionalism in occupational therapy. Two of the activities constituting

research in the clinical setting were especially relevant to professionalism: presenting research to others who are external to the facility, and writing for publication. These two activities, however, had only close to minimal levels of involvement. In fact, individual responses to these two items (see Appendix H) showed that almost one-quarter (24%) of the population selected "never" as the level of involvement for presenting outside the facility, and over one-third (36%) chose "never" for writing for publication. One perspective may be that these findings simply reflect the current status of respondents' research projects. Recognizing that the great majority (91%) of respondents for this study had been involved in clinical research for less than seven years, it is quite possible that many of their studies are not quite yet ready to be published or presented. Another consideration is that research was clearly second to practice, suggesting that clinical studies can take a back seat in light of more pressing patient responsibilities, leaving limited time to organize the study for a public audience.

Ottenbacher (1987) described the need to educate others in the work setting about the purpose of occupational therapy research, with the effect of gaining the necessary support to sustain the study. Baum (1987) discussed the public's concern with health care research, and the necessity of communicating clinical findings as they pertained to the competence, effectiveness, and safety of service delivery. It is not surprising, then, that more than one-half (6/11) of the activities listed in the questionnaire (which was written after a comprehensive

review of the literature) could be described as having the function of communicating clinical research.

A rather optimistic picture regarding publications can be drawn from the data on the actual number of research publications and presentations, even though more than one-half of the population said they had not published or presented their research. Of the 27 respondents who had published, close to three-quarters of their publications were in refereed journals. Less encouraging, however, were data on research presentations: of the 56 who had presented their research, only 14 presentations were given following refereed review. It is important to draw attention to this because occupational therapy experts such as Grady (1987) and Ottenbacher (1986a) have stressed the need for research communication through scholarly channels because of its connection with the professionalization process.

How the clinical environment affects a practitioner's research activities?

Research question number three explored the factors found in the clinical environment that are thought to have an impact on the practitioner's ability to successfully conduct research. Three broad conclusions on how the clinical environment affects research can be drawn, based on both the written and numerical findings. First, success in clinical research is very likely to be dependent upon the support of significant persons in the workplace. Second,

"time" appears to be an essential commodity, contingent on the support of the significant persons; moreover, time may be viewed as a material resource as well as a privilege or reward. Third, respondents stressed (through written comments in various places in the questionnaire) that one must have a "personal commitment" to research to successfully carry out a dual research/practice role. These broad conclusions are discussed below.

Support for clinical research. Significant persons were more meaningful for facilitating research than were material resources. Of the types of factors listed (Advocacy, Acknowledgement, and Resources: human and material) the top four, both in terms of presence and importance, were factors involving significant persons at the administrative and collegial levels. These findings reflect assertions made by Christiansen (1986a) regarding the importance of having research as a workplace activity valued by both management and practitioners. They also reflect what Baum et al (1984) said about the factors that restrict clinical research in the health care environment: support must be obtained from the managerial hierarchy.

The importance of workplace support was also reported in respondents' written comments pertaining to the various forms of "recognition" and "rewards" they received for conducting research. Support from physicians and clinical staff was reported as forms of recognition. Promotions, pay raises, or merit increases were identified for types of both recognition and rewards received. Also worth

noting here is that a diversity of professional experiences had resulted from respondents' research involvement (see Appendices K and L). Among the more interesting were access to "otherwise off-limit patient records," having research findings "implemented into day-to-day clinical practice," and "working with a team of surgeons on an evaluation project."

This conclusion is supported by a finding obtained by Taylor & Mitchell (1990). These authors found that clinicians reported that a lack of support from management interfered with their ability to perform research. One perspective for considering managerial or administrative support is the overall philosophy of a facility; presumably, a manager's actions would reflect the facility's philosophy. A model example would be a clinician working in a university-affiliated facility--he/she might expect the administration to be supportive of research activities. For the current study, 37% of respondents worked in private, non-university affiliated facilities, and a total of 33% mentioned that their facilities were university-affiliated. The findings by Taylor & Mitchell regarding the lack of managerial support were quite different from the experiences reported by the practitioner/researchers. It would be interesting to determine the kinds of facilities in which Taylor & Mitchell's clinicians worked. It may also be of interest to see if there is any connection between facility type and the practitioner/researchers' rating of support for research from their administration.

Adequate time for research. Time was viewed as a resource as well as a form of recognition or reward. It is likely, therefore, that having adequate time for research is dependent upon significant persons and their support of research in the work place. This conclusion stems from the finding that 34% of the respondents (see Appendix J) reported that they did not have a regularly scheduled time for research, and 93% of the respondents said that the regular time was important.

Observations regarding research tools. As mentioned earlier, the clinical measures and equipment reported as research tools facilitated quantification of the technical aspect of occupational therapy treatment. Research on the technical aspect of treatment is critical for documenting the efficacy of practice. One factor possibly responsible for facilitating research may be that the nature of research (as suggested by the kinds of tools reported, i.e., quantitative and technical) is compatible with the culture of the clinical setting. McGuire, et al. (1984) and King (1984) suggested that the current culture of health care has been rooted in the philosophy of positivism since the early 20th century. One might speculate that a likely reason for the high levels of administrative support could be that respondents' research was compatible with the current culture in the environment of health care practice.

There are also some general findings involving the factors that affect research in clinical settings that were somewhat different from other research

questions. One finding was that all factors were rated more important than were actually present for respondents. There was also less variability in this section of the questionnaire (σ = .4 to .9), suggesting that respondents were in greater agreement regarding the importance of particular workplace factors. Another finding--one that was an unexpected surprise--was the amount and quality of written comments. This finding alone suggests the value respondents placed on workplace supports.

What Education and Training Experiences are Important for Clinical Research?

The fourth research question examined the research-related experiences believed to be common during the formal education and training of occupational therapists. It is quite possible that the findings on research-related education and training simply reflect a current turn in the evolution or progression of research in formal curricula. Recall that the AOTF first formally recommended specific research competencies for educational curricula in 1983 (AOTF, 1983). Demographic findings already discussed were that two-thirds of the population (66%) named the bachelor's degree as their highest educational level, and nearly the same proportion (69%) had worked for ten years or less. This conclusion is based on the finding that none of the experiences were reported to be "very important" (item means 2.6 to 3.1) for respondents, and there were not any experiences recommended as "very important" by the vast majority of respondents

(95% or greater from figure 3).

Another demographic finding that points to the likelihood that the amount of respondent involvement in research education and training depicts a current trend in the evolution of occupational therapy research is that about one-quarter (26%) of respondents said they had worked as an occupational therapist for ten years or more, suggesting they received their occupational therapy educations prior to 1981. Coleman (1986) argued that from the late 1960's to the early 1980's occupational therapy educational curricula was influenced by the values of the "populist segment," who favored a more accessible, all-inclusive, and technically-oriented training (p. 13). Populists were in opposition to the "elite segment," who among their values stressed exclusive recruitment and a strong academic orientation. Coleman further described the elite as "carrying on the tradition of obtaining outside funding to support research to promote their ideologies (p. 15)." If there are therapists with the opposing ideologies described by Coleman among the respondent population, it would seem that they are in agreement regarding the importance of research: all ten experiences were considered important for the experiences of others by at least 74% of the population.

