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Influences on clinical reasoning of practicing occupational therapists

Mary Ann Paulazzo
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therapists**

Paulazzo, Mary Ann, M.S.

San Jose State University, 1992

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**INFLUENCES ON CLINICAL REASONING OF
PRACTICING OCCUPATIONAL THERAPISTS**

A Thesis

Presented to

**The Faculty of the Department of Occupational Therapy
San Jose State University**

**In partial Fulfillment
of the Requirements for the Degree
Master of Science**

By

Mary Ann Paulazzo

May, 1992

APPROVED FOR THE DEPARTMENT OF OCCUPATIONAL THERAPY

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ABSTRACT

INFLUENCES ON CLINICAL REASONING OF PRACTICING OCCUPATIONAL THERAPISTS

by Mary Ann Paulazzo

The purpose of this research was to study the perceptions of practicing occupational therapy clinicians regarding the influence of education, experience, intuition, philosophy of facility, socio-cultural concerns and occupational therapy theory on their clinical reasoning. The questions addressed in this study were: (a) how influential are the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience perceived to be by occupational therapy clinicians? (b) which of the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience are perceived to be most influential in determining clinical decisions of current practicing occupational therapy clinicians? and (c) are there significant associations among the factors, the stages of clinical reasoning, and demographic variables as reported by occupational therapy clinicians? A questionnaire, Influences on Clinical Reasoning of Occupational Therapy Clinicians (ICROTC) was developed and administered to 250 practicing occupational therapists. The factors intuition, experience, occupational therapy theory and philosophy of facility attained statistical significance.

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Gregory Stone began this research project with me. His ability to facilitate growth and show his enthusiasm will always be remembered by those who knew him. This project is also part of Lela Llorens', Karen Diasio-Serrett's, Neil Willits', and Cliff Smith's unique and appreciated time and talents.

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During this research, our son Andrew was born. Ruth Smith had the foresight to call and offer to watch him. Andrew and Ruth spent many days together.

TABLE OF CONTENTS

Acknowledgement	iv
List of Tables	vii
List of Figures	viii
Introduction	1
Purpose	1
Statement of the Problem	1
Objectives	3
Questions	3
Definitions	3
Assumptions	5
Limitations	5
Significance of the Study	6
Literature Review	7
Introduction	7
Definitions and Current Theory	7
Clinical Reasoning Theory from Outside Occupational Therapy	17
Summary	21
Design and Methodology	25
Rationale for Design	25
Objective	28
Questions	28

TABLE OF CONTENTS

(continued)

Subjects	28
Demographics	29
Measure and Statistical Tests	29
Pilot Study	30
Main Study	31
Design	31
Data and Results	33
Response to Questionnaire	33
Measure and Statistical Tests	33
Face Validity of Questionnaire	34
Data Analysis and Results	36
Discussion, Implications, Recommendations and Summary	44
Discussion and Implications	44
Recommendations for Further Research	48
Summary	49
References	52
Appendix A	55
Appendix B	65
Appendix C	67

**TABLE OF CONTENTS
LIST OF TABLES**

	Page
1. Results of Pilot Study for Face Validity	35
2. p-Values and Mean Scores of the Six Factors Using the Questionnaire Data Without the Demographic Variables	38
3. Analysis of Interactions Between Demographic Variables and Across the Stages and Factor	40

**TABLE OF CONTENTS
LIST OF FIGURES**

	Page
1. Statistically significant p-values for interactions between the seven clinical reasoning stages and the six factors, with the demographic variables	41
2. Mean scores and statistically significant p-values of the stage and factor interactions	43

CHAPTER 1

INTRODUCTION

Purpose

The purpose of this research was to study the perceptions of practicing occupational therapy clinicians regarding the influence of education, experience, intuition, philosophy of facility, socio-cultural concerns, and occupational therapy theory on their clinical reasoning.

Statement of the Problem

Many new occupational therapists have a difficult time articulating their practice and documenting their services. M. Reilly (1988, November) has stated, "occupational therapy will not make it into the twenty-first century if it does not own what it does, if it does not speak up for itself and develop its own voice." According to C. Allen (1989, October) it takes three to five years before some occupational therapists can write appropriate short-term and long-term goals. This lack of ability to articulate goals is a significant financial problem for Occupational Therapy departments in the current economic climate.

The hospital environment has changed rapidly in recent years. There is an increased emphasis on accountability, cost cutting measures, interdisciplinary treatment and efficiency. Occupational therapists need to be able to document their services concisely and clearly and justify the need for skilled professionals to treat a client. The therapists must also be able to demonstrate and report substantial meaningful gains in a reasonable amount of time.

Investigation by Neistadt (1987) indicated a gap in educating occupational therapists (both in classrooms and clinical internships) to become skilled beginning therapists whom can articulate their occupational therapy services. She found that students need assistance in transferring their academic skill of data gathering and analysis to clinical settings. They cannot always make the transition from classroom case studies to demonstrated clinical behavior. Students find it difficult to generate treatment plans quickly, using their observations versus using a reference book (Neistadt, 1987).

Many occupational therapy educators and occupational therapy clinicians find it difficult to teach and articulate clinical reasoning (Pelland, 1987; Rogers & Masagatani, 1982). Yet clinical reasoning is the core of any clinical practice (Pelland, 1987). Students need to cognitively know clinical problem solving models in order to articulate why they make their decisions in clinical practice (Steger, 1983). Students who learn from skilled clinicians who do not articulate their reasoning process must infer the clinician's reasoning process (Steger, 1983). Because occupational therapy students learn in part through internship experiences where the role model may not verbally articulate practice, the student may also become a skilled clinician who is effective with people, yet has a difficult time communicating the reasoning on which the clinical decisions were based.

Argyris and Schon (1974) bring a universal perspective to the study of clinical reasoning. "Interpreting thought and action effectively has plagued philosophers, frustrated social scientists, and eluded professional practitioners for years. It is one of the most prevalent and least understood problems of our age. Universities have shunned it on the ground that effective action was too practical or--the kiss of

death--vocational" (p. 3). Therefore, the problem of understanding clinical reasoning of practicing occupational therapists (or thought with effective action) is a universal problem with all practicing professions.

Objectives

The objectives of this study were to: (a) discover how the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience were perceived to influence the clinical reasoning of occupational therapy clinicians, and (b) provide recommendations and/or insight to help guide new and some current occupational therapists to better articulate their clinical practice.

Questions

The questions addressed in this study were: (a) how influential are the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience perceived to be by occupational therapy clinicians? (b) which of the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience are perceived to be most influential in determining clinical decisions of current practicing occupational therapy clinicians? and (c) are there significant associations among the factors, the stages of clinical reasoning, and demographic variables as reported by occupational therapy clinicians?

Definitions

The definitions used in this study are shown below.

Clinical Reasoning - The process one uses to transform occupational therapy's body of knowledge into clinical practice which is seen as clinical decisions and actions.

Clinical stages - A conceptualized seven-stage model that reflects the clinical reasoning of practicing clinicians. The seven-stage model (Paulazzo, 1992) is as follows: deciding which assessment tools to administer, analyzing and interpreting results, deciding if a person can be treated by an occupational therapist, developing treatment plans, deciding how to implement treatment plans, deciding when and if to re-evaluate the patient, and deciding when to terminate treatment.

Education - The process of learning from such activities as internships, lectures, discussions, audio-visual presentations, continuing education conferences, in-service training and professional meetings.

Experience - Knowledge gained or modified through doing, direct experience or indirect experiences which include consulting with fellow co-workers.

Intuition - Knowledge that is understood and applied at a subconscious level that currently is not verbally articulated.

Occupational therapy theory - Accepted theory bases and frames of reference as taught in academic and clinical settings.

Philosophy of facility - Accepted occupational therapy theories and frames of reference used in specific clinics whether articulated or not.

Socio-cultural concerns - Beliefs of reality, that is, normal vs. abnormal, healthy vs. unhealthy as defined by his or her unique culture.

Assumptions

The assumptions identified for this study were:

- (1) Questionnaires can aid occupational therapists in reflecting upon their clinical reasoning.
- (2) Clinical reasoning is a skill that has both art and science components; some of clinical reasoning can be verbally articulated and some cannot.
- (3) Clinicians know more than they can verbally articulate. Occupational therapy clinicians subconsciously understand why and how they make the decisions they do, the problem is how best to verbally communicate this subconscious knowing.
- (4) By learning more about how current clinicians make clinical decisions it is hoped that this knowledge will provide insights and recommendations to enable future occupational therapy students and practicing occupational therapy clinicians to better document and articulate their services.

Limitations

Limitations noted in this study were as follows:

- (1) Clinical reasoning was defined and limited by the scope of the questionnaire.
- (2) Respondents could only rate the identified factors and not offer other factors.
- (3) There was a small number of male respondents.
- (4) Studies concerning clinical reasoning of practicing occupational therapists are only beginning to appear in the literature so the knowledge base is limited.

(5) Many assumptions were made in this study. It was assumed that the questionnaire was organized to represent the clinical reasoning of practicing clinicians, that the factors identified were the most significant factors that influence clinical reasoning, and that occupational therapists could reflect on their clinical reasoning process with the use of this questionnaire.

Significance of the Study

This study offers information on how influential current practicing occupational therapy clinicians perceive the six factors of education, intuition, experience, philosophy of facility, socio-cultural concerns, and occupational therapy theory to be in making clinical decisions. This study will attempt to create a model that occupational therapy clinicians, educators and researchers may use to discuss what influences clinical reasoning, how occupational therapists make clinical decisions, and how to better articulate occupational therapy services. This study will provide insight into why some occupational therapists have a difficult time articulating their practice. This study will review current models for teaching occupational therapy students clinical reasoning skills in the classroom and in the clinic.

CHAPTER 2

LITERATURE REVIEW

Introduction

The need to study this process has been well documented in the occupational therapy literature on clinical reasoning of practicing therapists, (Cohn, 1990; Fleming, Gillette & Mattingly, 1989; Pelland, 1987; Rogers & Masagatani, 1982; Steger, 1983; Umphred, 1990). There were few models or research tools to further the knowledge of clinical reasoning in practicing occupational therapists. This study could contribute to the development of research models and creation of research tools for this purpose.

