Towards an Understanding of the Staged Model of Predictive Reasoning

A study of clinical practice among
Occupational Therapists in Mental Health

by

Ng Sin Wa, Serena

A thesis submitted in partial fulfillment of the requirement for the Degree of Doctor of Education

University of Leicester

January 2009

Declaration

" I certify that this work is entirely my own and has not been accepted as part of a submission to another degree course"

Signed _____

Ng Sin Wa, Serena

Word count: 62525

Acknowledgements

This research project is the beginning of my interest in academic research in clinical reasoning. And this is also the very first piece of qualitative research project in my career or academic life. Throughout the past five years, I realized that I have learned a tremendous amount and become more mature both as a researcher and a clinician. There are many people that I would like to express my heartfelt thanks for helping me complete the present research.

I am in debt to my supervisor, Professor Paul Cooper, for his gentle and insightful comments, challenges, and advice given to me as a teacher and mentor throughout the past years. Furthermore, I would like to acknowledge the occupational therapists and social workers who participated in this study for their kind assistance in the survey and interview process, especially the colleagues working in my department who kindly shared their personal experiences for the study.

I would like to thank especially Cheung Hon Kwan, a blind old friend of me who has helped so much in my audio-typing work. Without his expert help, I think I would not have completed the thesis on time.

Lastly, I would like to express my deepest gratitude to my beloved husband, Simon and two daughters, Mimi and Jojo. Their understanding and stimulating conversations towards my work have made me feel that I am not working alone.

TABLE OF CONTENTS

LIST OF TABLES

List of Figures

LIST OF APPENDICES

Abstract

Towards an Understanding of the Staged Model of Predictive Reasoning - A study of clinical practice among Occupational Therapists in Mental Health.

Submitted by Ng Sin Wa, Serena for the Degree of Doctor of Education, University of Leicester

This study set out to examine the clinical practice of experienced occupational therapists in mental health vocational rehabilitation service in Hong Kong. A combined qualitative and quantitative methodological approach was used to enhance the methodological rigour of the research. Three sub-studies were carried out including a pre-study survey; a semi-structured interview for 6 experienced therapists and a multiple case studies to verify the model of predictive reasoning generated in this research. The findings of this study confirmed the consecutive staged model of decision making, the cyclical predictive reasoning process and its critical components were important in predictive reasoning process. Furthermore, the research alerted that therapist's 'Internal References' affect the process that might exert good or bad influences in the prediction and intervention approaches. From the twenty cases reported and analysed in the multiple case studies, I verified the generated characteristics of the staged model of predictive reasoning process were being evidenced in the daily practices of other experienced occupational therapists. Hence, Predictive Reasoning in occupational therapist was proven as a fundamental scientific, social as Well as psychological process of

ascertaining client best suitable choice in vocational rehabilitation. In this research, it has highlighted that they were practicing a bivalent model of practice – scientific in thinking and humanistic in interacting. It has long been a great problem for the professionals to inform the public on their forms and efficacy of practice through scientific rigour. The research methodology employed in this research was an innovative design that responses to both positivist and interpretivist paradigm, to create a new opportunity for occupational therapist to start to reflect on choosing the best suitable research methodology for reporting the real picture of clinical practices.

(279 words)

Chapter 1

INTRODUCTION

This study is concerned with the question of what exactly is going on when occupational therapists make predictions on efficacy of the patients with severe mental illness in vocational rehabilitation. In this introductory chapter, the background and nature of the problem are discussed, and the aims and significance of the study are highlighted. An outline of how the study was conducted is also presented.

Background of the Research Problem

With the introduction of evidenced based medicine and outcome focused practice in contemporary healthcare sector (Sackett. et al 1996; Cameron, et al, 2005), there is the call for an emphasis in responsibility, autonomy and accountability in judgment and decision in the delivery of daily service. These changes bring about an escalating need for sound and skilled practice in analyzing patient's condition and predicting accurately their outcome after rehabilitation. The ability to think critically and have the proficiency in predictive reasoning

is necessary to enable occupational therapists to meet the client's needs at the demands of a rapidly changing environment.

In nursing or medical practice, it is suggested that statistical theories, such as Bayesian theorem and decision analysis, are capable of capturing the reasoning process and offer an effective means to predict decision (Gordon, 1980; Doubilet & McNeil, 1988). Studies underpinned by the information processing theory (NeWell and Simon 1972) argue that reasoning patient's condition followed a hypothetico-deductive model that consists of specific stages (McFadden & Gunneett, 1992). Those who hold a phenomenological perspective remark that there is yet another form of reasoning practice: intuitive reasoning, which plays an important role in reasoning a patient's clinical condition (Offredy, 1998; McCutcheon & Pincombe, 2000). Besides, other related studies also suggest that clinical reasoning practice is contingent on some personal, psychosocial, and structural variables (Jenks, 1993).

Similarly, in the past decades, attempts have been made to foster understanding of clinical reasoning in occupational therapists, although rare in comparing with other areas of clinical studies (Fleming, 1993; Rogers, Holm, 1991; Fleming, 1994; Hagedorn, 1997). It refers to

the types of inquiry or thinking that a therapist does to understand clients and their problems and in turn facilitates decision making, judgment, prediction and problem solving. Recent literature shows that various types of clinical reasoning are identified like: interactive reasoning, procedural reasoning, pattern recognition, diagnostic reasoning, predictive reasoning, ethical reasoning, etc.; and clinical reasoning skills is the key element rooted in the development of Occupational Therapy practice (Reef & Sanderson, 1999; Unsworth, 2005; Ward, 2003;). All of these are describing something different, yet overlapping components of thinking tasks that therapists utilize in different phases of the therapy process. Yet, none of the above studies have drawn up a strategy of clinical reasoning used in individual casework. How and when do they employ various reasoning work in relating to specific client group needs or purposes is not explored or documented.

Vocational rehabilitation comprised the major service scope of occupational therapists in Hong Kong, especially in mental health services, for over 20 years. How therapists perform their predictive reasoning is still the myth of success. All these studies have failed to offer conclusive explanations to inform on the reasoning practiced by occupational therapists in mental health services, especially in related to predicting outcome in vocational rehabilitation. Thus, how do these therapists process their reasoning work in real-world

situation? Will they follow the same model that is similar to those discussed earlier? What variables are influencing their practice in real-world situations? Without comprehending the answers to these questions, any attempt to integrate the above discussed models to inform clinical practice would be meaningless, and may in turn, further widen the theory-practice gap of the profession. Therefore, the generation of a substantive theory that uncovers the clinical reasoning practices in real clinical setting is fundamental and essential.