Although the most important experience for respondents was taking a course in statistical methods (89%), the most highly recommended (95%) was learning how to design studies for clinical practice. This finding may indicate that

even though the population has successfully become involved in clinical research, they are also aware of the issues and obstacles practitioners face when attempting to apply the information taught in traditional research courses to their clinical settings. It was interesting that, among the types of experiences listed, those assessed to fall within Houle's (1980; 1987) mode of inquiry were generally as important as experiences that fell within the mode of instruction. According to Houle, the mode of inquiry in a professional's learning is "spontaneous," and thought to be useful to develop new ways of thinking about situations or issues.

Again, the specific experiences suggested for research-related learning in clinical settings primarily involved more experienced persons. This further suggests the mode by which the population prefers to learn about potential obstacles to conducting research in clinical settings.

What Workplace Learning Activities are Suggested?

A sub-question for research question number four explored the workplace activities thought to advance the practitioner/researcher role. Undoubtedly, the area of workplace learning for clinical research is still in its infancy. Two broad observations point to this conclusion. First, the specific questionnaire items were based on the literature, and only seven were included in this section of the instrument; in contrast, there were between ten and fifteen items listed in the other sections. Second, the experience of least importance (least amount of

involvement) was repeatedly emphasized and described as meaningful in earlier parts of the questionnaire: observing therapists who perform clinical research in other settings. Additionally, a lower proportion of respondents recommended specific activities as important for others, suggesting that workplace learning for clinical research was an area in which they had limited familiarity. Clearly, there is great potential for growth in this area.

There were also findings suggesting limitations on the availability of or access to continuing education sessions on clinical research: more than one-third (36%) had not taken any sessions. On the other hand, findings regarding formal research courses suggest they were both accessible and available to respondents: only 14% had not taken any formal courses in research. Overall, the findings suggest that experiences with workplace learning for research are especially limited. While these findings could be a liability for occupational therapy if they are ignored, they could also be an exceptional opportunity for increased growth and development. As recognized by Marsick (1991), an understanding of workplace learning is essential in times of rapid social and economic change because employees are challenged to think differently about their worker roles.

Implications

The study has shown that practitioners can be successfully involved in research under favorable conditions, and that the learning circumstances and

experiences critical for adopting a dual researcher/practitioner role involved performance, application, and experienced persons already involved in research. The findings, therefore, have significant implications for educational curricula, continuing education, and the clinical environment where research activities are conducted.

Educational Curricula

Once again, it should be pointed out that the study was exploratory and presented only one perspective--that of the practitioner. However, the findings make very clear that a graduate degree is not necessary for practitioner involvement in research. While formal research courses were found to be important for providing therapists with skills needed to conduct research, it was also found that the current nature of the traditional research courses may actually deter research efforts in clinical settings. More meaningful than the quantity or nature of formal research courses was the finding that the practitioner/researchers stressed the need to have a "personal commitment" to research. The results of this study suggest that the basis for such a commitment may be formed during formal education and training where research is viewed as an activity that is both integrated and relevant to clinical practice. The faculty may also have an impact in fostering a sense of commitment though their own research activities and actions.

The implications for educational curricula are not that more research should be taught, but rather that changes need to be made in the way research is perceived by both faculty and students. An overall finding from this study was that the term "research" is ambiguous. The term needs to be clarified, as does what it means for practitioners to be involved in clinical research. Faculty should focus on instilling a sense of research commitment in students and stressing the relationship of research to knowledge development, professionalization and ultimate survival in both health care and academia.

Another finding having direct implications for educational curricula was that respondents underscored the importance of being exposed to occupational therapists who are experienced researchers. If faculty are not themselves involved in research, then it is imperative that local resources be explored and collaborative efforts be made so that students have appropriate role models. Findings also indicated that learning to perform both research and practice is more of a process than a technique to be learned from one or two courses. Therefore, the more "real life" examples available, the greater the chances for students to incorporate skills learned in class with the workplace behaviors that help initiate or facilitate the process.

It seems quite obvious that a variety of research methods and designs should be taught to students. The findings regarding respondents' clinical populations and research tools suggest that there are clinicians in practice who are

not involved in research because they lack the quantitative tools needed to formulate designs with which they are familiar. Alternatives to the traditional research methodologies may help institute research in a wider variety of clinical settings.

Educators should also know that their investment in students' research activities may help to establish a very much needed network of local practitioner/researchers. Findings regarding the geographic regions for education and practice were that respondents tended to work in the same area of the country where they received their occupational therapy degrees.

Continuing Education

Clearly, the amount and availability of continuing education sessions for occupational therapy research need to be increased. While the findings suggest that respondent involvement in continuing education for clinical research was relatively small, other results point to the need to combine resources to facilitate both development and availability of sessions.

Data on respondents' research activities suggest low levels of involvement in the communicative activities of scholarly writing for both funding and publication. A lack of attention to these findings has a direct--and negative--effect on continuing education, as well as with respect to the larger issue of professionalization. Because it has been established that practitioners are

involved in research, every effort should be made to ensure that the results of their work are disseminated through the proper channels.

Additionally, respondents indicated through written comments that they would like and need to have assistance with the various aspects of research writing. One way to do this is to better organize the professional strengths, skills, and resources among occupational therapists, perhaps at the state association level. Some therapists may have better writing skills or expertise in the grant/funding process, and formal organization of resources and skills should help achieve the ultimate goals targeted through clinical research while increasing the amount of information available for continuing education at conferences and program development.

The findings also suggest that the design of continuing education should include the input of persons already involved in clinical research. Learning from more experienced persons was viewed as essential for a number of circumstances and experiences. It should be remembered that over two-thirds (68%) of the population had the researcher role of co-investigator, co-collaborator, or assistant investigator, and that these roles include supervision of some functions.

The Clinical Environment

The conclusions pertaining to factors in the workplace indicate that the practitioner and researcher roles will conflict if specific conditions are not met. It

was very clear that in order for research to be successful, there needs to be a team effort backed by the administrative hierarchy. Data strongly suggests that the best of intentions by the lone practitioner will be frustrated if management and colleagues are not supportive.

That time was seen as a reward, resource, and form of recognition speaks to the dilemma faced by the majority of respondents when attempting to balance research and practice roles. Most likely, the practice responsibilities take precedence because patient treatment is the priority among the population studied: 72% said they spent less than one-quarter of their work time on research activities. Consequently, greater efforts should be made to synthesize practice and research responsibilities.

The findings obtained from the "getting funds for research" item suggest possible implications for the future. More than three-quarters (76%) said it was important that they secure funds, but only 41% of the population reported that funds had been present in their experience. Although this finding may simply reflect the status of a current, emerging role, it is important to recognize that respondents for this study identified a variety of persons who assisted in obtaining funds (see Appendix M). They were quite resourceful, and reported some very innovative ways of obtaining funds from sponsoring organizations. The implication for continued success in clinical research, of course, is that resources need to be identified. Perhaps therapists who have experienced the funding

process could discuss their experiences though formal channels.

A final note on the implications of this study for occupational therapy practice is that there is great potential for furthering the role of practitioner/ researcher by finding out more about the actual sites where they work. Further research into the work setting may help specify the kinds of activities that would best accommodate research learning in the clinical environment.

Recommendations for Further Research

The conclusions from this exploratory study suggest that learning to combine practice and research in occupational therapy is a highly individualized process unique to each therapist. Now that the important circumstances, factors, and experiences have been identified, along with the specific activities that comprise a researcher role in occupational therapy, additional, complementary research needs to be done.

First, it would be of great value to approach a study of expert practitioner/ researchers in a way that is consistent with the position of critical theory. One of the strongest reasons for approaching further study from the critical perspective is that respondents frequently attributed their success to their personal "sense of commitment" to research. As mentioned in Chapter 2, the methodology of the critical viewpoint utilizes an interpretative schemata, unique to each person and situation, and strives to discover the <u>why</u> that goes along with the <u>what</u>

(Habermas, 1976/1979).