This research was guided by several sources: hearing current leaders in occupational therapy speak at conferences, by informal talks with professors, clinicians, and students, and reading the occupational therapy literature found in the American Journal of Occupational Therapy and the Occupational Therapy Journal of Research. A broader perspective on clinical problem-solving issues in other health-related fields was sought by using Index Medicus and Allied Health Professions Index. The term clinical problem solving was used synonymously with clinical reasoning.

Definitions and Current Theory

In the literature the words clinical problem solving, occupational therapy process, clinical decision making, and clinical reasoning are all used synonymously. The occupational therapy literature defined clinical reasoning as the process of

systematic decision-making based on an identifiable professional frame of reference utilizing both subjective and objective data accrued through appropriate assessment and evaluation (Maurer, Barris, Bonder & Gillette, 1984). Clinical reasoning is defined differently by different researchers. Fields other than occupational therapy defined clinical reasoning as a method used to describe the collective skills of evaluating a patient's problem, deciding what is wrong, and making decisions to treat or manage an identified problem (Barrows & Tamblyn, 1980); and other researchers believe clinical reasoning is a generalized description of all adult mature thinking processes (Gale, 1982; Peel, 1971).

There is no one definition used consistently in the occupational therapy literature. For the purpose of this research, clinical reasoning is defined as the process one uses to transform occupational therapy's body of knowledge into clinical practice which is seen in clinical decisions and actions. Clinical reasoning is the method used to understand the techniques and concepts within a professional field, and to understand the current situation in which the clinical decisions will accumulate into actions.

Clinical reasoning research within the field of occupational therapy included the work of C. Allen (1989, October), Fleming, Gillette, and Mattingly (1989), Hopkins and Tiffany (1983), Llorens (1982), Rogers and Masagatani (1982), Pelland (1987), and Rogers (1983). Clinical reasoning research outside the field of occupational therapy included the work of Barrows and Tamblyn (1980), Schon (1980), and Umphred (1990). Bashook (1976), LaDuca, Engel, and Risley (1978), and Schon (1980) suggested methodologies for studying clinical reasoning of practicing professions. Briggs, Duncombe, Howe, and Schwartzberg (1981), Kielhofner (1983),

Rogers and Masagatani (1982), Pelland (1987), and Rogers (1982) discussed factors that influence clinical reasoning of practicing occupational therapists. As a result of a mini-course in clinical reasoning, Gillette, Mattingly, Fleming, Hoover, Christiansen, Rogers, Reed, Keilhofner, and Schon are working collaboratively on the Clinical Reasoning Project which was unpublished at the time of this review (Fleming, Gillette, & Mattingly, 1989). The study is seeking to identify the clinical reasoning strategies and skills of practicing occupational therapists and study how theory is used by practitioners and how theory emerges from practice. Six therapists were videotaped during evaluations and treatments. The therapist and a principal investigator discussed the treatment session immediately following the videotaping, and selected a segment to be viewed by the study group. Concepts and theories regarding clinical reasoning were developed from discussion of structured questions. The "Three Track Mind" model was developed from this clinical reasoning study (Fleming, Gillette, & Mattingly, 1989). The three tracks are procedural, interactive, and conditional. The procedural track is the process used to conduct and monitor treatment. The focus is on the disability and procedures. The purpose is the treatment of the disability. The interactive track is the process used for treatment especially paying attention to the client's and therapist's responses. This track is also that on which a therapist engages the client. The focus is on the client and planned change. The purpose is to perform therapy with the person. The conditional track involves the image that the therapist creates for the patient's treatment, for example creating realistic and meaningful short-term and long-term goals. This track integrates the first two tracks. This track's purpose is the therapeutic treatment of the person with the disability. The focus is on the person, problems, potentials, and problem solving. The conditional track

integrates biological, environmental and social factors.

This model was useful in conceptualizing the clinical reasoning process and conducting research that focuses on interviews. It is also useful in acknowledging the procedural aspects and engaging aspects of clinical reasoning by identifying where in the occupational therapy process the tracks are most dominant. This model was limited in defining the factors that influence the clinical reasoning process.

The clinical reasoning of occupational therapists includes a pre-assessment phase, deductive reasoning, and inductive reasoning (Rogers, 1983). The pre-assessment phase begins when a therapist knows the patient's age and diagnosis. The therapist will decide which assessment tools to administer and begin to generate hypotheses. The therapist then uses deductive reasoning in recalling principles and strategies gained from formal training. The therapist then uses inductive reasoning to decide what is a problem, what are realistic short- and long-term goals, and how to approach treatment. In this process, experience, persuasion, opinion, and intuition play an important role. "The closer we come to making a clinical judgment, the less use is made of facts and hypothesis testing, and more reliance is placed on the dialectical process, opinion, and persuasion" (Rogers, 1983, p. 610).

Rogers (1983) believed that the most critical stage of the clinical problem solving process was the selection of a model of practice. She stated that a conceptual framework guides the occupational therapy process by specifying the context and parameter of practice. This model was useful in highlighting the separate thinking processes in clinical reasoning and the importance of the pre-assessment thinking. This model was useful in identifying education, experience, and intuition as major influences on the clinical reasoning process and identifying the selection of assessment

tools and implementation of treatment plans as clinical stages.

Pelland's (1987) treatment planning model presents a non-linear process organized around the following seven stages: (a) identify a frame of reference, (b) collect data, (c) analyze data, (d) develop strengths and weaknesses, (e) develop a treatment plan, and (f) evaluate effectiveness. At any stage the therapist may adjust treatment and/or discharge or refer the patient. This model emphasizes the importance of beginning the clinical reasoning process by choosing or identifying a frame of reference. A clinician's chosen frame of reference influences and defines the evaluation, clinical problems and clinical treatments. Clinicians consciously or subconsciously define their practice from a frame of reference. This treatment planning model was tested and verified over Pelland's years of experience as a clinician, a clinical supervisor, educator, and a researcher. She concluded that in deciding a treatment plan, a clinician needed to use both the patient's strengths and weaknesses to engage the patient in the most meaningful and most therapeutic activities possible.

Pelland's (1987) model was useful in delineating clinical reasoning into stages throughout the entire occupational therapy process. This model helped to develop some of the questionnaire's treatment stages such as analyzing and interpreting results, deciding if a person can be treated by occupational therapists, developing treatment plans, deciding when and if to re-evaluate the patient, and deciding when to terminate treatment as clinical reasoning stages. The model was also useful in identifying occupational therapy theory as a major influence on clinical reasoning. It was limited in acknowledging the different thinking skills and separate tracks of clinical reasoning.

This researcher believes that Pelland's conceptual model of treatment planning

is a model of clinical reasoning when Pelland chooses to use identifying a frame of reference as the first step. There is a difference between treatment planning and clinical reasoning. Treatment planning describes the actions and clinical reasoning analyzes the actions (Steger, 1983). When Pelland adds the step of identifying a frame of reference, then she is discussing the analysis for the actions in treatment planning; therefore, this researcher includes Pelland's as a clinical reasoning model.

Llorens (1982) presented a linear model of documentation that included the process of occupational therapy from the initial evaluation through discharge. This model, the Occupational Therapy Sequential Client Care Record (OTSCCR), reflected a clinician's concern for a client focusing on sensory integrative, motor, psychological, social and cognitive components. This model was also a tool for data collection and for clinical research. The OTSCCR was organized in five sections, the sections were collecting data, identifying problems, developing initial treatment plans, documenting progress, and discharging the patient. The data base section included the thoughts of the therapist on occupational performance components to be considered. This information documented a comprehensive skilled evaluation. The data base section also included documentation techniques and procedures used in evaluations, such as behavioral observations, interviews, and testing. This information qualified how the information was gathered.

Llorens' (1982) model was useful in documenting clinical reasoning of occupational therapists from the pre-assessment stage through discharge. The model was useful in defining assessment tool selection, developing treatment plans, deciding when to re-evaluate the patient, and deciding when to terminate treatment as stages of clinical reasoning. The model was limited in identifying factors that influence clinical

reasoning, different thinking skills and separate tracks in clinical reasoning.

Hopkins and Tiffany's (1983) model of the Occupational Therapy Process was identical to the problem solving process, beginning with problem identification and ending with reassessment. This model included problem identification, solution development, plan of action, implementation and reassessment. Initial assessment, treatment objectives, treatment plans, implementation of plan, periodic or ongoing evaluation and treatment termination were also included. The importance of data collection and occupational therapy services management were emphasized. This model was useful in integrating the reviewed literature. The separate clinical reasoning tracks can be inferred from these two models. This model was limited in identifying separate thinking skills and factors that influence clinical reasoning.

There were similarities and differences among Hopkins and Tiffany's (1983) Occupational Therapy as a Problem-solving Process model, Pelland's Treatment Planning model, and Llorens' Occupational Therapy Sequential Client Care Record. All models focused on a clinical reasoning process that involves collecting data, identifying problems, developing treatment plans, implementing treatment plans, evaluating effectiveness and finally terminating treatment of patients. However, Hopkins and Tiffany's model did not include identifying a frame of reference, identifying strengths and weaknesses, or referring a patient to other disciplines.

The differences among the models reflected new understanding gained in the eight years following Hopkins and Tiffany's (1983) model. Pelland's (1987) and Llorens' (1982) models reflected understanding gained from theory development and an emphasis in health care on health and prevention. Pelland added identifying a frame of reference, identifying a patient's strengths and weaknesses, and referring

patients to other services. Llorens (1982) emphasized the need to document the occupational therapy process from initial evaluation through discharge.

Rogers and Masagatani's (1982) article, "Clinical Reasoning of Occupational Therapists During the Initial Assessment of Physically Disabled Patients," was the only article found in the occupational therapy literature that reported research designed to verify a clinical reasoning model for practicing occupational therapists.

The purpose of Rogers and Masagatani's (1982) paper was to describe "how" Occupational Therapists made their clinical decisions to determine functional problems and treatment goals with their patients. The study was qualitative in nature. The subjects were 10 non-representative experienced clinicians practicing in the same acute physical dysfunction setting. Each therapist was observed twice with different patients. All 20 sessions were videotaped by a researcher. The researcher was in the room with the client and therapist.