Expert practitioners are thought to do something better because they know how to do the 'right thing at the right time'. It was agreed that if the knowledge, skills and decision making capabilities of the expert therapist can be identified, nurtured and taught, the result will be important for therapy practice (Jensen et al, 1999; Jones & Rivett, 2003). Nevertheless, previous studies have been focusing around the work routines and behaviours of practice of the therapists, e.g. frequency of social interchange with patients, use of verbal encouragement and tactile cues, and utilization of other support and resources etc.. Ward (2003) has used a phenomenological approach to focus on the thinking process of a therapist working in groups in community mental health service. To extend the methodology to cover a group of experts' gestalt of practice that embeds a way of clinical decision making and clinical judgment would be more meaningful and contributive to professional development. Thus, the purpose of this study is to describe the

experience of making clinical prediction in some occupational therapists that have considerable expertise in vocational rehabilitation service for the severely mental well patients.

Aim of the research

The purpose of this study is to uncover the experience of doing clinical reasoning of occupational therapists in their daily practice. Hence, a substantive theory that explains how therapists predict patients' outcome in vocational rehabilitation is generated. More specifically, the study attempts to provide answers for the following questions:

- How do therapists carry out predictive reasoning in real world clinical environment?
- What are the perceived critical components of the process?
- What variables are influencing their predictions?
- To what extent as they perceive themselves as effective in the reasoning process?

To achieve the purpose of this study, the tenets of a combined approach of research methodology are employed. A survey on the local practice of existing therapist is performed to establish an overview of present phenomenon. This provides a ground work for more

in-depth interviews with therapists working in the local settings. With the use of coding and categorizing, a substantive theory of predictive reasoning, being perceived as effective among them surfaced.

Potential Contribution of the Research

The present study is born out of the above mentioned phenomena or rationale. Firstly, it is known from the literature that the proficiency in predictive reasoning is of growing importance in clinical practice, especially in vocational rehabilitation programme where little research has been done in primming the processes. Secondly, none of the available empirical findings have drawn up a strategy of clinical reasoning that applied in actual clinical practice. Finally, Is in the profession still have not found a better way to research in this area. Hence, it is still an under-treated area of concerns within occupational therapy practice. Therefore, it is always beneficial to understand the therapist reasoning process with hopes to add and contribute to the field of knowledge regarding the contextual, perceptual, relational or methodological experience of performing clinical reasoning in some expert occupational therapists in their daily practice.

Definitions of Terms

Clinical Reasoning

Clinical reasoning is defined broadly as the thinking and decision making processes associated with clinical practice. As differentiated from medical practitioner, this reasoning in therapist is influenced by: the personal context of the client, the context of the clinical setting; the personal and professional framework of the therapist; and the context of the healthcare system. Clinical reasoning is comprised of three interactive components: knowledge, cognition and meta-cognition (Mattingly, 1991). Cognition relates to the thinking skills of analysis, synthesis and evaluation of data whereas meta-cognition is the awareness of thinking and the ability to assess one's knowledge base. The emphasis on the thinking and decision making processes is an important distinction of clinical reasoning (Jones & Rivett, 2003).

Predictive Reasoning

Predictive reasoning belongs to the categories of clinical reasoning which an experienced clinician undertake (Higgs & Jones, 2000). It refers to the ability of forward thinking at which the therapist can enable the client to engage in their path to recovery by utilizing various

inputs, from values and beliefs of clients to scientific evidence. Predictive reasoning is employed by the therapist to estimate the client's response to management as Well as the client's response to the treatment outcome (Hadegorn, 1996). A therapist gains confidence through her success at predictive reasoning. A definition of expertise should encompass the ability to perform accurate predictive reasoning.

Expert practitioner and novice practitioner

Novice practitioner is defined as "…one who lacks clinical experience…knowledge, psychomotor and affective skills which have been learnt previously, but not in the context in which they must now be applied." P.39 (Higgs & Hunt, 1999)

Expert practitioner is a group of practicing clinicians who have extensive experience treating a particular condition. These clinicians are usually practicing in the same specialty area over five years, are active in updating their professional knowledge, and their regular delivery of teaching or sharing activities. Different from the 'academic experts', the expert practitioners are specialized in their patient experience, system at work and produced effective clinical outcomes that can be termed as 'clinical experts'.

Severe Mental Illness (SMI)

This term is used to describe the more severe and long lasting mental disorder or mental illness characterized as a clinically significant behavioural or psychological pattern that occurs in an individual and is usually associated with distress, disability or increased risk of suffering. A broad definition of SMI can cover mental disorder, mental retardation, personality disorder and substance dependence. (APA, 1994)

Vocational Rehabilitation Service (VR)

A service component under Occupational Therapy for patients with severe mental illness aimed to empower individuals with SMI to achieve a greater quality of life by obtaining and maintaining employment. It may involve procedures of needs screening, assessment of work potential and abilities, training, placement or job matching, job finding and coaching etc. that relates to employment.

Competitive Employment

Competitive employment as used in this study is referred to all employments other than those allow employees to work under protected or sheltered environment, and supportive employment (SE) environment. For clients with disabilities, to join competitive employment implies that they are competing with normal population in their jobs. This includes open employment (OE) in a normal job market with or without supportive services from professional staff.

Organization of the Thesis

It is the author's aim to write a concise and readable thesis. Therefore, only information that is directly related to the present research is included in this thesis. The thesis is organized into five chapters: introduction (Chapter 1), literature review (Chapter 2), methodology (Chapter 3), results (Chapter 4, 5 and 6), discussion (Chapter 7) and conclusion (Chapter 8). The introduction sets the direction of this research by stating the research problem and defining the scope and objective of the study. Chapter 2 provides a comprehensive yet critical review of an extensive amount of related literature, as well as puts forth the questions for this current research. Chapter 3 is on research methodology. It begins by introducing essentials of 3 sub-studies: a pre-study survey (sub-study 1), phenomenological interviews (sub-study 2) and verification the theory generated (sub-study 3). It ends with a presentation of the study

procedures one by one. After an extensive and intense analysis of the findings, chapters 4 to 6 present the findings of this research for each sub-study and their relational patterns. A model well be generated for predictive reasoning as a whole. Finally, results obtained from the research well be compared and contrasted with the results of previous empirical studies and current theories, in the hope that new insights can be gained from the inquiry.

Chapter 2

LITERATURE REVIEW

This chapter reviews the literature relevant to the process of clinical reasoning in making prediction and develops a conceptual framework for this study. By exploring the general concepts of clinical reasoning, it sets the conceptualization of the predictive reasoning aspect of occupational therapy practice into context. This is followed by a review of normative models that attempt to represent the process. At the end of the chapter, the local scene of practices of the professionals is reviewed for building theoretical sensitivity and offers insight into reality.