The current study provided the "what" information regarding the emerging role of practitioner/researcher. It is certainly worth finding out more about the "why" behind the respondents' sense of commitment and success in both practice and research. Because this study found that great potential exists for finding out more about practitioners' learning in the clinical environment, it would also be advantageous to have them elaborate more on the factors found to be important, especially with regard to the day-by-day management of the dual roles in the clinical setting.

Such a study could be performed on a case-by-case basis. Experienced practitioner/researchers may very well exhibit the behaviors natural to the "professional artistry" described by Schön (1983). Because Schön maintains that professional artistry results from two unique forms of knowledge--"knowing-in-action" and "reflection-in-action"--a more immediate research need may be to first discover how such unique knowledge comes to be.

Again, by viewing practitioner/researchers as adult learners within the critical framework, the critical perspective offers an appropriate theoretical approach to the problem of "how" knowledge is acquired within a worker role. An interview schedule could be developed, based on Mezirow's (1991a; 1991b) concept of adult learning domains and Marsick's (1987; 1991) ideas of the action learning/facilitation process. Appropriate questions might focus on the process of

reflecting on work experience, the relationship between one's personal commitment to research and the culture of the clinical setting, and the transformation of one's personal frames of reference to comprise a dual researcher/practitioner role. These questions might first help to explain how a unique knowledge was formulated, and then show how it aids in the process of combining practitioner and researcher roles.

Another very useful study would be to investigate the occupational therapy managers who actually supervise the practitioners who perform research. Because of the importance of the clinical setting found in this study, and the high levels reported for the importance of support from administration, it would be beneficial to find out how or why managers are able to allocate resources for an activity that may not directly financially benefit the facility.

Finally, because the current study merely explored factors from formal education thought to be important for facilitating clinical research, a more in-depth study is recommended--one that examines the formation of practitioners' research values and the current problems faculty may have imparting research values. This could be accomplished by obtaining the contents of the research courses taught in occupational therapy curricula and finding out if there are any other planned research experiences or exposure. Then, a faculty could be surveyed (perhaps anonymously) to find out what specific problems existed with either teaching or conveying strong research values to their students.

The information from further research could then be shared with novice practitioner/researchers, managers wishing to increase their clinical research involvement, and academicians who want to ensure that their students will have some degree of research involvement when they leave the university. The information would also be very beneficial if incorporated in continuing education sessions or distributed to a large occupational therapy audience through publications. It would be very helpful for practitioners who want to increase their research involvement but have been experiencing difficulty integrating researcher and practitioner roles.

Summary

This study has provided critical information regarding the emerging role of occupational therapy practitioner/researcher. Most importantly, the study has attempted to systematically substantiate suggestions--based on expert opinion in occupational therapy--regarding the circumstances, activities, workplace factors, and educational experiences thought to facilitate clinical research. For the most part, expert opinion has been accurate--with the great exception of one demographic finding: that two-thirds of the population named the bachelor's degree as their highest educational level. Implications were outlined for occupational therapy practice, and recommendations for future research were made. While further inquiry into the practitioner/researcher role is clearly

needed, this exploratory study has opened the door for exciting prospects in both formal and continuing education program development. It has also presented the perspective of those involved in an emerging role that, if properly nourished, can help overcome the serious obstacles that threaten the continuing professionalization of occupational therapy.

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APPENDICES

APPENDIX A

Final Copy of the Questionnaire

SURVEY ON THE PRACTITIONER/RESEARCHER

Part A: Research Experiences and Recommendations

Part A contains questions concerning common circumstances by which therapists become interested or involved in performing research.

DIRECTIONS: Each question has two parts. The first part asks you to indicate the degree of importance the circumstance actually has had in your **own situation**. The second part asks you to indicate your opinion or belief as to the importance the circumstance should have for **other** occupational therapists, i.e., practitioners who may have the potential to become interested or involved in research. Thus, the two parts differentiate between the actual and the normative: the difference between the way things have actually been for you personally and the way you believe things should be for the prototype of practitioner/researcher. Please circle your responses.

Code: 1 = Not Important at All 2 = Slightly Important 3 = Important 4 = Very Important

CIRCUMSTANCE	IMPORTANCE FOR OWN SITUATION 1=Not Impt. at All 4=Very Impt.	IMPORTANCE FOR OTHERS 1=Not Impt. at All 4=Very Impt.
1. Attending conferences where occupational therapy research is discussed	1 2 3 4	1 2 3 4
2. Incorporating the findings from research studies into occupational therapy practice	1 2 3 4	1 2 3 4
3. Taking research course(s) at a college or university	1 2 3 4	1 2 3 4
4. Participating in training such as continuing education courses where occupational therapy research is discussed	1 2 3 4	1 2 3 4
5. Having a mentor in clinical practice from whom to learn the "ropes" of doing research	1 2 3 4	1 2 3 4
6. Having a colleague who is involved in research	1 2 3 4	1 2 3 4
7. Participating in informal meetings such as "journal clubs" to discuss research	1 2 3 4	1 2 3 4
8. Working in a facility where research is encouraged but is not "mandatory"	1 2 3 4	1 2 3 4
9. Working in a facility where therapists are required to perform research as part of job	1 2 3 4	1 2 3 4
10. Participating in research while a student	1 2 3 4	1 2 3 4
11. Supervising a student who has a research project	1 2 3 4	1 2 3 4
12. Other Factor _____	1 2 3 4	1 2 3 4

Part B: Research Activities in the Clinical Environment

There are many activities that comprise a researcher role for occupational therapy practitioners. The following list of activities may or may not be part of your researcher role.

Directions: First, identify the total amount of time you spend on research activities as a percentage of your total work time (question A). Then, check the column that best indicates the extent of your involvement in various individual research activities (question B).

A. Overall, what percentage of work time do you usually spend on research activities?
less than 25%_____ 26-50%_____ 51-75%_____ more than 75%_____

B. Based on your overall research activity over the past three years, to what extent are you involved in:

ACTIVITY	NEVER	MINIMAL	MODERATE	SUBSTANTIAL
1. Searching and reviewing literature				
2. Identifying problems for research				
3. Writing for research funding				
4. Developing instruments for research				
5. Data collection and input				
6. Data analysis				
7. Presenting findings to fellow staff members or "in-house" presentations				
8. Presenting findings to others who are external to your facility				
9. Writing for publication				
10. Documenting research data in patient's record				
11. Enlisting support of non-O.T. staff for patient participation in research				
12. Other, please identify:				

Part C: Factors Affecting Research in the Clinical Environment

A therapist's clinical practice setting is a work environment that has the potential to influence research activities. The work environment of occupational therapy practice typically contains both human and non-human influences. Listed below are common factors that might influence research in work environments.

DIRECTIONS: Each question contains two parts. The first part asks you to indicate the degree to which the factor has actually been **present** in **your situation**. Zero is **TOTALLY ABSENT**, number three is **FULLY PRESENT**. The second part asks you to indicate your **belief** as to the importance of a factor. Number one is **NOT IMPORTANT AT ALL**, four is **VERY IMPORTANT.**

Please note the items that have an asterisk next to them. If you have had experience with an asterisked factor, please describe your experience on the reverse side of the page in the space provided.