From the analysis of the taped sessions, a six-stage model of clinical decision making emerged (a) searching of medical information, (b) choosing which assessment plans to use, (c) implementing assessment plans, (d) defining client's problems, (e) deciding on treatment objectives, and (f) reflecting on the assessment process. In general, the therapists found it difficult to articulate the progression of their thoughts which led to their clinical decision. The researchers and clinicians discovered two important concepts that influenced clinical decisions (a) medical diagnosis, and (b) patient-therapist relationship. The medical diagnosis was considered essential in deciding which assessment instruments to administer and the data to collect for defining the patient's problems, treatment plans, and long- and short-term goals. The patient-therapist relationship was considered critical in establishing therapeutic

rapport, demonstrating concern for the patient's welfare, and being aware of the patient's personal experience of his/her illness or disability.

Rogers and Masagatani (1982) concluded that occupational therapists use an intuitive process rather than a process that includes early hypothesis generation within the first few minutes of an initial evaluation. The researchers also concluded that the therapists did not integrate psycho-social aspects in their treatment assessments and evaluations or identified patient's strengths.

This model was useful in understanding the pre-assessment process and the complex dynamics of clinical reasoning of occupational therapists. Intuition was identified as a factor that influences clinical reasoning. The clinical reasoning stages of deciding which assessment tools to administer and developing treatment plans were identified from this model. The separate clinical reasoning tracks and different thinking skills can be inferred from this model. The model is limited in its focus on assessment only.

There are similarities and differences between the "Three Track Mind" model (Fleming, Gillette, & Mattingly, 1989) and Rogers and Masagatani's (1982) findings. The procedural track and knowing the medical diagnosis appear to guide clinical reasoning of occupational therapists similarly. The patient's medical diagnosis and age help organize the clinician's thinking in conducting and monitoring treatment. It guides the therapist's thinking in deciding which assessment tools to administer. The interactive track and the patient-therapist relationship appear to influence the same process; this focuses on engaging the patient in treatment. The three track model goes a step further by projecting an image of the patient that integrates biological, environmental and social factors.

Steger (1983) commended and criticized Rogers and Masagatani's research (1982) findings: "[The] six-stage model derived from the data more closely approximates a systemic conceptualization of occupational therapy treatment planning rather than representing a model of clinical reasoning. Rogers and Masagatani (1982) concluded that occupational therapists use an intuitive reasoning process because they have difficulties articulating the reasoning guiding their clinical decisions. The data revealed the therapist's inclination to describe treatment planning rather than define the reasoning process" (p. 51). Steger offered a different explanation. Instead of saying that occupational therapists use an intuitive approach, Steger believed that therapists reason the assessment process so often that they automatically and unconsciously sequence this thought process. This thought process occurs so often, it becomes automatic, and therapists forget the guiding principles.

Steger (1983) also reported that the methods by which occupational therapists learn the clinical aspects of occupational therapy affect the student's ability to verbally articulate his/her reasoning. If a student learns from a competent clinician who works well with people and who may not verbally articulate his or her reasoning, the student is left to infer the clinical reasoning supporting the clinician's decisions. The student may then repeat the cycle, and become effective with people and unable to articulate the reasoning on which her clinical decisions are based. This process would tend to internalize an occupational therapist's knowledge base, and in doing so, make it difficult for practitioners to verbally articulate their reasoning process.

Briggs, Duncombe, Howe, and Schwartzberg (1981) demonstrated that different frames of reference chosen or emphasized by institutions influence clinical

reasoning. A clinician will be personally and/or professionally dissatisfied if his/her beliefs are contrary to the philosophy of the facility.

Kielhofner (1983) demonstrated that people evolve from a baseline of values, rituals and beliefs expressed through their specific culture. People learn, change, adapt and perceive reality within their values as defined by their culture. Socio-cultural concerns reflect the unique cultural background of individual clinicians and patients.

Occupational therapy students and clinicians value a learning mode of direct experience (Llorens & Adams, 1978). This learning is tacitly reinforced through internships and academic programs that emphasize doing activities.

M. Reilly (1988, November) has stated "occupational therapy will not make it into the twenty-first century if it does not own what it does, if it does not speak up for itself and develop its own voice." It is difficult for some occupational therapy clinicians to articulate, document and verbally express treatment and treatment rationale.

C. Allen (1989, October) believes it takes some practicing occupational therapy clinicians three to five years to learn to write appropriate short-term and long-term goals. There appears to be a gap in transferring knowledge from the classroom into the clinic (Neistadt, 1987).

Clinical Reasoning Theory from Outside Occupational Therapy

Schon (1980) suggested methods to study clinical reasoning and brought to it a different perspective. He believed that the theory which someone uses cannot be learned simply by asking, and suggested constructing a therapist's theory-in-use from

observations of his/her behavior. He also stated that constructs of theories-in-use are like scientific hypotheses; the construct may be inaccurate representations of the behavior they claim to describe. Schon also reported that practicing professionals know more than they can verbally articulate. Schon recommended studying clinical reasoning by observing master clinicians and concluding their theory-in-use (clinical reasoning) from observations versus use of a model.

Barrows and Tamblyn's (1980) model for clinical reasoning of practicing physicians used cognitive steps organized around a management strategy. It was the product of ten years of experience training medical students to be successful clinicians and analyzing the literature. The cognitive steps were patient information, perception, analysis, problem synthesis, inquiry strategy and clinical skills. The cognitive steps were not hierarchical; they were all equal and are represented by a loop, each affecting each other simultaneously. Both the analysis and problem synthesis steps affect the working hypothesis. The working hypothesis will lead to a final hypothesis which will affect the management strategy. Tests and direct action further refine the management strategy. This clinical reasoning model emphasized patient evaluation and diagnosis. It was organized around the cognitive processes involved in solving a complex and diffuse problem.

Barrows and Tamblyn (1980) summarized the clinical reasoning process of physicians as (a) perceiving initial cues from the patient and environment, (b) rapidly generating multiple hypotheses, (c) applying inquiry strategies to gain information to verify hypotheses or eliminate hypotheses, (d) abstracting an enlarging problem if appropriate from the data gained, and (e) closing the encounter after making a diagnostic or therapeutic decision. The clinical reasoning process was further divided

into behaviors which can be evaluated and learned (a) information perception and interpretation, (b) hypothesis generation, (c) inquiry strategy and clinical skills, (d) problem formulation, and (e) diagnostic and/or therapeutic decisions. This model was useful in establishing the importance of communication and listening skills in the clinical reasoning process of practicing physicians. It was limited in examining the relationship between physician and patient after making a diagnostic or therapeutic decision.

Umphred (1990) has described clinical reasoning as a clinical triad. The three interchangeable areas are normal human movement, flexibility of central nervous system control, and the learning environment. Normal human movement is viewed as a foundation for sequencing treatment and for creating evaluation tools. Human movement is evaluated through observable behaviors and it is analyzed into parts. The flexibility of the central nervous system control is based on neuroanatomy and physiological principles and is the foundation for understanding clinical signs, explaining treatment techniques, and understanding normal development. As the knowledge base changes, so does the rationale. This change in knowledge bases leads to new explanations for constant behaviors. The learning environment involves the whole person and is based on input to the sensory systems. All sensory areas are active simultaneously (motoric, affective-emotional, and perceptual-cognitive areas). The total clinical learning environment includes the internal and external behaviors of both therapist and client. The learning environment is always changing. Umphred also believes a master clinician, above all, exudes deep sincere compassion for the client and possesses many clinical tools, tricks and methods to treat a patient. In addition to compassion, the master clinician has highly refined observational skills and

an integrated knowledge base that comes from different disciplines. She also sums up her clinical reasoning process by saying "it is an attitude of, if it looks good, if it feels good to me, if it feels good to the patient, if it appears effortless and like we are enjoying ourselves, then it is right."

The Clinical Learning Environment (Umphred, 1990) emphasized the affective domain where the client's central nervous system and external world and the therapist's central nervous system and external world continually give and receive inputs and responses. The Clinical Learning Environment describes the practice of master clinicians who: (a) focus only on the patient during treatment; (b) accept responsibility for their behavior and allow the client the right to accept responsibility for his/her behavior; (c) look and feel what is happening, without pretending to see only what was taught; (d) build a trust with clients by words that are followed by deeds; (e) balance flexibility and judgment; and (f) develop compassion and understanding. This model was useful in identifying content areas of clinical reasoning of physical therapy clinicians, and is limited in addressing how physical therapy clinicians make decisions. The separate tracks of clinical reasoning and separate clinical reasoning thinking skills can be inferred.

Bashook's (1976) review of clinical reasoning in practicing physicians demonstrated conflicting conclusions in studies attempting to understand the clinical reasoning process of practicing physicians. He believed that clinical reasoning should be studied in a domain that takes into consideration the problem-solving process, clinical discipline, and context of care. Individual domains have specific common problems that can be identified and clinicians can solve these specific common problems. He has termed this method of study "Patient Management Problems"

(PMPs). Methodologies to study problem solving in a clinical discipline, context of care, and resolution of common problems were not offered. To date, there have been no studies using the methodology of Patient Management Problems to further understand the clinical reasoning of practicing occupational therapists.

LaDuca, Engel, and Risley (1978) stated that clinical competence is based upon managing situations properly and that professional situations can be analyzed by identifying interactions of client, clinical problem, setting and situation. The importance of the philosophy of facility and complexity of the processes of clinical reasoning were identified. Methodologies to study client interactions and the clinical problem setting of a situation were not offered.