Review Strategy

The literature review is divided into three major sections. First of all, basic understanding of clinical reasoning is offered as the background information on the subject to be studied. Because clinical reasoning by itself is already a topic with an extensive scope of information in medical science, a refocus of those that are directly related to the current study, like the applied studies in nursing or paramedical professions are presented. Secondly, a critical

review of previous literature on predictive reasoning is discussed. Since the terminology of reasoning within occupational therapy is diverse, the discussion formulates the conceptualization of predictive reasoning for this research. The discussion is further divided into 'general context' and 'efficacy' of predictive reasoning. The third and the last major section opened with a review of local practice and deals with the research gap. The limitations of the previous research are examined and discussed. This is followed by the generation of the research's theoretical pre-conceptions and research questions for the study.

Background

This study is concerned with the generation of a theory to explain the practice that therapists are involved in the course of predicting patient's suitability in vocational rehabilitation in Hong Kong. It is therefore necessary to explore and clarify the concepts related to such practice before further attempts are made to pursue on the process of theory development. In this respect, the following discussion well serve the purpose, with the hope that after having reviewed the relevant literature, the conceptualization related to the predictive reasoning aspect of occupational therapists becomes apparent.

Concepts of Clinical Reasoning

'Clinical reasoning' is the modern term that was originally used by medical educators such as Elstein, Shulman, and Sprafka (1978); Dowie and Elstein (1988); and Schon (1983, 1988) who have conducted many studies and written extensively to describe the 'professional judgment' in medicine. Medical decision-making relies almost exclusively on scientific reasoning, a process of hypothesis generation and testing that is generally referred to as hypothetico-deductive reasoning. This form of reasoning is most often used when making a diagnosis of the client's medical condition.

The development of clinical reasoning in medicine

The behaviouristic approach

Early research into clinical reasoning in the medical field focused on the clinical skills of physicians and medical students in terms of observable behaviours related to general skills are measurable by psychometric testing (Patel and Arocha 2000). Because of its emphasis on behaviour rather than thought processes, this period of research in the area is characterized as the precognitive era (Patel and Arocha 2000) but also falls within the process oriented perspective (Higgs and Jones 2000). One of the research tools developed in this paradigm was the simulation method. Analysis of the frequency and order of questions asked, enabled

us to differentiate between the performance of physicians and medical students and to conclude that physicians asked fewer and more appropriate questions in a more focused performance.

Hypothesis generation and testing

The increasing influence of cognitive psychology (the cognitive era as described by Patel and Arocha 2000) emphasized concept formation which meant, in the medical context, understanding the nature of clinical reasoning and thus the development of clinical reasoning expertise (Higgs and Jones 2000). This acts as the "basic research datum" toward an "effort to gain insight into the plans, intentions, and understanding of the problem solver" (Elstein et al 1978 p7). This work could be said to contain the first understanding of problem structuring via hypothesis generation in medicine and continues to be known as hypothetico-deductive reasoning (Patel and Arocha 2000). The problem solving model sought, using a more qualitative method than had been traditionally accepted, to examine the whole process of reasoning from the formulation of hypotheses to the reaching of diagnostic solutions (Patel and Arocha 2000).

Organization of knowledge

One of the perceived weaknesses of the hypothetico-deductive method was that its proponents had not been able to distinguish between the different levels of expertise of physicians (Elstein et al 1990). The knowledge based perspective focuses on the organisation and availability of medical knowledge stored in memory (Bordage and Lemieux 1986). The more astute diagnosticians are those who are able to develop a global representation of a given case derived from the relational structure of their knowledge in long term memory. This semantic network of knowledge "embeds the meanings given to signs and symptoms as they are learned" so that "the initial hypothetico-deductive process does not determine the (diagnostic) strategy; it simply delimits relationships that well be explored" (Bordage and Lemieux 1986 p189). Another theory of the representation and organization of the physicians' knowledge, in contrast to the semantic structural one proposed by Bordage and Lemieux (1986), was characterised as the use of 'illness scripts' initially described by Feltovich and Barrows (1984) and later by Schmidt et al (1992). Here networks of medical knowledge, which include knowledge of the pathology, clinical manifestations of the disease, variability in signs and symptoms and the constraints under which certain diseases may occur, are integrated into scripts that "are as much tied together by temporal links as they are by causal relations" and which, with experience, can build into "rich and highly elaborated" forms (Schmidt et al 1992 p239 and p246).

Forward reasoning or pattern recognition

Patel and Groen (1986), by using a methodology of propositional analysis and embodying the notion of causal networks in knowledge, seek to unravel the relational rules contained in diagnostic reasoning. They identified a process which stands as a counterpoint to the process of hypothetico-deductive reasoning to be "forward propagation through a causal network" or forward reasoning (Patel and Groen 1986 p107). This form of reasoning moves from a set of specific observations (i.e. pattern recognition) to a generalization compared to hypothetico-deductive reasoning where one moves from a generalization (i.e. hypotheses) to a specific conclusion (Higgs and Jones 2000). Forward reasoning or pattern recognition is regarded as a faster and more efficient method in that the causal networks in the knowledge underlying the clinical reasoning are set in train, as it were, eliciting 'if ... then' production rules which lead to quick access of further knowledge or related to diagnosis and management (Arocha et al 1993). However, this rapidly breaks down as a method if there is inadequate domain of specific knowledge or among the inexperienced. (Patel and Kaufman, 2000).

Limitations of cognitive theories in medical practice

Cognitive theories, as much as they have contributed to the understanding of clinical reasoning, cannot explain all the skills seen in clinical practice. Patient problems are

well-structured problems: all the information needed for the solution is not available at the outset; the nature of the problem changes as the investigation proceeds; the approaches that lead to the solution are generally not standardized but are unique to the problem; and the problem solver may never be certain that a solution has been reached. (Greenhalgh and Hurwitz 1998)

The role of contextual factors in diagnostic reasoning was considered by Hobus et al (1987) who offered support for the notion that experienced doctors make extensive use of a different kind of knowledge, namely contextual information (not dissimilar to the enabling conditions of illness scripts described by Feltovich and Barrows (1984)), while attempting to solve diagnostic problems especially when additional information regarding the case is unavailable. Other than theories of cognitive science, research paradigm which explore the broader nature of clinical reasoning expertise in the multiplicity of actual practice settings have gradually emerged (Patel and Arocha 2000). The allied health professions, beginning with nursing, have taken up these alternative research paradigms in their efforts to describe clinical reasoning from the various perspectives of their practices (e.g. the interpretive paradigm used by Benner et al (1992) in nursing). These professions attempt to adapt, modify or even contrast clinical reasoning theory, which in large part is inherited from medicine, to the needs and concerns (or contexts) of clinical practice in settings within and

across the various disciplines. How these descriptions of clinical reasoning 'sit' conceptually with the cognitive models outlined above is discussed below.

Clinical reasoning - perspectives from nursing, occupational therapy and physiotherapy.