Part One Code: 0=Totally Absent 1=Seldom Present 2=Sometimes Presents 3=Fully Present
Part Two Code: 1=Not Important at All 2=Slightly Important 3=Important 4=Very Important

FACTOR	PRESENT IN MY SITUATION 0=Totally Absent 3=Fully Present	IMPORTANCE TO ME 1=Not Impt. at All 4=Very Impt.
1. Support from facility administration	0 1 2 3	1 2 3 4
2. Support from occupational therapy administration	0 1 2 3	1 2 3 4
3. Having research as a part of the facility's administration	0 1 2 3	1 2 3 4
4. Support from occupational therapy colleagues	0 1 2 3	1 2 3 4
5.* Recognition from administration	0 1 2 3	1 2 3 4
6. Having a regular time scheduled for research	0 1 2 3	1 2 3 4
7.* Getting rewards for doing research	0 1 2 3	1 2 3 4
8. Getting consultation for research studies	0 1 2 3	1 2 3 4
9. Getting consultation for data analysis	0 1 2 3	1 2 3 4
10. Collaborating with a local university	0 1 2 3	1 2 3 4
11.* Getting funds for research	0 1 2 3	1 2 3 4
12. Having a staff member proficient in research	0 1 2 3	1 2 3 4
13. Having clerical support	0 1 2 3	1 2 3 4
14.* Having access to research "tools"	0 1 2 3	1 2 3 4
15. Other factor not mentioned above:	0 1 2 3	1 2 3 4

Part C, Continued

Question 5: What forms of "recognition" have you had? What forms of "recognition" would you suggest?

Question 7: What "rewards" have you had? What types of "rewards" would you suggest?

Question 11: Please describe how you went about getting funds.

Question 14: What do you consider to be your "research tools"?

Additional Comments:

Part D. Education and Training for Clinical Research

Please think back to your formal occupational therapy education. Listed below are some common research-related educational experiences.

DIRECTIONS: Each question has two parts. As with Part A of this instrument, the first part asks you to indicate the **degree of importance** the experience had for your **own situation**. The second part asks you to indicate your **opinion or belief** as to the importance the experience should have for **other** occupational therapists.

If a particular experience was not relevant to your current research activities, skip the first part (first column) and only answer the second part (second column). Please circle your responses.

Code: 1 = Not Important at All 2 = Slightly Important 3 = Important 4 = Very Important

EDUCATIONAL EXPERIENCE	IMPORTANCE FOR OWN SITUATION 1=Not Impt. at All 4=Very Impt.	IMPORTANCE FOR OTHERS 1=Not Impt. at All 4=Very Impt.
1. Being involved in a student research project or thesis	1 2 3 4	1 2 3 4
2. Having faculty who are enthusiastic about research	1 2 3 4	1 2 3 4
3. Having informal discussions with faculty about research	1 2 3 4	1 2 3 4
4. Having informal discussions with others about research	1 2 3 4	1 2 3 4
5. Taking a course in occupational therapy research	1 2 3 4	1 2 3 4
6. Taking a course in statistical methods	1 2 3 4	1 2 3 4
7. Learning the "mechanics" of statistical methods; e.g., learning how to calculate problems	1 2 3 4	1 2 3 4
8. Learning about the similarities between the occupational therapy process and the research process	1 2 3 4	1 2 3 4
9. Learning about computer applications to research	1 2 3 4	1 2 3 4
10. Learning how to design studies for clinical practice	1 2 3 4	1 2 3 4
11. Other experience	1 2 3 4	1 2 3 4

Part E: Activities for Learning More About Research in Clinical Settings

This section inquires into your experiences and opinions concerning various activities for learning more about research in clinical settings.

DIRECTIONS: Each question has two parts. The approach is the same as in parts A and D. The first part asks you to indicate the degree of importance the activity has had for your **own situation**, i.e., the way things have been for you personally. The second part asks you to indicate your **opinion or belief** as to the importance the activity should have for **other** occupational therapists, i.e., the way you believe things should be for the prototype practitioner/researcher.

If you have not had experience with a certain activity, skip the first part (first column) and only answer the second part (second column).

Please circle your responses.

Code: 1 = Not Important at All 2 = Slightly Important 3 = Important 4 = Very Important

LEARNING ACTIVITY	IMPORTANCE FOR OWN SITUATION 1=Not Impt. at All 4=Very Impt.	IMPORTANCE FOR OTHERS 1=Not Impt. at All 4=Very Impt.
1. Activities such as "journal clubs" where specific occupational therapy studies are discussed	1 2 3 4	1 2 3 4
2. Consulting with research "liaisons" or persons who are not affiliated with the facility	1 2 3 4	1 2 3 4
3. Observing therapists who perform clinical research in other settings	1 2 3 4	1 2 3 4
4. Attending presentations by occupational therapists who perform clinical research	1 2 3 4	1 2 3 4
5. Informal discussion groups where therapists can express research concerns	1 2 3 4	1 2 3 4
6. In-house workshops on topics related to practitioner needs for clinical research	1 2 3 4	1 2 3 4
7. Tutorial materials for self-study in clinical research	1 2 3 4	1 2 3 4
8. Other learning activity:	1 2 3 4	1 2 3 4

Part F: Personal/Demographic Information

1. Which of the following best describe your researcher role and functions? (circle all that apply)	a. Assistant to an investigator, carrying out specified research functions with supervision b. Co-investigator or collaborator in a research study, performing some functions independently and other functions with supervision	c. Primary investigator, responsible for directing the activities of others who are involved in a research study d. Independent investigator, not responsible for directing others e. Other_____
2. Have you published or presented your research? Yes___ No___ (If yes, please complete the remainder of this question.)	Please write in the total number of your research-related: Publications____ Publications in refereed journals____	Presentations_____ Presentations following review by a refereed panel_____ Other_____
3. How many years have you been an occupational therapist?		
4. How many years have you been involved in clinical research?		
5. What is your typical clinical population? (Please place a 1 next to your primary population, and a 2 next to your secondary population.)	Developmental Disabilities____ Mental Health____ Work/Vocational___	Physical Dysfunction___ Geriatrics____ Pediatrics____ Other _____(number)___
6. In what type of facility do you work?	Private Non-University Affiliated____ State/County Supported____	Federally Supported____ University Affiliated____ Other_____
7. In what state do you work?		
8. Where did you receive your occupational therapy education?		
9. What is your highest educational level?	Bachelor's____ Master's____	Doctorate____ Other___
10. How many FORMAL (college/university) research courses have you taken?		
11. Approximately how may continuing education sessions have you attended for research purposes?		
12. What is your age?		

Would you like to have a summary of the results of this study sent to you? Yes_____ No_____

Thank you very much for your time and interest. Again, I assure you that your identity will remain confidential. If you would like a summary of the results, please return the cover letter, which contains your name and address. These will immediately be separated from your responses to ensure confidentiality.

Would you be willing to participate in a "focus group" discussion of your role as an occupational therapist practitioner/researcher? Yes_____ No_____ Phone number including area code: _____

APPENDIX B

Questionnaire Content Validity:

Instructions for Expert Jury

Thank you in advance for helping to determine the content validity of my survey instrument on the Practitioner/Researcher. The abstract that I gave to you should help to explain the purposes of my study and how the instrument will be used. The specific questionnaire items have been designed to elicit information on the emerging role of the occupational therapist practitioner/researcher. The entire instrument contains a total of 59 items. In the design of specific questions, I have attempted to cover five of the study's objectives:

1. What past experiences have lead respondents to become interested or involved in clinical research? (Questions 1-12)
2. What are the specific activities that make up the researcher role for practitioners? (Questions 13, 14)
3. What factors either facilitate or impede research in clinical environments? (Questions 15-29)
4. What experiences from respondents' formal occupational therapy education have been useful for clinical research? (Questions 30-39)
5. What workplace learning activities do respondents' recommend for increasing a practitioner's research knowledge in the clinical setting? (Questions 40-47)

The questionnaire contains five sections. When examining a particular item's content validity, please consider the section heading; it is possible that more than one item will fit with more than one objective.