Summary

All studies reviewed emphasized behaviors, scientific knowledge, developing a system to organize the occupational therapy process from the initial evaluation to discharging the patient, and/or models to integrate these three areas. Behaviors are the interpersonal skills between therapists and clients including caring, communication, listening, motivating, engaging, and evaluating the responses of the clients and therapists especially through behavioral observations. Behaviors also include the educator's and clinical preceptor's ability to communicate clinical reasoning to occupational therapy students. Scientific knowledge in occupational therapy is expressed in the occupational therapy clinicians' ability to integrate biological, environmental, and social theory with occupational therapy frames of reference. These models emphasize clinical competence based on managing clinical situations. Clinical situations are defined within the context of identifying common problems for a given

diagnosis, a given setting and a specific situation. The models that emphasize organizing the occupational therapy process from the initial evaluation to the discharge summary discussed stages and a logical order to document the occupational therapy services. The most current research by Fleming, Gillette, and Mattingly (1989) and Umphred (1990) are integrating the behaviors, scientific knowledge and methods to organize the clinical process through modeling techniques. In summary, the literature addressed four areas of concern for clinical reasoning of occupational therapists: (a) behaviors, (b) scientific knowledge, (c) documentation of occupational therapy processes from initial evaluation through discharge, and (d) integrating these three concepts. A review of the literature on clinical reasoning elicited six major, influential factors, and seven stages of the clinical process.

The six major factors believed to influence the clinical reasoning process were identified from the work of Bashook (1976); Briggs, Duncombe, Howe, and Schwartzberg (1981); LaDuca, Engel, and Risley (1978); Fleming, Gillette, and Mattingly (1989); Kielhofner (1983); Pelland (1987); Rogers and Masagatani (1982); Rogers (1983); and Umphred (1990). They are education, experience, philosophy of facility, socio-cultural concerns, occupational therapy theory, and intuition.

The factor of education was chosen based on Rogers' (1983) findings that clinicians use the deductive processes learned from their formal education and Bashook's findings that clinical discipline influences the reasoning process. Occupational therapists are required to complete an accredited occupational therapy program, and therefore have been influenced by the educational process. This influence includes interactions with occupational therapy professors, discussions with fellow students, completion of internships, incorporating findings from the literature,

and continuing education.

Experience was chosen as a factor based on Barrows and Tamblyn's (1980) findings that master clinicians rely on knowledge gained only through experience. The conditional track of Fleming, Gillette and Mattingly (1989) acknowledges the important of experience. Rogers (1983) believes that experience influences clinical judgments more than learned strategies and principles. Therapy techniques and concepts are learned and validated through experience. Experience is an affirming process; it gives feedback of success or failure.

Philosophy of facility was chosen because some institutions have a chosen or preferred frame of reference and chosen model(s) of practice. Different institutions using different conceptual models may represent widely contrasting approaches to treatment (Briggs, Duncombe, Howe & Schwartzberg, 1981). The clinical problem setting and situation must be taken into account before clinical decisions are made (LaDuca, Engel, & Risley, 1978). A clinical decision must be made regarding the philosophy and mission of the facility.

Socio-cultural concerns were chosen based on the identification of personal interaction between client and therapist as one of the three tracks of Fleming, Gillette, and Mattingly (1989), and the unique influence of culture on therapists and patients. These different cultures define reality differently. Socio-cultural concerns are also supported by Kielhofner's (1983) findings that people evolve from a baseline of values, rituals, and beliefs through a specific culture. In response, they learn, change, adapt, and perceive reality within their values as defined by their culture. In addition, Pelland (1987) suggested that successful rehabilitation must include applying the patient's individual strengths and weaknesses throughout the occupational therapy

process.

Occupational therapy theory was chosen based on Pelland's (1987) and Rogers' (1983) conclusions that the most critical stage of the clinical problem solving process is selection of a model of practice.

Intuition was chosen because Rogers and Masagatani's (1982) study concluded that occupational therapists use an intuitive process as opposed to a hypothetico-deductive process. Therapists use intuition when they encounter situations for which they are not formally prepared (Rogers, 1983; Schon, 1980).

The seven stages of the occupational therapy reasoning process were developed from Fleming, Gillette, and Mattingly's (1989), Hopkins and Tiffany's (1983), Llorens' (1982), Pelland's (1987), and Rogers' (1983) models. The seven stages identified were: (a) deciding which assessment tools to administer, (b) analyzing and interpreting results, (c) deciding if a person can be treated by occupational therapy, (d) developing a treatment plan, (e) deciding how to implement the treatment plan, (f) deciding when and if to re-evaluate the patient, and (g) deciding when to terminate treatment.

CHAPTER 3

DESIGN AND METHODOLOGY

The purpose of this research was to study the perceptions of practicing occupational therapy clinicians regarding the influence of education, experience, intuition, philosophy of facility, socio-cultural concerns and occupational therapy theory on their clinical reasoning. This study used a closed end questionnaire to generate the data.

Rationale for Design

Clinical reasoning was chosen as the topic for this research because clinical reasoning is the core of any clinical practice (Pelland, 1987). According to Pelland (1987) and Rogers and Masagatani (1982), some occupational therapy educators and some occupational therapy clinicians find clinical reasoning difficult to articulate and teach. Yet how to study the clinical reasoning process was the first challenge of the study. Few occupational therapy clinical reasoning models have been published (Rogers & Masagatani, 1982; Pelland, 1987; Rogers, 1983) and few research tools have been designed to analyze the clinical reasoning process of health professions by researchers outside the occupational therapy field.

The Professional Performance Situation Model (PPSM), was designed to develop definitions of competency and to develop assessment instruments. It defines the professional competence situational universe as the interactions of client, clinical problem setting, and situation. Therefore, all clinical situations would be analyzed to obtain the skill and knowledge requirements. From the identified skills and

knowledge, an inventory of test instruments could be created and implemented. This model was not used because it does not offer guidance for studying the interactions of client, clinical problem setting and situation.

Bashook's (1976) model was created to measure clinical problem solving by practicing physicians. Bashook's conceptual framework for evaluating clinical competence included the problem solving process, clinical discipline, and context of care. Bashook subdivided these areas as follows: the problem solving process consists of sensing, defining and resolving; clinical discipline was defined as medicine, surgery, gynecology, pediatrics, psychiatry, and other; and context of care includes acute, chronic, health maintenance, and emergency settings. This model was not used because it offered no guidance in how to study the problem solving process.

Barrows and Tamblyn's (1980) model summarized the clinical reasoning process of practicing physicians as perceiving initial cues from the patient and environment, rapidly generating multiple hypotheses, applying inquiry strategies to gain information to verify or eliminate hypotheses, abstracting a larger problem, if appropriate, from the data gained, and closing the encounter after making a diagnostic or therapeutic decision. This model was not chosen because it only addressed the diagnostic process, excluding how to provide medical procedures to the patient and manage them.

Rogers and Masagatani's (1982) Clinical Decision Making Reasoning Process for Assessment model represented the reasoning process of occupational therapy clinicians during the initial evaluation as follows: searching for medical information, selecting an assessment plan to use, implementing the assessment plan, defining the client's problem, deciding on treatment objectives, and reflecting on the assessment

process. This model was not chosen because it focused only on the initial assessment, excluding the remainder of the occupational therapy process.

A research tool to study the clinical reasoning of practicing occupational therapy clinicians needed to be created. A questionnaire was chosen as the methodology for this study because it provided modeling and structure to begin to deal with the problems in articulating clinical reasoning.

Hopkins and Tiffany's Occupational Therapy as a Problem Solving Process Model (1983), Llorens' (1982) Occupational Therapy Sequential Client Care Record, and Pelland's (1987) Treatment Planning Model were selected because they organized the process of occupational therapy from the initial evaluation to the patient's discharge and were structured similarly. From these three models the seven stages of clinical reasoning were constructed to model and organize the questionnaire for this study. The seven stages were deciding which assessment tools to administer, evaluating and interpreting their results, deciding if a person can be effectively treated by occupational therapy, developing treatment plans, deciding how to implement treatment plans, deciding when and if to re-evaluate the patient, and deciding when to terminate treatment.

The six factors believed to influence the clinical reasoning process were identified from the work of Bashook (1976), Briggs, Duncombe, Howe, and Schwartzberg (1981), LaDuca, Engel, and Risley (1978), Kielhofner (1983), Pelland (1987), Rogers and Masagatani (1982), and Rogers (1983). The factors are education, experience, philosophy of facility, socio-cultural concerns, occupational therapy theory, and intuition.

Objective

The objectives of this study were to: (a) discover how the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience were perceived to influence the clinical reasoning of occupational therapy clinicians, and (b) provide insight to further guide new and some practicing occupational therapists to better articulate their services.

Questions

The questions addressed in this study were: (1) how influential are the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience perceived to be by occupational therapy clinicians? (2) which of the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory and experience are perceived to be most influential in determining clinical decisions of currently practicing occupational therapy clinicians? and (3) are there significant associations among factors, the stages of clinical reasoning, and demographic variables as reported by practicing occupational therapy clinicians?

Subjects

The sample for the pilot study consisted of 30 randomly selected occupational therapists from the membership of the American Occupational Therapy Association. The research study sample included 250 randomly selected members of the American Occupational Therapy Association. The subject groups were mutually exclusive.

Demographics

One hundred and eighteen of the 250 randomly selected subjects returned the survey questionnaire. The demographic data consisted of gender, education level attained, and years of experience. Gender groupings were female (n=109) and male (n=9). Education levels were certificate (n=2), baccalaureate (n=73), and master's/doctorate (n=43). Years of experience were grouped as "novice," two or fewer years (n=8); "intermediate," three to five years (n=40); and "old-hand," more than five years (n=70).

The 118 respondents were also grouped as a whole to discover how influential the factors of education, intuition, philosophy of facility, socio/cultural concerns, occupational therapy theory and experience were perceived in determining their clinical reasoning, and which of the same factors are perceived to be most influential in determining practicing occupational therapists' clinical reasoning.

Measure and Statistical Tests

The measure used in this study was a questionnaire, Influences on Clinical Reasoning of Occupational Therapy Clinicians (ICROTC) (Paulazzo, 1992) (Appendix A). The ICROTC questionnaire consisted of 42 items that were selected to measure occupational therapist's perceptions about their clinical reasoning using a 5-point Likert scale.

The data from the questionnaire were analyzed using analysis of variance (ANOVA) techniques. Specifically, the ANOVA was used to address this study's questions by analyzing the responses in two ways: (1) using the stages of treatment

and influencing factors; and (2) using the demographic variables (gender, years of experience and level of education). This allowed for the examination of the effects of all of the factors, along with interactions among them. A repeated measures analysis of variance was chosen because the analysis was based on multiple responses per subject. Mean scores and p-values representing a comparison of the means using a t-test from the repeated measures analyses will be reported.