The fields of nursing, occupational therapy and physiotherapy have been chosen because studies from other professions, such as the speech and hearing sciences, are not yet prominent in clinical reasoning literature. There is the need to look outside the profession to have experiences and insights to supplement the current understanding and application of clinical reasoning in the occupational therapy literature. Correspondingly, allied health professions such as nursing and occupational therapy have described explanations of clinical reasoning in their field as either incomplete (Chapparo and Ranka 1997 - occupational therapy) or not uniform (Fonteyn 1994 - nursing). Clearly then, clinical reasoning discussion and research in the health professions represent "the emergence of a shared field of study" (Jones and Higgs 1995 p329).

Clinical reasoning strategies and reasoning 'outside' diagnosis

Each field has research which reflects the influence of the medically developed model of reasoning, either through comparison of its practitioners' reasoning as similar to that of physicians or by describing clinical reasoning in terms of being primarily a diagnostic process: in nursing (Jones 1988); in occupational therapy (Rogers and Masagatani 1982, Rogers and Holm 1991); and in physiotherapy (Payton 1985, Thomas-Edding 1987). Allowing for the notion that nursing, occupational therapy and physiotherapy may all make 'diagnoses' related to patient or client status, impairment, function and disability, as opposed to the diagnosis of disease and or tissue pathology (although on occasion they may do this, especially in first contact situations), there is recognition that practice within the three fields (and the different settings in each field) involves reasoning outside diagnosis (Jensen et al 1999 - physiotherapy; Benner et al 1996 - nursing; Mattingly and Hayes Fleming 1994, Schell and Cervero 1993, - occupational therapy). An important distinction has been made by medical anthropology in differentiating between the biomedical entity of disease and the meaning centreed (or phenomenological) entity of illness experience (Kleinman 1988, Mattingly 1991a). The presence of these entities in a patient presentation forms a continuum from its biomedical to its phenomenological poles: the world of the patient as it was. It is the recognition of this continuum in clinical practice, in the three health professions, which has resulted in a spectrum of clinical reasoning strategies seeking to understand and address issues at various points of the patient's experience. It is important to realize that this is no orderly or

consensual model but rather a collage of many views and propositions which, nevertheless, are trying to deal with the often shared clinical realities. The clinical reasoning strategies which have been identified either by research or proposed theoretically, both within and across the three health professions, are: diagnostic or procedural reasoning, interactive reasoning, conditional or predictive reasoning, narrative reasoning, teaching, collaborative decision making, intuitive reasoning, pragmatic reasoning and ethical reasoning. These strategies reflect the perceived need to attend to particular tasks within clinical practice and are discussed in the next section of the chapter.

Defining a clinical reasoning strategy

The term clinical reasoning strategy needs clarification. A reasoning strategy is a method or approach to reasoning where there is selection of a structure or organization for one's reasoning process (Fleming 1991b). The term reasoning process refers more to the particular goals and traditions within which research in clinical reasoning has been carried out. Examples of this are medical problem solving (which is associated with hypothetico-deduction), decision analysis and expert systems or the use of artificial intelligence. Confusion exists because the hypothetico-deductive / pattern recognition process of clinical reasoning has been the dominant model of reasoning (Benner et al 1996). This is due, in part, to the abundance of medical education and cognitive science research

which has accompanied its development (as discussed earlier) and the relative infancy of clinical reasoning research in the allied health professions (Jones and Higgs 1995). Thus the clinical reasoning process has been strongly associated, indeed as almost synonymous, with the diagnostic process and the use of biomedical knowledge, firstly in medicine, and after that in the health professions (Payton 1985, Thomas-Edding 1987, Chapparo and Ranka 1997, Jones and Higgs 1995). Referred to variously as hypothetico-deductive, diagnostic or procedural reasoning in the clinical reasoning literature of the three allied health professions (Fleming 1991a, Rogers and Holm 1991, Jones 1992) some would argue, However, that it is not the only reasoning process but one clinical reasoning strategy amongst others to apprehend issues, both of problem definition and therapy or management (Mattingly and Hayes Fleming 1994, Chapparo and Ranka 1997, Benner et al 1996, Jensen et al 1999). Another view from Jones et al (1995), while advocating attention to both diagnostic and phenomenological factors in clinical practice, suggests that the hypothetico-deductive process broadly underpins these other strategies which can be considered as inquiry and/or management strategies rather than as different clinical reasoning processes.

Clinical reasoning strategies in nursing, occupational therapy and physiotherapy.

The notions of 'intuition' in nursing and 'hypothesis categories' in physiotherapy to demonstrate how proponents of clinical reasoning in the allied health professions have attempted to adapt clinical reasoning to the realities of their respective clinical practices. Intuitive reasoning, found primarily in the nursing literature and described by Benner and Tanner (1987), Rew and Barrows (1987) and Agan (1987). It is also termed 'non analytical' reasoning by Gordon et al (1980). He described the following components of intuition: pattern recognition, similarity recognition, commonsense understanding, skilled know-how, sense of salience and deliberative rationality. These qualities represent a holistic and desirable portrait of the expert practitioner at work. 'Intuition' rejects rationality as the predominant mode of reasoning in nursing, and yet, appears to retain at least some of the characteristics of cognitive science theory. 'Hypothesis categories', holds to 'hypothetico-deduction' as the primary mode of reasoning in practice, and yet, seeks to use this method to understand the patient's perspective. (Jones, 1992)

Both reasoning approaches exhibit an attention to factors other than 'diagnosis'. Such attention reflects an ongoing involvement and interaction in daily practice of practitioners with patients (and/or families or care takers) in a variety of tasks. It is time to explore the nature of these 'realities' of clinical practice as they are expressed in the clinical reasoning literature of allied health. It is important to remember that, although there has been a cross

pollination of ideas between the three disciplines of nursing, occupational therapy and physiotherapy, these ideas have not emerged in an orderly or consensual fashion. They form a collage of understandings and concerns which, taken together, However, represent the findings of an emerging paradigm in the study of clinical reasoning; namely the interpretive approach (Patel and Arocha 2000).

Collaborative decision making as a reasoning strategy

The importance of patient involvement in decision making has been highlighted (Higgs 1999). The collaborative process has its origins in interactive reasoning. However, as the therapist progresses in the data collection process, strengthening hypotheses begin to be transformed in a way that they were understood by both therapist and patient (Jensen 1999). This transformation occurs as a reasoning process. From the mutually understood understanding of the hypotheses related to the overall problem(s), comes shared management options and commitment to the treatment/problem solving plan. (Jones, 1995). In this model the therapist's clinical reasoning is seen to be paralleled by a reasoning process occurring in the patient. That is, patients have their own ideas and interpretations of their problem(s) that have been shaped both by previous experience and through the advice received from medical practitioners, family and friends.