I would very much appreciate if you could provide me with a copy of your Curriculum Vitae or Resume' so that I may develop a profile of your expertise. If it is not convenient for you, I understand. If I am not in the department, please call me at home (202) 546-0440 for any questions. I'll leave a copy of the content validity results in the place you designated during our telephone conversation regarding your participation. Once again, thank you very much for your help and expertise.

DIRECTIONS: Rate each questionnaire item according to the following criteria:

+1 The item is DEFINITELY a measure of the objective.

0 UNDECIDED as to whether the item is a measure of the objective.

-1 The item is NOT a measure of the objective.

Please use the attached sheet for the numerical ratings. Feel free to write comments or suggestions directly on the questionnaire or on the lines next to the numerical rating; if you need more space, you may continue the comment in the extra space at the end of the sheet.

Rater: _____

Scale

+1	The item is **DEFINITELY** a measure of the objective
0	**UNDECIDED** as to whether the item is a measure of the objective
-1	The item is **NOT** a measure of the objective

1. _____

_____

_____

2. _____

_____

_____

(Format continued to item number 59)

APPENDIX C

Copies of the Cover Letters Used for

Phases One, Two, and Three

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

COLLEGE OF EDUCATION — NORTHERN VIRGINIA GRADUATE CENTER

January 1, 1991

1~
2~
3~

Dear 4~:

I am conducting dissertation research for a doctorate in Adult and Continuing Education at Virginia Tech. My study focuses on an emerging role in occupational therapy: occupational therapists who are involved in both clinical practice and research. The study's goal is to provide critical information for the planning and design of research experiences for clinical practitioners. The study's results should provide information of use to clinicians who wish to become more involved in research. In addition, new information on how to better facilitate a dual practitioner/researcher role may become available to occupational therapy educators and administrators. I believe that your role as clinical practitioner/researcher is critical for the continued professionalization and establishment of the clinical efficacy of occupational therapy practice.

I am sending you the enclosed questionnaire because you indicated on the 1990 AOTA Member Survey your involvement in both clinical practice and research. It would thus appear that you may be engaged in the emerging role that I am studying. The questionnaire is designed to elicit your personal experiences and opinions about combining practice and research in clinical settings. I would very much appreciate receiving your input, as it is very important to the success of this study. Pilot studies of the questionnaire have shown that it should take no longer than one-half hour to complete.

Your individual responses to the questionnaire, including your name and other personal information, will be kept confidential. I will be the only person having access to the actual responses. I have placed a code in the lower right-hand corner of the first page so that I can identify non-respondents and send follow-ups. If you are not comfortable answering a coded questionnaire, please feel free to remove the code with the understanding that you will receive my follow-up mailings because I will not know that you responded. Pilot studies of the questionnaire have shown that it takes less than twenty-five minutes to complete. If you would like to receive a summary of the findings of this study, please return this cover letter with the questionnaire. I will immediately separate the letter from your questionnaire.

Thank you in advance for your time and assistance. Please return the questionnaire in the enclosed envelope by **January 20, 1991**. If you have any questions regarding this study, please feel free to call me (collect if necessary) at (202) 546-0440, or Dr. Harold Stubblefield, chairman of my dissertation committee, at (703) 698-6044.

Sincerely,

Anne Pas Colborn, MA, OTR/L

Enclosures: Questionnaire; Postage-Paid Return Envelope

2990 Telestar Court, Falls Church, Virginia 22042

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

COLLEGE OF EDUCATION — NORTHERN VIRGINIA GRADUATE CENTER

January 29, 1991

1~
2~
3~

Dear 4~:

Several weeks ago, I mailed you a questionnaire designed to elicit your personal experiences and opinions about combining practice and research in clinical settings. The questionnaire is part of a study intended to provide critical information for the planning and design of research experiences for clinical practitioners. I selected your name because you indicated on the 1990 AOTA Member Survey your involvement in both clinical practice and research. I would very much appreciate receiving your input, as the study's results should provide information of use to clinicians who wish to become more involved in research. Therefore, your input is very important to the success of this study.

If you have already returned the questionnaire, thank you very much for your prompt response. If by some chance the questionnaire was misplaced, or you did not receive it, I am enclosing another. As I mentioned in my first letter, your individual responses, including your name and other personal information, will be kept confidential. I will be the only person having access to the actual responses. I have placed a code in the lower, right hand corner of the first page so that I can identify non-respondents. Please feel free to remove the code if you wish, with the understanding that you will receive my follow-up mailings because I will not know that you responded. Pilot studies of the questionnaire have shown that it takes less than one-half hour to complete. If you would like to receive a summary of the findings of this study, please return this cover letter with the questionnaire. I will immediately separate the letter from your questionnaire.

Thank you for your time and assistance. Please return the questionnaire in the enclosed envelope by **February 12, 1991**. If you have any questions regarding this study, please feel free to call me (collect if necessary) at (202) 546-0440, or Dr. Harold Stubblefield, chairman of my dissertation committee, at (703) 698-6044.

Sincerely,

Anne Pas Colborn, MA, OTR/L

Enclosures: Questionnaire; Postage-Paid Return Envelope

2990 Telestar Court, Falls Church, Virginia 22042

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

COLLEGE OF EDUCATION — NORTHERN VIRGINIA GRADUATE CENTER

February 19, 1991

1~
2~
3~

Dear 4~:

I am writing to you concerning my doctoral study of occupational therapists who are involved in both clinical practice and research. Although I have sent you two questionnaires during the past several weeks, I have not received a response yet. I am enclosing another questionnaire in case the earlier questionnaires have been misplaced or you did not receive them. I sincerely value your input.

Thank you in advance for your time and valuable assistance. Please return the questionnaire in the enclosed envelope by **March 5, 1991.** If you would like to receive a summary of the findings of this study, please return this cover letter with the questionnaire. I will immediately separate the letter from your questionnaire. If you have any questions regarding this study, please call me (collect if necessary) at (202) 546-0440, or Dr. Harold Stubblefield, chairman of my dissertation committee, at (703) 698-6044.

Sincerely,

Anne Pas Colborn, MA, OTR/L

Enclosures: Questionnaire, Postage-Paid Return Envelope

2990 Telestar Court, Falls Church, Virginia 22042

APPENDIX D

Institutions Attended for Occupational Therapy Education

Appendix D
Institutions Attended for Occupational Therapy Education

Educational Institution	N	%
University of Southern California	7	7
Eastern Michigan University	6	6
Ohio State University	5	5
San Jose State University	5	5
Texas Women's University	5	5
University of Wisconsin, Madison	5	5
Washington University, St. Louis	5	5
Colorado State University	4	4
Western Michigan University	4	4
Boston University	3	3
Cleveland State University	3	3
Virginia Commonwealth University	3	3
College of St. Catherine	2	2
Indiana University	2	2
Loma Linda University	2	2
Louisiana State University	2	2
Thomas Jefferson University	2	2
Tufts University	2	2
University of Florida	2	2
University of Illinois	2	2
University of Kansas	2	2
University of Oklahoma	2	2
University of Puget Sound	2	2
University of Washington	2	2
University of Wisconsin, Milwaukee	2	2
Medical College of Georgia	1	1
New York University	1	1
Northeast Louisiana University	1	1