The questionnaire was organized to include seven stages of clinical reasoning and six factors that influence clinical reasoning. Each therapist was asked to rate their perceptions of how influential the selected six factors were on each of the seven stages. The seven stages were deciding which assessment tools to administer, analyzing and interpreting results, deciding if a person can be treated by occupational therapy, developing a treatment plan, deciding how to implement the treatment plan, deciding when and if to re-evaluate the patient, and deciding when to terminate treatment (Hopkins & Tiffany, 1980; Llorens, 1982; Pelland, 1987). The six factors of the questionnaire were education, experience, philosophy of facility, socio-cultural concerns, occupational therapy theory, and intuition (Bashook, 1976; Briggs, Duncombe, Howe, & Schwartzberg, 1981; Kielhofner, 1983; LaDuca, Engel, & Risley, 1978; Pelland, 1987; Rogers, 1983; and Rogers & Masagatani, 1982).

Pilot Study

The pilot study was conducted to determine whether occupational therapy practitioners agreed that the questionnaire reflected their clinical reasoning process. Of the 30 pilot questionnaires distributed, 22 (73 percent) were returned. One person responded by writing a letter in poetic form. The researcher gathered by the poetic

letter that the subject did not agree that her clinical reasoning process was represented in the questionnaire and in some way the poem was a more accurate reflection of her clinical reasoning. Three respondents returned blank questionnaires because they have been out of clinical practice for more than three years. Three people responded with a strong interest in the study and wanted to be informed of the results. The 18 other respondents filled out the questionnaire completely and did not write any comments. Since 95 percent of the total returned and completed pilot study population had no objections, the questionnaire was considered to be an effective measure of clinical reasoning in occupational therapy practitioners for this study.

Main Study

The ICROTC questionnaire was then sent to 250 randomly selected occupational therapy practitioners. Of the 250 questionnaires mailed, 118 (47 percent) were returned and used in the analysis of this study. Of the 250 mailed questionnaires, 103 were returned within one month. A follow-up postcard was sent to 147 people and 27 additional questionnaires were received. A total of 130 questionnaires were returned and 12 were discarded because they were returned blank. Eleven respondents did not fill out the questionnaire, indicating that they were not currently working within the occupational therapy profession. One person's husband returned the questionnaire explaining that his wife was deceased. The statistical analysis used 118 questionnaires.

Design

A descriptive survey design was used for this study. Data were collected by a

closed question questionnaire to discover occupational therapist's perceptions of influences on their clinical reasoning (Appendix A). It was accompanied by a cover letter (Appendix B).

The questionnaire was used to assess the perception of how important education, philosophy of facility, theory base, experience, socio-cultural identity, and intuition were in influencing clinical reasoning of occupational therapy clinicians as defined by the questionnaire. The questionnaire was sent to 250 randomly selected occupational therapists, with 118 questionnaires used in the statistical analysis.

CHAPTER 4

DATA AND RESULTS

This chapter will report responses from the questionnaire, describe measure and statistical tests, present information on face validity of the questionnaire, and report analysis of data in relation to the research questions.

Response to Questionnaire

Of the 250 questionnaires mailed for this study, 118 were used in the statistical analysis. Of the 250 questionnaires mailed, 103 were returned within one month. A follow up post card was sent to 147 people and 27 questionnaires were returned, 12 were discarded because the questionnaires were not filled out. Most people did not fill out the questionnaire because they currently were not working as occupational therapy clinicians. One hundred and eighteen subjects were used in this study.

Measure and Statistical Tests

The measure used in this study was a questionnaire, *Influences on Clinical Reasoning of Occupational Therapy Clinicians* (Paulazzo, 1992). The data from the questionnaire were analyzed using analysis of variance (ANOVA). Specifically, the ANOVA was used to address this study's questions by analyzing the questionnaire responses in two ways: (a) using the demographic factors of gender, years of experience, and educational level; and (b) using the clinical stages and influencing factors interactions without the demographic variables. This allowed for the

examination of the effects of all of the factors, along with interactions among them. A repeated measures analysis of variance (ANOVA) was chosen because the analysis was based on multiple responses per subject. F -ratios from this analysis are reported in Appendix C. Reported p -values represent a comparison of the means using a t -test from the repeated measures analyses.

Face Validity of Questionnaire

The pilot study was used to evaluate the face validity of the questionnaire. If 85 percent of the returned and completed questionnaires did not have significant changes, then it was assumed that the questionnaire had face validity. The cover letter of the pilot study asked the respondents to comment freely on any aspect of the questionnaire. The respondents were aware that their comments would be used to create a final questionnaire that would be given to 250 randomly selected occupational therapists. Thirty questionnaires were sent and 22 were returned. The 19 questionnaires completely filled out were used to determine face validity. Three people returned the questionnaire blank because they had not practiced for over two years. Eighteen people completed the questionnaire without any comments. One person returned the questionnaire blank and wrote a poem. The researcher inferred that the questionnaire did not reflect this clinician's clinical reasoning and the poem was a truer representation for her. Ninety-five percent (18) of the respondents made no change on the questionnaire. The questionnaire demonstrated face validity by exceeding the 85 percent criterion (Table 1).

The questionnaire was scored on a 5-point Likert scale with "1" as never influential, "2" as seldom influential, "3" as sometimes influential, "4" as often

TABLE 1

Results of Pilot Study for Face Validity

	Number	Percent
Returned questionnaires:		
Returned	22	73
Not Returned	8	27
Total Questionnaires Sent	30	100
Returned and completed questionnaires:		
Filled-Out Completely	19	86
Not Filled-Out Completely	3	14
Total Returned Questionnaires	22	100
Significant changes made by respondents		
from the returned and completed questionnaires:		
With Significant Changes	1	5
Without Significant Changes	18	95
Total Questionnaires		
Returned and Completed	19	100

influential, and "5" as very often influential. The data for this study's three research questions were analyzed using repeated measures analysis of variance. These analyses tested the significance of the interactions of the demographic variables, the clinical stage, and influencing factor interactions. The three demographic variables were gender, years of experience and level of education. The six influencing factors and seven clinical stages used in the questionnaire constituted the stage and factor interactions. A p-value of .05 or less was considered statistically significant for this study.

Data Analysis and Results

One hundred and eighteen subjects were used in this study. The questionnaire was analyzed in two ways, using the demographic variables and using the clinical stages and influencing factor interactions without the demographic variables. The three demographic variables were gender, years of experience, and level of education. The factor and stage interactions were the six factors and seven stages of clinical reasoning used in the questionnaire. The three levels of experience were "novice," two or fewer years ($n = 8$); "intermediate," three to five years ($n = 40$); and "old-hand," more than five years ($n = 70$). The gender groupings consisted of males ($n = 9$) and females ($n = 109$). The educational levels were certificate ($n = 2$), baccalaureate ($n = 73$), and master's/doctorate ($n = 43$). The seven stages of clinical reasoning were: deciding which assessment tools to administer, analyzing and interpreting results, deciding if a person can be treated by an occupational therapist, developing treatment plans, deciding how to implement treatment plans, deciding when and if to re-evaluate the patient, and deciding when to terminate treatment. The

six factors were education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory, and experience. The data were analyzed using all 118 respondents.

The first research question was: how influential are the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory, and experience perceived to be by occupational therapy clinicians? The mean response value for the education factor was 3.66 ($p = .1431$). Reported p -values represent a comparison of the means using a t -test from the repeated measures analyses. The mean response value for the experience factor was 4.49 ($p = .0001$). The mean response value for the philosophy of facility factor was 3.56 ($p = .0108$). The mean response value for the socio-cultural concerns factor was 3.42 ($p = .8178$). The mean response value for the occupational therapy theory factor was 3.52 ($p = .0365$). The mean response value for the intuition factor was 4.22 ($p = .0090$) (Table 2). Using the level of significance as an indicator of influence, the factors of experience, intuition, philosophy of facility, and occupational therapy theory were perceived influential in clinical reasoning by occupational therapists.

The second research question was: Which of the factors of education, intuition, philosophy of facility, socio-cultural concerns, occupational therapy theory, and experience are perceived to be most influential in determining clinical decisions of practicing occupational therapists? The factors of experience ($p = .0001$), intuition ($p = .0090$), occupational therapy theory ($p = .0365$), and philosophy of facility ($p = .0108$) also reached levels of significance. Experience and intuition reached the

TABLE 2

p-Values and Mean Scores of the Six Factors Using the Questionnaire Data Without the Demographic Variables

Factor	Mean Score	p-value
Education	3.66	.1431
Experience	4.49	.0001*
Philosophy of Facility	3.56	.0108*
Socio-Cultural Concerns	3.42	.8178
Occupational Therapy Theory	3.52	.0365*
Intuition	4.22	.0090*

* $p < .05$

highest levels of significance. However, philosophy of facility and occupational therapy theory were well within the $p < .05$ level of acceptance (Table 2).

The third research question was: Are there significant associations among the six factors, the seven clinical reasoning stages, and the three demographic variables? The demographic variables and the stage and factor interaction analysis yielded global p -values for stage and factor with Gender, .0001; stage and factor with Experience, .1614; stage and factor with Education, .9640; and stage and factor interaction analysis, .0070 (Table 3).

The results of the global p -value of stage and factor with gender (.0001), although statistically significant, should be viewed cautiously because there were 109 female respondents and only nine male respondents. Males rated the following stage with factor interactions significantly higher than females: analyzing and interpreting results, with intuition; deciding if a person can be seen by occupational therapy, with education; developing treatment plans, with socio-cultural concerns; deciding how to implement treatment plans, with philosophy of the facility; and deciding when and if to re-evaluate a patient, with philosophy of the facility (Figure 1). Females rated the following stage with factor interactions significantly higher than the males: deciding which assessment tools to administer, with education; deciding if a person can be seen by occupational therapy, with socio/cultural concerns, developing treatment plans, with experience; implementing treatment plans, with intuition; and, deciding when to terminate treatment, with education (Figure 1).

The results of the global p -value of the stage and factor interactions with the demographic variables experience and education did not show levels of significance.