Recent occupational therapy literature and research in clinical reasoning proposes a model of practice which is collaborative in nature. Mattingly (1991) commented the scientific approach of reasoning did not seem to fully explain occupational therapy reasoning. Mattingly describes it as "….largely tacit, highly imagistic, and a deeply phenomenological mode of thinking." (1991, p. 976). Where medical decision making appears to be largely sequential, clinical reasoning in occupational therapist may be circular, with several steps examined and evaluated simultaneously. Fleming (1991) suggested 'narrative reasoning' to replace 'clinical reasoning' in occupational therapy which uses story-making and storytelling to assist therapist in understanding the meaning of disability or disease to the client. Schell and Cervero (1993) suggested 'pragmatic reasoning' which encompasses therapists' personal context, such as organizational, political and economic constraints and opportunities all impact on a clinician's ability to provide therapy, as do personal motivation, values and beliefs. Later, Mattingly and Fleming (1994) identified three other main forms of thinking used by clinicians: procedural reasoning (which may involve scientific reasoning), interactive reasoning (through interview and counseling work), and conditional reasoning or pattern recognition (which may include pragmatic reasoning). They describe therapists as having "three tracks minds" and seem to think along these tracks simultaneously.

Under the promoting culture of evidenced based practice in healthcare nowadays, the role of reflective practices in these forms should not be minimized. Whiteford (2005) summarized that complex of clinical reasoning in all allied health professions involves important elements in addition to empirical evidence, including ethics, environment, experience, expectations, imagination and creativity.

Obviously, from these author's perspectives, the process of making decision and judgment in practice is more than a series of cognitive abilities. The term 'clinical reasoning' is no longer very satisfactory to describe fully the practice in it fullest sense. Expert therapists seemed to be engaged in a more complicated process or strategies in casting visions of the client's future and predicting what and how can be facilitated by the treatments. This aspect of practice involves human interaction and possibly other psychosocial elements.

Summary: clinical reasoning moves from cognition to include an interactive process

This review has demonstrated how clinical reasoning, as a discipline, had its genesis in medical education. The teaching of and research into clinical reasoning was carried out through predominantly cognitive science models. In these models clinical reasoning was

expressed as a cognitive process characterized by hypothetico-deduction and pattern recognition (as a form of knowledge organization).

Using other research methods, researchers in allied health have described clinical reasoning as a process, or set of strategies, which permeate various realities or tasks of clinical practice and not just the activity of 'diagnosis'. These strategies (in the main) purport to adopt alternative ways of understanding patients and acting with them in their situations than have been offered in the cognitive models of reasoning inherited from medicine. What can be said with some certainty here is that clinical reasoning in allied health has moved from a process emphasizing cognition to one which is also concerned with interaction. The role of different reasoning processes in clinical practice is less clear at this point and is a major theme in the findings chapters. Most of the work into clinical reasoning in the health professions has been done around the expert - novice dichotomy (Benner et al 1996, Jensen et al 1992, 1999). That is, there has been a focus on the expertise of practitioners and how they learn and make decisions. Given that reasoning has been identified above as an interactive process, there is a need to explore a framework in occupational therapy whereby the thinking, beliefs and values of the therapist and the patient is considered. This forms the basis of this study.

Literature on Predictive Reasoning

More precise research based and formulation of clinical reasoning concepts has recently come from Mark Jones and his collaborators in South Australia (2003). Categories of reasoning which an experienced clinician undertakes are expanded or redefined to include 'predictive reasoning'.

Predictive reasoning is defined as the active envisioning of future scenarios with patients, including the exploration of their choices and the implications of those choices (Jensen et al. 1999). At this juncture, predictive reasoning combines the two streams of thoughts of former researchers. It should be considered as a sub-theme of **hypotheses evaluation** as Well as **practice knowledge organization** or **pattern recognition** that focuses on the outcomes of various occupational therapy diagnoses to determine which outcomes might be most desirable for the client.

Despite its importance, there is a scarcity of literature and epistemology studies on the cognitive process of "predictive reasoning" in occupational therapists for different clinical conditions.

Jensen and her colleagues (1992) identified the 'confidence to predict patient outcomes' being one of the five attribute dimensions that distinguish between master and novice clinicians. However, unlike the other four attributes, (1) ability to control environment, (2) wide use of patient illness data in a context rich evaluation, (3) focused verbal and non-verbal connection with the patient, (4) equal importance of teaching to hand-on care, which are behavioural oriented; the "confidence to predict outcome" or "predictive reasoning" is a higher level cognitive attributes that require more investigation in its nature, scope and process to ensure its effectiveness.

Hagedorn (1996) once stated "during predictive reasoning the therapist weighs probabilities and possibilities and attempts to predict the effects of options for intervention and to gain a picture of probable outcomes in the case in relation to various imagined scenarios." Prediction may include such decisions as when athletes could return to sports or when the rehabilitated workers after their illness becoming well, could return to their work. Predictive reasoning could also be used to assess the potential benefit a person who, after a major illness was likely to obtain from rehabilitation.

In this context, both researchers are becoming more panoramic in affixing the full gestalt of the thinking process of therapist in reasoning work, not only stating the overt behaviours,

also describing the psychological intent and social relevance in their decisions. And the explicit descriptions of these elements or characteristics within the process make it measurable for further exploratory studies.

Ward (2003) examined the clinical reasoning of an occupational therapist in group practice in mental health. Data were gathered through intensive, semi-structured interviews with 1 day of participant observation. Analysis was an iterative process in which emerging themes identified for reflection and interpretation. Rich descriptions of clinical reasoning in psychosocial task groups using interaction, narrative, conditional, and pragmatic reasoning was presented. The therapist describes the multiple levels of consciousness used in her consideration of, and response to, clients within the context of the larger environment.

Unsworth (2005) devised a new way to explore clinical reasoning in occupational therapy. Using a head-mounted video camera and debriefing interviews following therapy sessions, their reasoning data were collected from 13 experienced therapists working in physical rehabilitation. Data were analysed within a focused ethnographic framework. The study conferred that Mattingly and Fleming's (1994) classification of clinical reasoning encompassed most of the thinking processes revealed in the therapist's debriefing interviews. They also used aspects of pragmatic reasoning (Schell & Cervero, 1993). Additionally, within

the forms of procedural, interactive, conditional, and pragmatic reasoning, a new form of 'generalization reasoning' is proposed in which therapists draw on past experience or knowledge to assist them in making sense of current situation or client circumstances.

Krause (2006) pointed out that 'predictive reasoning' plus a successful outcome confirms already established 'clinical patterns' or allow for the recognition of a new 'clinical pattern'. This new clinical pattern can be laid down into the long term memory and be used by the more efficient subconscious reasoning at a later date. Thus, the experienced clinicians can recall numerous successful clinical patterns and upgrade his/her efficiency at decision-making process.