Appendix D, Continued

Educational Institution	N	%
State University of New York, Buffalo	1	1
Towson State University	1	1
University of Minnesota	1	1
University of New Hampshire	1	1
University of North Carolina, Chapel Hill	1	1
University of North Dakota	1	1
Utica College of Syracuse	1	1
State (N=8)	**N**	**%**
Connecticut	1	1
Pennsylvania	1	1
Texas	1	1
Washington	1	1
Country (N=2)	**N**	**%**
India	1	1
Israel	1	1
Puerto Rico: University of Puerto Rico	1	1

*Deviation from 100% due to rounding

APPENDIX E

Facilities Where Practitioner/Researchers Work:

"Other" Responses

Appendix

Facilities Where Practitioner/Researchers Work: "Other" Responses

Type of Facility*	N	%**
Non-Profit Hospital/Organization	7	7
State/County Supported/University Affiliated	3	3
Federally Supported/University Affiliated	2	2
University Affiliated/Non-Profit Organization	2	2
Pediatric Rehabilitation Hospital	1	1
Physician-Owned Practice	1	1
Private Practice	1	1
Private/University Affiliated	1	1
Public School	1	1
Private/Non-Univ. Affiliated/State/County Supported	1	1
Private/Non-Univ. Affiliated/Non-Profit Organization	1	1
University	1	1
University Affiliated/Contractual Work	1	1
University Affiliated/Public School	1	1

* 76% from four questionnaire response categories (see Table 7)

** Deviation from 100% due to rounding

APPENDIX F

Percentages of Responses to Part A

Appendix F
Percentages of Responses for Part A: Research Experiences and Recommendations

Code: 1 = Not Important at All 2 = Slightly Important 3 = Important 4 = Very Important

CIRCUMSTANCE	IMPORTANCE FOR OWN SITUATION (N=number responding to item) Percent Selecting Number 1 2 3 4	IMPORTANCE FOR OTHERS (N=number responding to item) Percent Selecting Number 1 2 3 4
1. Attending conferences where occupational therapy research is discussed	(N = 100) 7% 22% 42% 29%	(N = 99) 0 10% 55% 35%
2. Incorporating the findings from research studies into occupational therapy practice	(N = 100) 2% 8% 30% 60%	(N = 97) 1% 6% 25% 68%
3. Taking research course(s) at a college or university	(N = 100) 10% 21% 29% 40%	(N = 98) 1% 14% 41% 44%
4. Participating in training such as continuing education courses where occupational therapy research is discussed	(N = 100) 12% 17% 38% 33%	(N = 98) 1% 12% 48% 37%
5. Having a mentor in clinical practice from whom to learn the "ropes" of doing research	(N = 100) 12% 5% 22% 61%	(N = 98) 1% 8% 30% 61%
6. Having a colleague who is involved in research	(N = 100) 10% 12% 32% 46%	(N = 98) 1% 14% 37% 48%
7. Participating in informal meetings such as "journal clubs" to discuss research	(N = 100) 21% 30% 25% 24%	(N = 98) 8% 30% 36% 26%
8. Working in a facility where research is encouraged but is not "mandatory"	(N = 100) 10% 10% 31% 49%	(N = 98) 2% 9% 47% 42%
9. Working in a facility where therapists are required to perform research as part of job	(N = 98) 32% 23% 30% 15%	(N = 95) 15% 34% 36% 14%
10. Participating in research while a student	(N =100) 29% 18% 18% 35%	(N = 98) 4% 26% 33% 37%
11. Supervising a student who has a research project	(N = 98) 44% 22% 17% 17%	(N = 98) 13% 38% 36% 13%
12. Other factor (Qualitative)		

APPENDIX G

Written Comments for Questionnaire Part A

Appendix G

Written Comments for Questionnaire Part A: Research Experiences and Recommendations

Activities in the Workplace. Workplace activities such as:

- Learning through on-the-job experiences with research
- Conducting research projects as a clinician
- Working with experienced clinicians
- Participating in grant/proposal writing sessions
- Being exposed to research in related fields

Conference Activities. Conference activities such as:

- Attending conference sessions that include research
- Participating in informal discussions regarding research while at conferences

Therapists' Personal Traits. Personal traits such as:

- A desire to increase research knowledge for personal and professional growth
- Motivation to learn about research

Workplace Conditions. Workplace conditions such as:

- The support of administration for research activities
- Having a time commitment from supervisor before beginning research study

APPENDIX H

Percentages of Responses to Part B

Appendix H

Percentages of Responses to Part B: Research Activities in the Clinical Environment

A. Overall, what percentage of work time do you usually spend on research activities?
less than 25% (72%) 26-50% (16%) 51-75% (5%) more than 75% (7%)
(Number responding to item 1 = 96; Mean = 1.48)

B. Based on your overall research activity over the past three years, to what extent are you involved in:

ACTIVITY	Total N Responses	% Selecting "NEVER"	% Selecting "MINIMAL"	% Selecting "MODERATE"	% Selecting "SUBSTANTIAL"
1. Searching and reviewing literature	99	3%	27%	48%	22%
2. Identifying problems for research	100	8%	38%	42%	12%
3. Writing for research funding	100	64%	21%	10%	5%
4. Developing instruments for research	100	35%	27%	26%	12%
5. Data collection and input	100	3%	20%	32%	45%
6. Data analysis	100	12%	36%	29%	23%
7. Presenting findings to fellow staff members or "in-house" presentations	100	9%	36%	43%	12%
8. Presenting findings to others who are external to your facility	100	24%	47%	23%	6%
9. Writing for publication	100	36%	35%	22%	7%
10. Documenting research data in patient's record	100	40%	25%	25%	10%
11. Enlisting support of non-O.T. staff for patient participation in research	99	23%	39%	25%	13%
12. (Qualitative)					

APPENDIX I

Written Responses to Part B

Appendix I

Written Responses for Part B: Research Activities in the Clinical Environment

Thirteen (13%) of respondents indicated an additional clinical research activity. Activities fell into two categories: (a) Preliminary Research Activities; and (b) Activities Supporting the Continuation of Clinical Research.

Preliminary Research Activities

Activities such as:

- Identifying and/or screening subjects for research
- Investigating suitable computer programs
- Evaluating instruments for research project
- Obtaining consent from patients for participation
- Identifying the workings of a research program
- Brainstorming with other research staff

Activities Supporting the Continuation of Clinical Research

Activities such as:

- The selection of research subjects
- Advocating occupational therapy clinical research
- Coordinating data collection
- Problem-solving/consulting with colleagues
- Adhering to quality assurance measures
- Implementing the results of research studies

APPENDIX J

Percentages of Responses to Part C

Appendix J

Percentages of Responses to Part C: Factors Affecting Research in the Clinical Environment

Part One Code: 0=Totally Absent 1=Seldom Present 2=Sometimes Presents 3=Fully Present
Part Two Code: 1=Not Important at All 2=Slightly Important 3=Important 4=Very Important