TABLE 3

Analysis of Interactions Between Demographic Variables and Across the Stages and Factors

Demographic Variables and Stage and Factor Interaction Analysis	p-value
Stage and Factor with Gender	.0001
Stage and Factor with Years of Experience	.1614
Stage and Factor with Level of Education	.9640
Stage and Factor Interaction Analysis	.0070

Figure 1. Statistically significant p-values for interactions between the seven clinical reasoning stages and the six factors, with the three demographic variables.

	Factor (a) 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Stage (b) 1	gender * .0140					
Stage 2	gender * .0389					gender * .0302
Stage 3	gender * .0463			gender * .0185		
Stage 4		gender * .0011		experience * .0128 gender * .0043		
Stage 5			gender * .0251			gender * .0036
Stage 6	experience * .0255		gender * .0199			
Stage 7	gender * .0303	experience * .0141				

* $p \leq .05$

(a) Factors

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

(b) Stages

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Some of the stage and factor interactions within the demographic variable experience did reach levels of significance. The novice grouping rated the following stage with factor interactions significantly lower: developing treatment plans, with socio/cultural concerns; deciding when and if to re-evaluate a patient, with education; and, deciding when to terminate treatment, with experience (Figure 1).

The results of the global p -value of the stage and factor interaction analysis reached a level of statistical significance ($p = .0070$). Significantly lower means ($p = .0444$) were observed for the stage deciding when and if to re-evaluate the patient. Significantly higher means ($p = .0001$ and $p = .0090$) were observed for the factors experience and intuition (Table 2). Significantly lower means ($p = .0108$ and $p = .0365$) were observed for the factors philosophy of facility and occupational therapy theory (Table 2).

In a secondary analysis of the responses, three interactions of clinical stages and influencing factors reached levels of statistical significance: deciding if a person can be treated by occupational therapists with education ($p = .0215$), deciding if a person can be treated by occupational therapists with socio-cultural concerns ($p = .0376$), and deciding when to terminate treatment and occupational therapy theory ($p = .0023$) (Figure 2).

Figure 2. Mean scores and statistically significant p-values of the stage and factor interactions.

	Factor (a) 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Stage (b) 1	3.73	4.39	3.63	3.41	3.81	4.12
Stage 2	3.91	4.63	3.13	3.76	3.64	3.74
Stage 3	3.99 * (p=.0215)	4.41	3.79	3.30 * (p=.0376)	3.41	4.23
Stage 4	3.96	4.65	3.34	3.54	3.63	4.36
Stage 5	3.63	4.63	3.47	3.78	3.69	4.35
Stage 6	3.37	4.24	3.71	2.82	3.30	4.19
Stage 7	3.05	4.44	3.94	3.76	3.15 * (p=.0023)	4.50

* p ≤ .05

(a) Factors

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

(b) Stages

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated
by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

CHAPTER 5

DISCUSSION, IMPLICATIONS, RECOMMENDATIONS AND SUMMARY

The purpose of this research was to study the perceptions of practicing occupational therapy clinicians regarding the influence of education, experience, intuition, philosophy of facility, socio-cultural concerns and occupational therapy theory on their clinical reasoning. An objective of the study was to provide recommendations and insights to help guide new and currently practicing occupational therapists to better articulate their clinical practice. In this chapter, discussion and implications of the research findings for the profession of occupational therapy are presented. Recommendations for future research on clinical reasoning of practicing occupational therapy clinicians are suggested.

Discussion and Implications

The demographic variables, years of experience and educational level of practitioners were analyzed, and no significant patterns emerged. The demographic variable of gender did reveal a statistically significant pattern. However, these results should be viewed with caution since there were 109 female respondents compared to only nine male respondents. A larger sample size would be needed to obtain a representative sample of male respondents. In this study, occupational therapy practitioners with Master's degrees in all fields were treated as one educational level. If those practitioners were identified with graduate degrees in occupational therapy and

treated as a separate educational group, then some patterns might have emerged. Years of experience were grouped as three years or less, three to five years, and over five years. It is possible that the groupings chosen for this study were not specific enough to identify changes that occur in a therapist's clinical reasoning as his/her experience level increases.

Occupational therapy students and clinicians value a learning mode of direct experience that is tacitly reinforced through activities (Llorens & Adams, 1978). In this study, occupational therapists perceived experience and intuition as being highly influential in guiding their clinical reasoning. Experience and intuition both represent non-verbal methods of learning, and are difficult to verbalize. Clinical reasoning is a complex, multi-layer activity demanding synthesis and integration, which requires therapists to process information subconsciously, or intuitively.

In this study, the factors philosophy of facility, occupational therapy theory, experience and intuition were found significantly more influential than the others. Fleming, Gillette and Mattingly's (1989) "Three Track Mind" model and Rogers' (1983) model provide an explanation of how these factors may be applied in the clinical reasoning of practicing occupational therapists.

The three tracks were identified as procedural, interactive, and conditional. The procedural track focuses on procedures and monitoring treatment. The philosophy of facility impacts on the procedures used and how a facility monitors treatment. Occupational therapy theory would guide the clinician in deciding what could be done and the philosophy of the facility would guide the clinician in what will be done. The interactive track focuses on engaging the patient during treatment. The clinician uses information of the patient's past, present and future activities to create an image that

guides the clinician in engaging the patient during treatment. The more experience a clinician has in knowing how to involve the patient, the richer are the options available to build effective strategies. This process appears to depend on experience and training with activity analysis. The interactive track also requires processing of large amounts of information, comprehensive in detail, and the need to synthesize quickly, which cannot be fully processed consciously. Intuition may represent the subconscious processing of information that exceeds the capacity of conscious awareness. The conditional track is performing therapeutic treatment of the person with the disability. The factors of experience, intuition, philosophy of facility and occupational therapy theory all influence the image of the patient and how best to work with the patient.

The Three Track Mind model, which recognizes the roles of experience, intuition, occupational therapy theory and philosophy of facility in clinical reasoning may help clinicians to better articulate their practice. This may help occupational therapists develop a voice of their own that is reflected in documentation, conversations with the public and other professionals, and research activities. A story telling model (Mattingly, in press) would permit experience to be shared among occupational therapy clinicians. From these shared experiences--or stories--new occupational therapists could glean verbal awareness and interpretation of cues that will help them better understand, appreciate and articulate their clinical reasoning. Case stories are different from case studies. Case stories are told by experienced clinicians and reveal realistic expectations for the patients, elaborate on successes with patient/therapist relationships, increase awareness and interpretation of cues that influence goals and treatment, and demonstrate needs to reorganize and use alternative

approaches and methods to reach therapeutic goals (Cohn, 1989). Case stories may be even more effective if the experienced clinician discusses how socio-cultural concerns and education influenced decisions in treating the patient and how occupational therapy theory influenced decisions to terminate treatment.

In understanding clinical reasoning it may be important to accept that practitioners must process the information intuitively by nature of the complexity of clinical reasoning. This step may help occupational therapy clinicians discuss their clinical reasoning with each other, although some clinicians may have a difficult time re-defining their clinical reasoning with peers.

It may be important to discuss clinical reasoning in the context of tracks, stages, influences and different thinking skills. The Three Track Mind model presents a clear picture of clinical reasoning of occupational therapy clinicians. To discuss clinical reasoning by using just the Three Track Mind model would leave the knowledge of clinical reasoning at the intuitive stage. The track concept is important in synthesizing the multi-layers of clinical reasoning into three concepts and discussing how they are related. Yet it is difficult to generalize about influences on clinical reasoning and how clinical decisions are made. Clinical stages seem to provide a better model to describe what influences clinical reasoning and how clinical decisions are made. As clinicians discuss and re-define clinical reasoning, their documentation may reflect more closely all that occupational therapy clinicians do.

M. Reilly (1988, November) and C. Allen (1989, October) challenged occupational therapy clinicians to document their services in a voice that communicates and shows ownership. Existing clinical reasoning models can be applied to facility evaluations, staff development and quality assurance programs to improve

documentation of services. This researcher believes that through discussing clinical reasoning in the context of tracks, stages, influences and thinking skills, that clinicians will be able to document more closely all that they do.

This study demonstrated that occupational therapy theory and philosophy of facilities are recognized by clinicians and found significant in influencing their clinical reasoning process. Educators are successfully teaching occupational therapy theory to students and facilities are effectively defining a philosophy. As methods, principles and strategies are developed, the articulation of occupational therapy treatments will improve, and M. Reilly's (1988, November) challenge to "own what we do" may be met.

Recommendations for Further Research

Research still needs to be developed to further study the clinical reasoning of practicing occupational therapists. Recommendations for future research on clinical reasoning include studies that:

- 1) Evaluate if there are other research tools designed to measure the clinical reasoning of practicing professionals, preferable in the occupational therapy field.
- 2) Evaluate if occupational therapists perceive other factors to be more influential to their clinical practice.
- 3) Incorporate Schon's ideas of over-reaching theories in a case study design, using a phenomenological approach.
- 4) Focus on a few individual's clinical reasoning process and evaluate in detail how these individuals use experience, intuition, philosophy of facility and occupational therapy theory in their clinical reasoning.

- 5) Continue to evaluate educational research on training and development of problem solving.
- 6) Assess the usefulness of Bashook's (1976) Patient Management Problem model to research the clinical reasoning of occupational therapy clinicians.
- 7) Assess the usefulness of the "Three Track Mind" model by Fleming, Gillette, and Mattingly (1989) in helping occupational therapy clinicians to better articulate their practice.
- 8) Distinguish types of clinical knowledge and skills developed most effectively through academic education and clinical facilities.
- 9) Use non-verbal learning activities and study how to articulate this learning experience.
- 10) Use modeling research to help occupational therapy clinicians better articulate their services.

Summary

The purpose of this research was to study the perceptions of practicing occupational therapy clinicians regarding the influence of education, experience, intuition, philosophy of facility, socio-cultural concerns and occupational therapy theory on their clinical reasoning. The questions addressed were: (a) how influential are the factors of education, experience, intuition, philosophy of facility, socio-cultural concerns and occupational therapy theory perceived to be by occupational therapy clinicians? (b) which of the factors of education, experience, intuition, philosophy of facility, socio-cultural concerns and occupational therapy theory are perceived to be

most influential in determining clinical decisions of practicing occupational therapy clinicians? and (c) are there significant associations among the clinical reasoning stages, the six factors, and the demographic variables? Current research on clinical reasoning of practicing occupational therapists was reviewed and a questionnaire on clinical reasoning of practicing occupational therapists was created.