> "Expertise is built through these multi-dimensional and repeatedly rehearsed predictive reasoning cycles with automatic modification by outcome." (p. 4)

In view of this, it is logical to conclude that the process of predictive reasoning determines the achievement of the whole therapy process. Occupational therapist practice has to involve oneself in cycles of repeated decision-making and evaluation process, of multi-level and multi-factorial thinking strategy, reflective in nature and usually found in experts. From this

vantage point, the basis for conceptualizing occupational therapist's practice of predictive reasoning of this study becomes apparent.

Literature Review of Local Practice

Competence to Practice in Mental Health

For an occupational therapist to practice in Hong Kong, local statutory body, i.e. the Occupational Therapy Board under Supplementary Medical Professions Council of HKSAR has a set of core competency standards to govern the registration and licensee regulation (Supplementary Medical Professions Ordinance, Ch. 359, CAP 359B) of entry practitioners. However, to start practicing in the specialty of Mental Health, there is no additional requirement other than the encouragement of continuous professional education scheme for specialty training. From the employer side, Hospital Authority, being the major provider of mental health services in Hong Kong, has recently started to consolidate the quality framework for improvement of its health care workforce under each specialty service, including Mental Health practices (Strategic Service Plan, 2009-2012, p. 30-34). Hence, the local expertise development of occupational therapists in Mental Health practices was experience-based, has little demand for formal sharing and without statutory requirement.

While occupational therapists have long been involved in vocational rehabilitation programmes, the literature contains little about occupational therapist clinical practices in vocational rehabilitation (Velozo, 1993). Use of assessments tools for documentation and evaluation, amongst all related areas, were reported the most. Those evaluations which have been documented tend to have a narrow focus, evaluating only specific work-related performance skills, or on situational performance only, notable examples include Work Behaviour Rating Scale develop by Griffiths, Prevocational Assessment of Rehabilitative Potential of Psychiatric Patients , Thresholds Monthly Evaluation Rating Forms, and the Work Personality Profile (Bolton, et al. 1986). The Work Readiness Programme developed by occupational therapists at the University of Illinois at Chicago Medical Centre (1994) started to use an assessment battery looking at the whole person including areas of roles, habits, performance skills, environmental support, volition, values and interest. The whole process involved a series of checklists and combination of standard assessment instrument of specific areas, and depends on therapist's interpretation and organization work to conclude from the aggregated results to comprehend a profile for client. That resembles prediction process but in a non-systematic manner.

Locally translated tools in the 90's like Chinese Work Personality Profile (Chan, 1998; Siu, Yau & Lam, 2007), Workshop Behaviour Checklist (Mann, IP & Tsang, 1999), Rate of Work in different simulated work samples are developed for use also. These standardized assessment tools are not validated against the local employment market or only norm referenced to sheltered work environment for chronic cases. Although these instruments are developed to represent judgments of employability strengths and deficits, they are not predictive in nature in relation to resume work in real world. No supportive evidence is found in literature on its relationships to employment outcome.

In 2003, the local occupational therapists revisited the vocational assessment process for the SMI cases and published the 'Guidelines on Psychiatric Work Assessment Report in Occupational Therapy' (OTCOC). It describes the core components of a comprehensive psychiatric work assessment based on evidenced predictors of vocational outcome for SMI and on the consensus of local therapists. That includes: history of mental illness, pre-morbid functioning in education and related vocational training received, existing mental condition, work history, client's work plan, job analysis (intended or targeted), motivation to work, general work behaviours, job specific work skills, physical work capacity, community adaptive behaviours, cognitive functioning, family, and financial situations. However, the concluding remarks of whether the patient is suitable or has potential to be employed are left

for individual therapists' interpretation or decision-making, or by what commonly called 'professional judgment'. This part is still a myth to outsiders. Apart from these documentations, there is obviously no available literature to describe the current practice and standards of occupational therapists in local settings concerning vocational rehabilitation programme for the SMI.

In summary, the targets of development of the assessment tools used by occupational therapists seems to focus to confirm how strong the 'motivation' or the 'will' of the clients in returning to work. The intended concept was denoted in many of occupational therapy assessments as quoted previously includes 'work readiness', ' volition', 'values and interest' or indirectly 'work behaviour and compliance' etc. that they are eager to know. And 'to confirm the level of motivation' forms the basis of their prediction in vocational rehabilitation through the only means of clinical observation and professional judgment as revealed from these assessment tools developed.

The Motivation to work

Motivation of patients is always a common concern among healthcare professionals in Mental Health practice. Mental illness can produce cognitive, perceptual, affective and

interpersonal deficits, each of which may contribute to employment barriers (Ruthman, 1994). According to the multi-locality, longitudinal schizophrenia study in John Hopkins University Medical Centre (2002), the vast majority of people with SMI, 73% to 90%, are not employed at any given time, and those who are work part time or are in non-competitive situations such as workshops or enclave jobs. "One of the impediments to employment is the presence of symptoms." Negative symptoms, for example poverty of speech, affective flattening, avolition or attention impairment, are stronger predictors of employment and social functioning than are positive symptoms (auditory hallucinations, delusions, or incoherence and illogical thought). These affect all levels of employment, whether sheltered, supported or non-supported (Slade & Salkever, 2001). Hence, it warrants a further exploration of the nature of motivation.

Motivation can be defined as something that makes a person choose to act in a particular way or with a purpose to act. In this study, Motivation at work can be viewed as the commitment of the individual to work and to his workplace from the point of view of factors originating from within herself or himself, from the point of view of individual needs, likes and preferences. (Davidman, 2006) Nevertheless, lack of motivation and apathy are common negative symptoms in clients with severe mental illness that most occupational therapists believed it to be one of the major barriers for them to return to work (Landeen, et al. 2000).

Hence detail analysis of the actual motivation of the clients may become essential step for the occupational therapist to decide on the employability or chance of success in vocational rehabilitation. Although there is no strong evidence to support this view, it became a common-sensed approach among the therapists as many of the assessment tools or checklists developed are being targeted at.

There is limited occupational therapy literature explicitly which highlighted the inclusions of 'motivation to work' (Waghorn, et al. 2005). Davidman (2006) called it 'the well to work' and looked at it from the point of view of individual and from that of the community. Individual's intrinsic motivators governed one's reaction towards external agents around working environment, or extrinsic motivators. Several factors are listed as external motivators like payment by results, job satisfaction, remuneration, achievement of needs and wants, struggle for independence and a good life. Nevertheless, for clients with severe mental illness, would these factors hold the same effect or would be distorted by the disease process? That is important for therapists' understanding and to develop evidence when they involve themselves in making predictions in vocational rehabilitation. It enlightened a big gap for the researcher to further investigate in this study.