FACTOR	PRESENT IN MY SITUATION (N=Number Responding to Item) Percent Selecting Choice 0 1 2 3	IMPORTANCE TO ME (N=Number Responding to Item) Percent Selecting Choice 1 2 3 4
1. Support from facility administration	(N = 100) 6 13 27 54	(N = 100) 0 2 24 74
2. Support from occupational therapy administration	(N = 97) 12 10 24 54	(N = 98) 1 6 16 77
3. Having research as a part of the facility's administration	(N = 95) 16 13 32 39	(N = 96) 2 10 42 46
4. Support from occupational therapy colleagues	(N = 98) 4 11 38 47	(N = 97) 3 9 34 54
5.* Recognition from administration	(N = 95) 23 22 30 25	(N = 96) 5 9 41 45
6. Having a regular time scheduled for research	(N = 100) 34 31 16 19	(N = 100) 1 6 32 61
7.* Getting rewards for doing research	(N= 98) 48 23 18 11	(N = 97) 5 30 36 29
8. Getting consultation for research studies	(N = 97) 19 24 30 27	(N = 98) 1 15 28 56
9. Getting consultation for data analysis	(N = 97) 20 19 29 32	(N = 98) 3 9 25 63
10. Collaborating with a local university	(N = 100) 36 14 19 31	(N = 100) 6 22 34 38
11.* Getting funds for research	(N = 97) 47 12 19 22	(N = 98) 6 18 34 42
12. Having a staff member proficient in research	(N = 99) 19 18 27 36	(N = 100) 2 10 30 58
13. Having clerical support	(N=99) 22 23 30 25	(N = 100) 2 8 41 49
14. *Having access to research "tools"	(N = 95) 16 20 30 34	(N = 97) 1 7 31 61
15. (Qualitative)		

APPENDIX K

Forms of Recognition in the Workplace

Appendix K
Forms of "Recognition" in the Workplace: Respondents' Written Comments

Fifty-nine (59%) of respondents described forms of recognition--either received or suggested. Their descriptions fell into six categories: (a) General "Support" from colleagues and associates; (b) Increased Opportunities to pursue research activities; (c) In-House Recognition; (d) Recognition Outside of Facility; (e) Monetary Recognition; and (f) Subsequential forms of recognition. The forms of recognition described by the respondents' are reported below according to their assigned category following qualitative data analysis.

General "Support". Support from:

- administration
- peers
- physicians
- medical staff in facility
- academic community

Increased Opportunities. More opportunities:

- to travel in connection with research
- to receive funding for research
- to work with experienced researchers
- to attend funded continuing education sessions related to research
- to expand research activities
- to receive work time for research activities

In-House Recognition. Recognition from:

- the facility's administration
- colleagues and peers
- the facility's physicians
- affiliated health care staff
- appreciative clients or patients
- mention in the facility's newsletter
- presentations of research in the facility's forum
- social activity in honor of research efforts
- letters of recognition from administration

Appendix K: Continuation of Forms of Recognition in the Workplace

External Recognition (outside of facility). Recognition such as:

- journal publications
- publications in a professionally-related newspaper
- conference presentations
- presentations at local professional meetings
- an award plaque

Monetary Recognition. Monetary recognition in the form of:

- a promotion (with salary increase)
- a pay bonus
- a merit award
- a salary increase
- receiving tenure

Subsequent forms of Recognition. Recognition resulted in:

- having research findings applied to clinical practice in the facility
- an increase in the amount of referrals to the occupational therapy department
- a sense of personal satisfaction

Help (as a form of recognition suggested)

- Help from experienced researchers in writing grants
- Help from the American Occupational Therapy Foundation in grant writing and presenting research

APPENDIX L

Forms of Rewards Received for Research Involvement

Appendix L

Forms of "Rewards" Received for Research Involvement: Respondents' Written Comments

Respondents were asked to comment on the "rewards" they received for performing clinical research, and also asked to make suggestions for clinical research "rewards". Responses fell into five categories: (a) various Privileges; (b) forms of Recognition; (c) Professional Opportunities; (d) Monetary rewards; and (e) Personal Satisfaction. Their comments are summarized below.

Privileges. Received privileges such as:

- work time granted for research purposes
- selection to travel in and out-of-state to present research
- time-off to perform research functions
- access to otherwise "off-limit" patient records

Recognition. Received recognition in the form of:

- a plaque for the best research paper
- honored at a dinner for publication acceptance
- an announcement at a journal club meeting
- an author listing in an article
- winning a local research competition
- being known locally for research involvement
- formal "thanks" from administration for helping facility to receive accreditation
- an acknowledgement from local colleagues, supervisor, and staff
- being honored at a state association conference luncheon
- an award from the chair of a research advisory committee
- being known locally as an "expert" in an area of knowledge and treatment
- receiving good grades on graduate school research project
- having research findings implemented into day-to-day clinical operations

Continuation of Appendix L

Professional Opportunities. Gained professional opportunities such as:

- presenting to the occupational therapy department
- assisting with a publication in the AJOT
- presenting at a pediatric research meeting
- working on a project with very experienced researchers
- submitting material for publication
- appearing in a video-taped segment
- progressing through a clinical ladder program
- working with a team of surgeons on an evaluation project
- presenting research at seminars and conferences
- consideration for a pay increase

Monetary Rewards. Received monetary rewards such as:

- money to attend conferences
- a salary increases
- facility funds to complete research project
- a merit pay award
- a salary bonus
- an upgrade on a pay scale

Personal Satisfaction. Derived personal satisfaction from:

- being involved in a well-known research project
- a sense of accomplishment obtained from knowing that research will contribute to the body of occupational therapy knowledge
- working on issues of personal and professional importance
- a feeling of personal achievement
- a feeling of personal gratification
- a sense of personal reward; that prevails without any "official" reward for involvement in research
- the support of a peer group
- learning that research premises were accurate
- providing empirical evidence that has the potential to affect future occupational therapy funding
- obtaining the respect and recognition that results from contributing to clinical research

APPENDIX M

Obtaining Funds for Clinical Research

Appendix M

Obtaining Funds for Clinical Research: Respondents' Written Comments

Forty-one (41%) respondents provided written comments regarding their experiences with funding for clinical research. Qualitative analysis resulted in the four descriptive categories: (a) Funds Obtained from a Sponsoring Organization; (b) Funds from a Specific Grant Source; (c) Comments Regarding Persons or Resources Who Assisted with Obtaining Research Funds; and (d) General Comments Pertaining to Funding Experiences. Their comments are listed below.

Funds Obtained From a Sponsoring Organization. Funds were obtained from:

- the facility where respondents' were employed
- a telethon, contacted by the clinical department conducting research. (The telethon was held to raise money for persons with a disease that was the same as patients' who received treatment in the respondents' clinical setting.)
- an association that represented persons with a specific type of disability
- a weekly occupational therapy newspaper publication
- a university graduate student support fund
- a local arthritis organization
- a sponsoring medical supply company
- a local research foundation

Funds from a Specific Grant Source Identified by Respondent. Research monies were obtained from:

- the Shriner's organization
- an OSER grant
- The Southpaw company
- a MCH grant
- The University of Illinois Center for Research
- The NIH and Arthritis Foundation

Continuation of Appendix M

Comments Regarding Persons or Resources Who Assisted Respondents' with Obtaining Research Funds. The following comments that described persons or resources were provided:

- "I talked with an experienced researcher."
- "I got support from a faculty member."
- "I collaborated with an experienced researcher."
- "I wrote a proposal with a co-worker."
- "I collaborated with a physician and other professionals in the grant-writing process."
- "A physician wrote the research grant."
- "The project-head wrote a research grant."
- "A pediatrician wrote a grant for the study."
- "A supervisor wrote for a grant."
- "An experienced researcher (neuropsychobiologist with more than 20 years experience) does all of the fund writing for the department."

General Comments Pertaining to Funding Experiences. The following general comments were provided:

- "I spent my own money and won't do that again."
- "One does not need funds when good records, a good library, and research knowledge are present."
- "I have funded all of my own research."
- "I would expect the American Occupational Therapy Association and The American Occupational Therapy Foundation to support and fund research."