The questionnaire, *Influences on Clinical Reasoning of Occupational Therapy Clinicians (ICROTC)* by Paulazzo (1991) was the measure used in this study. The ICROTC consists of six factors, seven stages of clinical reasoning, and three demographic variables. There were 42 items that were selected to measure occupational therapist's perceptions about their clinical reasoning using a 5-point Likert scale. A pilot study was conducted to test the validity of the ICROTC. Thirty questionnaires were distributed, 22 (73 percent) were returned, and 21 (95 percent) of those completed and returned had no objections. The questionnaire was considered to be an effective measure of occupational therapists' perceptions of their clinical reasoning.

The data were analyzed using analysis of variance (ANOVA) to answer the three research questions. Specifically the analysis of variance was used to analyze: (1) the interactions among the six factors and seven clinical reasoning stages, and (2) the three demographic variables with the six factors and the seven clinical reasoning stages. A repeated analysis of variance (ANOVA) was chosen because the analysis was based on multiple responses per subject.

The factors of intuition, experience, occupational therapy theory and philosophy of facility reached levels of significance. Occupational therapy clinicians rated experience and intuition higher than occupational therapy theory and philosophy

of facility. It appears that the clinical reasoning process demands experiential and intuitive processing. This explains the nature of clinical reasoning as a process that demands rapid analysis, synthesis and action based on complex and detailed information.

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APPENDIX A

Influences on Clinical Reasoning by Occupational Therapy Clinicians Questionnaire

**DEMOGRAPHIC INFORMATION FOR THE CLINICAL REASONING
QUESTIONNAIRE OF OCCUPATIONAL THERAPISTS**

1. Please list your academic degree's, discipline of degree's and the year degree's were received.

Bachelor's level,	discipline _____	year _____
Master's level,	discipline _____	year _____
Doctorate level,	discipline _____	year _____
Other level,	discipline _____	year _____

2. How many total years have you been practicing Occupational Therapy?

Total Years _____

3. Are you female or male?

Gender _____

Influences on Clinical Reasoning Questionnaire by Practicing Occupational Therapists

This questionnaire is designed to reflect your personal professional clinical reasoning process involving the following six factors:

1. Education
2. Experience
3. Philosophy of facility
4. Socio/cultural concerns
5. OT Theory
6. Intuition

Please be candid in your responses, there are no right or wrong answers. The questionnaire is divided into seven clinical reasoning stages:

1. Deciding which assessment tools to administer
2. Analyzing and interpreting results
3. Deciding if a person can be treated by Occupational Therapists
4. Developing treatment plans
5. Deciding how to implement treatment plans
6. Deciding when and if to re-evaluate the patient
7. Deciding when to terminate treatment

You will read a clinical reasoning stage and then rate all the given factors. The scale to be used is a 1 through 5 Likert scale, 1=never influential, 2=seldom influential, 3=sometimes influential, 4=often influential, and 5=very often influential.

After you understand the instructions, please turn the page and begin the questionnaire.

Thank you,

Mary Ann Paulazzo

1=never influential
2=seldom influential
3=sometimes influential
4=often influential
5=very often influential

How influential are each of the following factors in deciding which assessment tools, if any, I administer?

1. Education (i.e., The tools are ones I have been trained to use.)

1 2 3 4 5

2. Experience (i.e., I have had past experience with the tools.)

1 2 3 4 5

3. Philosophy of Facility (i.e., The tools already exist at the facility.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., The tools are relevant to the client's background.)

1 2 3 4 5

5. OT Theory (i.e., The tools address major areas of concerns as defined through OT theory.)

1 2 3 4 5

6. Intuition (i.e., The tools address a concern I have regarding how a client functions.)

1 2 3 4 5

1=never influential
2=seldom influential
3=sometimes influential
4=often influential
5=very often influential

How influential are each of the following factors in evaluating and interpreting assessment results?

1. Education (i.e., Familiarity of test results based on formal training.)

1 2 3 4 5

2. Experience (i.e., Experience with using the test with similar clients.)

1 2 3 4 5

3. Philosophy of Facility (i.e., Guidelines for interpretation of test results provided by the facility.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., Understanding what is socio/culturally acceptable for a client.

1 2 3 4 5

5. OT Theory (i.e., Understanding how the assessment results would be evaluated in regards to OT Theory.)

1 2 3 4 5

6. Intuition (i.e., My personnel opinion as to how the results should be interpreted for each client.)

1 2 3 4 5

1=never influential
2=seldom influential
3=sometimes influential
4=often influential
5=very often influential

How influential are each of the following factors in deciding whether a client can best be served by Occupational Therapists?

1. Education (i.e., My training and skills are compatible with the client's needs.)

1 2 3 4 5

2. Experience (i.e., Having past experience with similar clients.)

1 2 3 4 5

3. Philosophy of Facility (i.e., The facility's role definition of OT.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., An understanding of the client's socio/cultural background.)

1 2 3 4 5

5. OT Theory (i.e., The compatibility of my preferred theory with the client's needs.)

1 2 3 4 5

6. Intuition (i.e., My belief that the client's needs will be best served through OT treatments.)

1 2 3 4 5

1 = never influential
2 = seldom influential
3 = sometimes influential
4 = often influential
5 = very often influential

How influential are each of the following factors in developing treatment plans?

1. Education (i.e., Techniques and methods learned in my professional training.)

1 2 3 4 5

2. Experience (i.e., What has worked well with previous clients having similar diagnoses.)

1 2 3 4 5

3. Philosophy of Facility (i.e., Guidelines provided by the facility.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., The socio/cultural background of the client.)

1 2 3 4 5

5. OT Theory (i.e., The areas of concern as guided by an OT Theory.)

1 2 3 4 5

6. Intuition (i.e., My feeling as to what approach will be most effective.)

1 2 3 4 5

1=never influential
2=seldom influential
3=sometimes influential
4=often influential
5=very often influential

How influential are each of the following factors in implementing treatment plans?

1. Education (i.e., My educational training concerning treatment planning.)

1 2 3 4 5

2. Experience (i.e., What has worked well in the past.)

1 2 3 4 5

3. Philosophy of Facility (i.e., What types of treatment plans are acceptable according to the facility's philosophy.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., What approach would be best considering the patient's socio/cultural background.)

1 2 3 4 5

5. OT Theory (i.e., What treatment methods are supported through OT Theory.)

1 2 3 4 5

6. Intuition (i.e., What treatment methods seem most effective.)

1 2 3 4 5

1=never influential
2=seldom influential
3=sometimes influential
4=often influential
5=very often influential

How influential are each of the following in deciding when and if re-evaluate a patient?

1. Education (i.e., The desire to check treatment techniques learned from educational experiences.)

1 2 3 4 5

2. Experience (i.e., The benefit received from re-evaluating client's in the past.)

1 2 3 4 5

3. Philosophy of Facility (i.e., Guidelines for conducting re- evaluation provided by the facility.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., The need to determine the role of socio/cultural backgrounds in the effectiveness of treatment.)

1 2 3 4 5

5. OT Theory (i.e., The desire to confirm the efficacy of treatment under a preferred OT Theory.)

1 2 3 4 5

6. Intuition (i.e., Re-evaluation is a feedback tool I value when it seems appropriate.)

1 2 3 4 5

1=never influential
2=seldom influential
3=sometimes influential
4=often influential
5=very often influential

How influential are each of the following factors in deciding when to stop treatment?

1. Education (i.e., Guidelines provided through education and training.)

1 2 3 4 5

2. Experience (i.e., Past experience from working with other clients with similar disorders.)

1 2 3 4 5

3. Philosophy of Facility (i.e., Requirements for treatments have been met according to OT's role definition at the facility.)

1 2 3 4 5

4. Socio/cultural concerns (i.e., When the goals or expectations of the client have been met.)

1 2 3 4 5

5. OT Theory (i.e., Guidelines provided through the OT Theories used.)

1 2 3 4 5

6. Intuition (i.e., My estimation of the value of further treatment.)

1 2 3 4 5

APPENDIX B

**Cover Letter for Influences on Clinical Reasoning
of Occupational Therapy Clinicians Questionnaire**

February 14, 1986

Name
Address
City, State Zip

Dear Name,

Enclosed is a questionnaire designed to begin to discover the factors/values that influence the clinical reasoning process of occupational therapists. This questionnaire will be sent to 250 randomly selected registered occupational therapists throughout the United States. The data will be used to contribute to a thesis at San Jose State University, Department of Occupational Therapy.

I believe OT schools do an admirable job of teaching students the complexities of medical and behavioral sciences; but learning the "art" of OT practice is often dependent upon the individual's own initiative and intuition. By clarifying the reasoning process, we can hope to develop principles that will make it possible to teach something about the art of OT in OT curricula instead of leaving it to intuition and experience.

The questionnaires will be coded so I will know which ones have been returned. Your name will not be used in any other way throughout the thesis project.

I would appreciate your time and attention to the enclosed questionnaire. Please complete the questionnaire and return it in the enclosed self-addressed stamped envelope. If you have any suggestions or questions, I would enjoy hearing from you. Thank you for your cooperation.