Clinical observation as a method of assessment

As I have seen from reviews of local practices, clinical observation seems to be the most common type of assessment format used in daily casework. In fact, it is not surprising to medical professionals, including allied health disciplines like nurses, psychologist and therapists in mental health practices. They are trained to gather data by observing behaviour. The clinical interview is a vital part of assessment, even when using other formalized tools, which can employ either a structured or unstructured format. Such assessment looks at certain areas, such as general appearance and behaviour, mood and affect, perception, comprehension, orientation, insight, memory, and content of communication. One psychiatric example of a formal interview is the mental status examination, which is often used in psychiatry as a screening tool for treatment or further testing. (Gorth, 2003). After assessment, they often provide a diagnostic impression. Many countries use the International Statistical Classification of Diseases and Related Health Problems (ICD-10) while the U.S. most often uses the Diagnostic and Statistical Manual of Mental Disorders (the DSM version IV-TR). Both assume medical concepts and terms, and state that there are categorical disorders that can be diagnosed by set lists of descriptive criteria. (Jablensky & Assen, 2005).

The reliability of clinical observation relied on the experience and accuracy of the observer in determination of fitness of the client against the set criteria. Hence, there is a

changing trend among allied health disciplines that claims to work on diagnostic impressions, rather then on the need for an accurate diagnosis. Several new models are being discussed, including a "dimensional model" based on empirically validated models of human differences, such as the five factor model of personality (Widigner &Trull, 2007) and a "psychosocial model", which would take changing, intersubjective states into greater account. (Mundt & Backenstrass, 2005). The proponents of these models claim that they would offer greater diagnostic flexibility and clinical utility without depending on the medical concept of illness. However, they also admit that these models are not yet robust enough to gain widespread use, and should continue to be developed.

Occupational therapists, similar to psychologists in mental health practices, do not tend to diagnose, but rather use formulation—an individualized map of the difficulties that the patient or client faces, encompassing predisposing, precipitating and perpetuating (maintaining) factors. (Kinderman & Lobban, 2000) They rely on these to formulate their interventions and report outcome achievement.

Assessment by observation is a Well-established method in occupational therapy training. Wiliamson, et al., (1996), as an expert occupational therapist in sensory processing and behavioural performance, claims that observation is the primary mode the therapist uses to

identify problems and plan interventions for clients who have difficulties in sensory processing. Therapists depend less on standardized instruments because they do not reliably capture individual differences in this aspect of performance since sensory processing is so variable and dependent upon a client's prior experiences. In designing qualitative observations of performance, it is helpful for the therapist to contrast behaviour in structured and unstructured situations. Unstructured situations may include individual free activities of daily living. Structured tasks may include observation during formal evaluations and controlled situations. The therapist should observe the client's performance in relation to the demands of the environment, e.g. client's awareness level and impulsivity would be interpreted in a disorganized setting versus a quiet one.

Unlike standard assessment tools, the key to clinical observation is to focus on *how* the client processes and manages environmental challenges and not to focus solely on the specific skills the client displays. This entails a dynamic *process* orientation to assessment in addition to a *product* focus typical of most skill-based evaluations (Greenspan & Meisels, 1996). Such qualitative information enables the examiner to understand the client and design meaningful intervention. These primary approaches are supplemented by the administration of standardized tests. Observation of the following situations is particularly informative in understanding the client in mental health settings: social free activities, mealtimes, daily

activities, structured and unstructured peer interaction, family interaction, and transitions between activities. A therapist does not look at the client in isolation during the assessment process, but at the relationship between the client and environmental challenges (Carey, 1999). The therapist should avoid focusing on pathology and recognize that functional difficulties can arise from a poor fit between the client's needs and available resources. The fit may be complex, subtle, and dynamic.

However, the shortfalls of heavily relying on clinical observation are usually found in the novice practitioners when they do not have profound knowledge and experience in clinical conditions and actual practices. This posed a substantial area for investigation in this study as to whether the cognition and processing of the expert therapists can be explicitly analysed and documented for novice therapists to learn and follow in a better and systemic way.

Research Gaps

Over-dominance on traditional literal classifications

In the past decades, very little research have been conducted on the practice that occupational therapists have engaged in predictive reasoning. These studies are mainly guided by Mattingly & Fleming's classifications or in small-scaled phenomenological

approach. They suggested that occupational therapists randomly exhibit various types of clinical reasoning in practice, but not documented in structured model or in a systematic manner. Clinical decisions are subjected to personal bias and errors in interpretations. This research presented that the efficacy of predictive reasoning are contingent on some personal, psychosocial, and structural variables. However, it is found that these discussions are inconclusive in offering detailed explanations on how these variables exert influences on the reasoning process. They were not actively relating the phenomena to actual practice, but preconceived with the old classifications in explaining the general behaviours of the therapist. The possibility of capturing the distinct impacts of the determinants in clinical reasoning in real clinical environment is thus questionable. In addition, given that the reality of clinical practice is so complex, it may be possible that variables other than those mentioned will also have some influences on the process as Well. In addition, they were also being criticized on their nomenclature, definitions and descriptions of components, appeared in their theories that were non-standardized and overlapping, which not only confused the educators, but also hinder further higher-level research.

Lack of cultural specific research

The importance of studying clinical reasoning in a specific cultural context cannot be overstated. It is crucial to understand thinking processes with a local sensitivity, especially in

Hong Kong environment. The researcher believed that Hong Kong is not a typical Chinese city, nor a pure westernized city. Not only had rapid social changes occurred as a result of the urbanization and globalization in the past two decades, but there is some evidence that the nature of development of healthcare policies and therefore, the thinking analogy of professionals are becoming heterogeneous and diversified. That calls for more intensive research to reflect the updated phenomenon.

Conclusion of literature review

There is a lack of literature and studies on the cognitive process of "predictive reasoning" in occupational therapy work for specific occupational therapy diagnosis or clinical conditions. Although the experts are believed in practicing high quality predictive reasoning in their daily clinical work, this is still an identified gap in the occupational therapy literature applied in mental health services or general vocational rehabilitation studies. The current local practice of occupational therapist apparently develops their own clinical models of practice that rely heavily on clinical observation and direct feedback from clients that they create their own 'patterns recognition' in reasoning.

How to perform their predictive reasoning to arrive at a decision or prediction of their clients' success in returning to work? The answer still falls onto the reasoning model of the experienced therapists that the researcher is trying to explore in this thesis. That may call for a professional wide survey and/or an in-depth phenomenological study to establish a full gestalt of the theory.

Following this line of thought, a study was therefore conducted to generate a substantive theory to provide comprehensive explanations of the following question: "What exactly is going on when occupational therapists make predictions on efficacy of the patients with severe mental illness in vocational rehabilitation?" More specifically, the objectives of this study are:

1. to unfold the salient patterns of predictive reasoning among occupational therapists
2. to surface the critical components of predictive reasoning
3. to identify variables considered to be important in predictive reasoning

Conceptual Framework of the Study

<u>Analytical framework for linking consciousness to prediction</u>

In answering the research questions, there are several important points from the above discussions that contributed to the conceptual framework of this study. The relationship between the cognitive process of therapists and the final prediction can be conceptualized at a fairly general level. This is depicted in Figure 1, as a staged relationship where a set of causal factors impact on a series of intermediate steps, which in turn determine the final outcome in terms of changes in pathway and expectations of client's performance in vocational rehabilitation.