APPENDIX N

Descriptions of Research Tools

Appendix N

Descriptions of Research "Tools:" Respondents' Written Comments

Sixty-two (62%) of respondents contributed written descriptions of the "tools" used to facilitate their research. Descriptions fell into six major categories: (a) Clinical Evaluation Measures; (b) Treatment Equipment, Technology, and Techniques; (c) Tangible or Material Resources; (d) Environmental Resources; (e) Significant Persons; and (f) the Researcher's Personal Assets, and are provided below.

Clinical Evaluation Measures. Clinical evaluation measures such as:

- interview schedules
- questionnaire designed for research study
- standardized assessments
- standardized evaluations

Specifically Identified Clinical Measures:

- The Western Physical Performance Analysis
- The Swallow/Dysphagia Inventory
- The Neonatal Assessment Scale
- The NIH Activity Record
- The Ayres Sensory Integration Praxis Tests
- The Peabody Developmental Motor Scale
- The Movement Analysis Checklist
- The NMR Instrument (an instrument that was said to have been developed by respondent and colleagues)
- The Functional Assessment

Continuation of Appendix N: Description of Respondents' Research "Tools"

Treatment Equipment, Technology, and Techniques

Treatment equipment such as:

- goniometers
- dynamometers
- neurometer
- BTE Machine
- Lido Jamar
- FES Units
- isokinetic Machines
- lift Boxes
- indinometer
- spondylometer
- force gauge
- boxes and weights
- Lidolift
- Lidoback
- adaptive equipment
- sound level monitor
- myoelectric upper-extremity prehensors

Treatment technology such as:

- computers
- word processing software
- statistical software
- video cameras
- camera

Treatment techniques such as:

- splinting versus non-splinting

Appendix N: Continuation of Respondents' Research "Tools"

Tangible or Material Resources. Resources such as:

- time for clinical research
- research funds
- literature
- patient records
- access to related research data
- computerized literature search services

Environmental Resources. Resources such as:

- libraries
- medical libraries
- local university
- local university research lab

Significant Persons. Persons such as:

- patients
- physicians
- experienced researchers
- subjects
- research consultants
- computer analyst
- statistician
- psychologist
- medical illustrator
- other health care personnel who are advocates for occupational therapy research
- supportive staff
- office/secretarial personnel
- mentors
- university-based resource personnel
- colleagues who can "brainstorm" regarding research
- thesis committee
- colleagues involved in research project

Appendix N: Continuation of Respondents' Research "Tools"

Researcher's Personal Assets. Personal assets such as:

- certification for a specific assessment
- a desire to learn
- patience
- perseverance
- clinical knowledge and experience
- research knowledge and experience
- persistence
- an ability to apply critical thinking skills
- clinical practice
- clinical observation skills
- having taken specific graduate courses
- clinical problem-solving skills
- personal "energy"
- knowledge of research design
- knowledge of statistical applications to clinical problems

APPENDIX O

Percentages of Responses to Part D

Appendix O

Percentages of Responses to Part D:

Education and Training for Clinical Research

Code: 1 = Not Important at All 2 = Slightly Important 3 = Important 4 = Very Important

EDUCATIONAL EXPERIENCE	IMPORTANCE FOR OWN SITUATION (N = Number Responding to Item) Percent Selecting Choice 1 2 3 4	IMPORTANCE FOR OTHERS (N = Number Responding to Item) Percent Selecting Choice 1 2 3 4
1. Being involved in a student research project or thesis	(N = 90) 19 17 25 39	(N = 96) 0 15 37 48
2. Having faculty who are enthusiastic about research	(N = 95) 10 16 28 46	(N = 96) 0 9 25 66
3. Having informal discussions with faculty about research	(N = 92) 11 21 40 28	(N = 96) 2 11 44 43
4. Having informal discussions with others about research	(N = 93) 11 30 32 27	(N = 96) 3 14 53 30
5. Taking a course in occupational therapy research	(N = 91) 17 21 23 39	(N = 95) 2 8 44 46
6. Taking a course in statistical methods	(N = 87) 9 16 28 47	(N = 96) 2 8 40 50
7. Learning the "mechanics" of statistical methods; e.g., learning how to calculate problems	(N = 88) 11 26 27 36	(N = 96) 3 14 38 45
8. Learning about the similarities between the occupational therapy process and the research process	(N = 88) 22 20 33 25	(N = 95) 6 17 43 34
9. Learning about computer applications to research	(N = 86) 20 23 17 40	(N = 96) 2 7 34 57
10. Learning how to design studies for clinical practice	(N = 86) 13 10 30 47	(N = 95) 0 4 30 66
11. (Qualitative)		

APPENDIX P

Suggestions for Research-Related Educational Experiences

Appendix P

Suggestions for Research-Related Educational Experiences

Fifteen (15%) respondents answered provided comments regarding research-related educational experiences. Analyses resulted in three categories: (a) on-the-job research learning experiences; (b) learning from other persons; and (c) specific activities to learn more about clinical research.

On-the-Job Research Learning Experiences

Learning experiences such as:

- working with others involved in clinical research
- having on-the-job research assignments

Learning from Other Persons

Learning experiences that included:

- having a mentor
- working with a statistician on data analysis
- spending time with a husband involved in research

Specific Activities for Learning More About Clinical Research

Activities such as:

- learning to manage both practice and research roles
- taking a research design course
- reading research papers
- learning how to write grant/funding proposals

APPENDIX Q

Percentages of Responses for Part E

Appendix Q

Percentages Of Responses to Items for Questionnaire Part E:

Activities for Learning More About Research in Clinical Settings

Code: 1 = Not Important at All 2 = Slightly Important 3 = Important 4 = Very Important

LEARNING ACTIVITY	IMPORTANCE FOR OWN SITUATION (N = Number Responding to Item) Percent Selecting Choice 1 2 3 4	IMPORTANCE FOR OTHERS (N = Number Responding to Item) Percent Selecting Choice 1 2 3 4
1. Activities such as "journal clubs" where specific occupational therapy studies are discussed	(N = 81) 21 33 24 22	(N = 99) 3 31 41 25
2. Consulting with research "liaisons" or persons who are not affiliated with the facility	(N = 80) 9 21 36 34	(N = 97) 2 17 51 30
3. Observing therapists who perform clinical research in other settings	(N = 73) 33 26 25 16	(N = 98) 3 21 51 25
4. Attending presentations by occupational therapists who perform clinical research	(N = 90) 10 22 42 26	(N = 98) 2 11 51 36
5. Informal discussion groups where therapists can express research concerns	(N = 81) 19 24 33 24	(N = 97) 4 18 46 32
6. In-house workshops on topics related to practitioner needs for clinical research	(N = 74) 23 22 40 15	(N = 96) 4 20 37 39
7. Tutorial materials for self-study in clinical research	(N = 67) 30 23 30 17	(N = 93) 7 24 41 28
8. Other learning activity: (Qualitative Response)		

APPENDIX R

Written Responses for Part E

Appendix R

Written Responses for Activities to Learn More About Research In Clinical Settings

Eight responses were listed to describe additional activities for learning more about research in clinical settings. The learning activities were as follows:

- Observing physical therapy students who have done research in (my) department
- Reviewing research papers for publications or presentation
- Having a suggestion box for research ideas
- Working with others on research projects
- Participating in funded grant projects
- Working with psychology service consultants
- Writing up the results of research that has value and significance for other clinicians
- Initiating and designing a self-study graduated course of research related to occupational therapy practice

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