Sincerely,

Mary Ann Paulazzo
1718 Tea Place
Davis, CA 95616
(916) 758-6522

APPENDIX C

**F-ratios from Analysis of Responses to
the Influence on Clinical Reasoning of
Practicing Occupational Therapy Clinicians Questionnaire**

Source ⁺	Degrees of Freedom	F-ratio
Stage * Factor	30	1.75
Stage * Factor * Education	90	.75
Stage * Factor * Experience	60	1.18
Stage * Factor * Gender	30	2.59
All Stages	6	1.75
Stage 1	1	1.31
Stage 2	1	1.59
Stage 3	1	.04
Stage 4	1	.26
Stage 5	1	.75
Stage 6	1	4.13
Stage 7	1	.07
All Factors	5	5.83
Factor 1	1	2.18
Factor 2	1	23.72
Factor 3	1	6.73
Factor 4	1	.05
Factor 5	1	4.48
Factor 6	1	2.59
Stage 1 * Factor 1	1	1.07
Stage 1 * Factor 1 * Education	3	.15
Stage 1 * Factor 1 * Experience	2	0.04
Stage 1 * Factor 1 * Gender	1	6.23
Stage 1 * Factor 2	1	1.06
Stage 1 * Factor 2 * Education	3	.10
Stage 1 * Factor 2 * Experience	2	.54
Stage 1 * Factor 2 * Gender	1	1.32
Stage 1 * Factor 3	1	.01
Stage 1 * Factor 3 * Education	3	.24

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

Source ⁺	Degrees of Freedom	F-ratio
Stage 1 * Factor 3 * Experience	2	.13
Stage 1 * Factor 3 * Gender	1	.84
Stage 1 * Factor 4	1	.12
Stage 1 * Factor 4 * Education	3	.07
Stage 1 * Factor 4 * Experience	2	2.01
Stage 1 * Factor 4 * Gender	1	.31
Stage 1 * Factor 5	1	.77
Stage 1 * Factor 5 * Education	3	.31
Stage 1 * Factor 5 * Experience	2	.88
Stage 1 * Factor 5 * Gender	1	1.95
Stage 1 * Factor 6	1	.49
Stage 1 * Factor 6 * Education	3	.13
Stage 1 * Factor 6 * Experience	2	1.60
Stage 1 * Factor 6 * Gender	1	.11
Stage 2 * Factor 1	1	.13
Stage 2 * Factor 1 * Education	3	1.60
Stage 2 * Factor 1 * Experience	2	.08
Stage 2 * Factor 1 * Gender	1	4.37
Stage 2 * Factor 2	1	.26
Stage 2 * Factor 2 * Education	3	.36
Stage 2 * Factor 2 * Experience	2	.05
Stage 2 * Factor 2 * Gender	1	.32
Stage 2 * Factor 3	1	2.17
Stage 2 * Factor 3 * Education	3	.28
Stage 2 * Factor 3 * Experience	2	1.43
Stage 2 * Factor 3 * Gender	1	1.45
Stage 2 * Factor 4	1	1.37
Stage 2 * Factor 4 * Education	3	.55
Stage 2 * Factor 4 * Experience	2	.41

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

Source ⁺	Degrees of Freedom	F-ratio
Stage 2 * Factor 4 * Gender	1	.07
Stage 2 * Factor 5	1	.54
Stage 2 * Factor 5 * Education	3	.58
Stage 2 * Factor 5 * Experience	2	.23
Stage 2 * Factor 5 * Gender	1	1.14
Stage 2 * Factor 6	1	.72
Stage 2 * Factor 6 * Education	3	.79
Stage 2 * Factor 6 * Experience	2	2.79
Stage 2 * Factor 6 * Gender	1	4.82
Stage 3 * Factor 1	1	5.44
Stage 3 * Factor 1 * Education	3	.12
Stage 3 * Factor 1 * Experience	2	1.43
Stage 3 * Factor 1 * Gender	1	4.06
Stage 3 * Factor 2	1	.90
Stage 3 * Factor 2 * Education	3	1.54
Stage 3 * Factor 2 * Experience	2	1.95
Stage 3 * Factor 2 * Gender	1	.24
Stage 3 * Factor 3	1	.61
Stage 3 * Factor 3 * Education	3	1.31
Stage 3 * Factor 3 * Experience	2	.25
Stage 3 * Factor 3 * Gender	1	3.34
Stage 3 * Factor 4	1	4.43
Stage 3 * Factor 4 * Education	3	.93
Stage 3 * Factor 4 * Experience	2	.64
Stage 3 * Factor 4 * Gender	1	5.72
Stage 3 * Factor 5	1	.10
Stage 3 * Factor 5 * Education	3	1.22
Stage 3 * Factor 5 * Experience	2	.64
Stage 3 * Factor 5 * Gender	1	.15

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

Source ⁺	Degrees of Freedom	F-ratio
Stage 3 * Factor 6	1	1.23
Stage 3 * Factor 6 * Education	3	.35
Stage 3 * Factor 6 * Experience	2	2.01
Stage 3 * Factor 6 * Gender	1	2.83
Stage 4 * Factor 1	1	.02
Stage 4 * Factor 1 * Education	3	.99
Stage 4 * Factor 1 * Experience	2	2.70
Stage 4 * Factor 1 * Gender	1	.60
Stage 4 * Factor 2	1	.07
Stage 4 * Factor 2 * Education	3	1.13
Stage 4 * Factor 2 * Experience	2	.80
Stage 4 * Factor 2 * Gender	1	11.18
Stage 4 * Factor 3	1	2.66
Stage 4 * Factor 3 * Education	3	.23
Stage 4 * Factor 3 * Experience	2	.59
Stage 4 * Factor 3 * Gender	1	1.53
Stage 4 * Factor 4	1	1.71
Stage 4 * Factor 4 * Education	3	1.35
Stage 4 * Factor 4 * Experience	2	4.54
Stage 4 * Factor 4 * Gender	1	8.51
Stage 4 * Factor 5	1	.52
Stage 4 * Factor 5 * Education	3	.77
Stage 4 * Factor 5 * Experience	2	.81
Stage 4 * Factor 5 * Gender	1	.30
Stage 4 * Factor 6	1	.45
Stage 4 * Factor 6 * Education	3	.21
Stage 4 * Factor 6 * Experience	2	.43
Stage 4 * Factor 6 * Gender	1	2.73
Stage 5 * Factor 1	1	.10

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

Source ⁺	Degrees of Freedom	F-ratio
Stage 5 * Factor 1 * Education	3	1.03
Stage 5 * Factor 1 * Experience	2	.86
Stage 5 * Factor 1 * Gender	1	.02
Stage 5 * Factor 2	1	.30
Stage 5 * Factor 2 * Education	3	.34
Stage 5 * Factor 2 * Experience	2	.21
Stage 5 * Factor 2 * Gender	1	.60
Stage 5 * Factor 3	1	.14
Stage 5 * Factor 3 * Education	3	1.62
Stage 5 * Factor 3 * Experience	2	.58
Stage 5 * Factor 3 * Gender	1	5.16
Stage 5 * Factor 4	1	2.19
Stage 5 * Factor 4 * Education	3	.57
Stage 5 * Factor 4 * Experience	2	2.25
Stage 5 * Factor 4 * Gender	1	.09
Stage 5 * Factor 5	1	.00
Stage 5 * Factor 5 * Education	3	1.33
Stage 5 * Factor 5 * Experience	2	.51
Stage 5 * Factor 5 * Gender	1	.16
Stage 5 * Factor 6	1	3.27
Stage 5 * Factor 6 * Education	3	.44
Stage 5 * Factor 6 * Experience	2	.19
Stage 5 * Factor 6 * Gender	1	8.83
Stage 6 * Factor 1	1	.02
Stage 6 * Factor 1 * Education	3	.39
Stage 6 * Factor 1 * Experience	2	3.79
Stage 6 * Factor 1 * Gender	1	.58
Stage 6 * Factor 2	1	.08
Stage 6 * Factor 2 * Education	3	1.23

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

Source ⁺	Degrees of Freedom	F-ratio
Stage 6 * Factor 2 * Experience	2	.38
Stage 6 * Factor 2 * Gender	1	2.08
Stage 6 * Factor 3	1	.91
Stage 6 * Factor 3 * Education	3	1.03
Stage 6 * Factor 3 * Experience	2	.81
Stage 6 * Factor 3 * Gender	1	5.58
Stage 6 * Factor 4	1	.64
Stage 6 * Factor 4 * Education	3	1.46
Stage 6 * Factor 4 * Experience	2	.57
Stage 6 * Factor 4 * Gender	1	1.82
Stage 6 * Factor 5	1	1.88
Stage 6 * Factor 5 * Education	3	.84
Stage 6 * Factor 5 * Experience	2	.23
Stage 6 * Factor 5 * Gender	1	1.02
Stage 6 * Factor 6	1	.54
Stage 6 * Factor 6 * Education	3	1.75
Stage 6 * Factor 6 * Experience	2	.11
Stage 6 * Factor 6 * Gender	1	.07
Stage 7 * Factor 1	1	2.84
Stage 7 * Factor 1 * Education	3	.41
Stage 7 * Factor 1 * Experience	2	1.00
Stage 7 * Factor 1 * Gender	1	4.82
Stage 7 * Factor 2	1	.41
Stage 7 * Factor 2 * Education	3	.50
Stage 7 * Factor 2 * Experience	2	4.43
Stage 7 * Factor 2 * Gender	1	2.95
Stage 7 * Factor 3	1	1.26
Stage 7 * Factor 3 * Education	3	1.88
Stage 7 * Factor 3 * Experience	2	.73

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition

Source ⁺	Degrees of Freedom	F-ratio
Stage 7 * Factor 3 * Gender	1	.59
Stage 7 * Factor 4	1	.34
Stage 7 * Factor 4 * Education	3	.91
Stage 7 * Factor 4 * Experience	2	1.44
Stage 7 * Factor 4 * Gender	1	2.59
Stage 7 * Factor 5	1	9.77
Stage 7 * Factor 5 * Education	3	.21
Stage 7 * Factor 5 * Experience	2	1.00
Stage 7 * Factor 5 * Gender	1	1.76
Stage 7 * Factor 6	1	3.64
Stage 7 * Factor 6 * Education	3	.08
Stage 7 * Factor 6 * Experience	2	1.07
Stage 7 * Factor 6 * Gender	1	.05

⁺ Legend:

Stages:

- 1 - Deciding which assessment tools to administer
- 2 - Evaluating and interpreting results
- 3 - Deciding if a person can be treated by occupational therapists
- 4 - Developing treatment plans
- 5 - Deciding how to implement treatment plans
- 6 - Deciding when and if to re-evaluate the patient
- 7 - Deciding when to terminate treatment

Factors:

- 1 - Education
- 2 - Experience
- 3 - Philosophy of facility
- 4 - Socio/cultural concerns
- 5 - Occupational therapy theory
- 6 - Intuition