The framework proposed incorporates some significant components developed by Ward (2003) who provided a rich description of the actual practice of clinical reasoning of one therapist in the mental health service. Wards' study addressed the key features of the reasoning process which included: firstly, a multi-level of consciousness; secondly, a relationship with the client; and thirdly a response to the external environment of the client's context. Although Ward (2003) relied on the established categories of clinical reasoning to explain some of the findings, there was still a lot of phenomenon which needed to be investigated. Hence, in this study, the concept of 'multi-leveled cognition' of the therapist and the influence of 'client's contextual environment' in making a decision forms the major framework for the research questions.

This framework is an attempt to assess further the impact of expertise practice as described by Krause (2006) in order to improve the specificity of the context in the analysis, which take into account the significance of different variables and dimensions identified in the reasoning process. Krause (2006) suggested that expertise practices should be 'multi-dimensional' which creates a wider scope for therapists to understand the therapist's reasoning. Besides, it is also worthwhile exploring the repeatedly rehearsed and self-modification manner of expertise practice in Krause's model (2006). This practicing model resemble to the local practices as identified where local therapists perform their reasoning based on clinical observations and usually adjust according to the outcome and direct feedback from clients. These features formed the focus of this study.

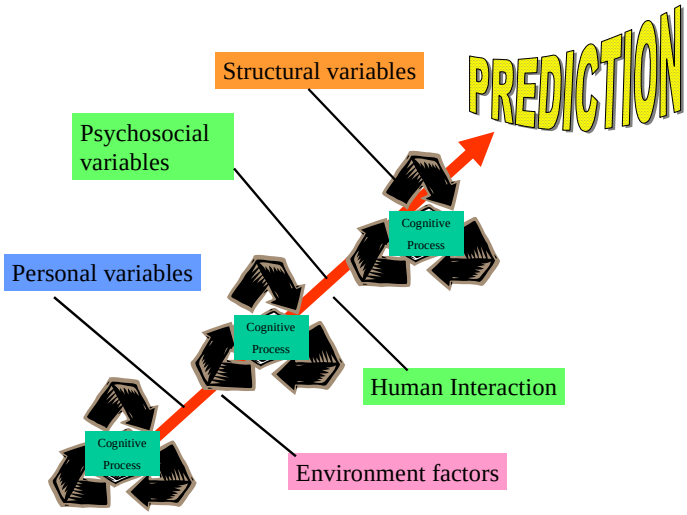


Figure 1. Proposed conceptual framework of predictive reasoning showing levels of cognitive processes and intervening factors.

The purpose of the conceptual framework is to allow discussion around the research questions to investigate the relationship between cognition processes and predictions. Hence, the components of the framework are established here, whereas in the following chapters, the methodological sections are developed with a view to explaining how this conceptual framework was operationalized in practice.

Framework components

The pattern of reasoning

The backbone of the diagram (Figure 1) shows characteristics of several **levels of decision making**, with each comprising a 'cognitive process' which are **repeated mini-cycles** of consideration and response to client's feedback etc. It demonstrates visually the systemic relational pattern of the reasoning process of therapists with inclusion of the postulations on 'multi-level' and 'multi-dimensional' in the expert practices. That perspective formulated the focus of this research and directed methodological operations.

Parameters modifying the degree and extent of reasoning

The peripherals of the diagram (Figure 1) represent the **variables and factors** to be identified which are relevant to the focus of this research and affect the therapists in their

reasoning process. Factors are stratified into the following categories as suggested from the literature search:

a) structural factors refer to those objective factors related to the healthcare system, structure of service delivery and operations of the local occupational therapy service;
b) psychosocial factors refer to those human or non-human factors related to the subjective experience of the clients or therapist encountered in their family, workplace, school, leisure pursuit, medical interventions etc.;
c) personal factors refer to the specific characteristics of the individual client including his/her disease process, personality, upbringing, educational background etc.;
d) environmental factors refer to other factors that relate to the objective environment not included above; and
e) human interactions that take place between the therapist and the client

. These factors are the broad issues that appear relevant for further exploration here.

Parameters modifying the transmission of intermediate impacts on the final prediction

The **final prediction** is conceptualized as the product of these intervening mini-processes across levels and concluding in a sequential and growing manner, where a higher level of cognitive process starts when the lower level one has been completed. It is postulating the concept of 'levels of cognitive processes' performed by therapists. Any relational and

directional patterns were explored from the retrospective responses of the therapists. The key feature here is trying to demonstrate a consequential effect of reasoning and the scientific base of the reasoning process carried out by expert therapists.

It is not the intention of the proposed framework to provide a conclusive and fully-fledged explanation of occupational therapists' predictive reasoning. Rather, it is hoped that the development of this model well further crystallize I's understanding of the research problem and sharpen the sensitivity of the theory. As a result, the focus and direction of the study can be put into perspective.

Chapter 3

RESEARCH METHODOLOGY

This chapter explains and justifies the use of a combined qualitative and quantitative methodology as the method of inquiry for the present study. This study is concerned with the generation of a theory to explain the practice that therapists are involved in the course of predicting patient's suitability in vocational rehabilitation in Hong Kong. To fulfill the objectives, three different studies were undertaken. The first study used a questionnaire to survey local practices in the region. In the second study, a phenomenology study on reflection of expert's experiences through interview was performed. Finally multiple case studies were used for theory verification

This chapter is divided into two sections. The first section presents the philosophical perspectives and choice of paradigm of the study and the second section presents the detail methodology of each sub-studies.

SECTION I

Philosophical Perspectives and Paradigm of Inquiry

Any process of research inquiry is guided by a set of 'basic beliefs'. These beliefs, which form the foundation of a research paradigm, are designed to answer three questions: 'what is the nature of reality?', 'what is the relationship between the researcher and knowledge?', and 'how should the researcher go about finding knowledge?' Guba & Lincoln (1981) remarked that the actual formulation of the research questions is dependent on the researcher's notions about the nature of reality, the relationship between the knower and what can be known, and how best to discover reality. The selection of research method can therefore be viewed as arising from the basic philosophical beliefs about inquiry as held by me. It is therefore imperative that whatever research method is chosen its philosophical basis and inquiry paradigm should be congruent with the researcher's epistemological focus and relevant to the research problem. (Morse & Field, 1995)

Blending Qualitative and Quantitative Methods

> "Debates about quantitative and qualitative methodologies tend to be cast as a contest between innovative, socially responsible methods versus obstinately

> conservative and narrow-minded methods, or precise, sophisticated techniques versus mere 'common sense'." (Stewart & Shields, 2001, p.307)

However, most authors today apparently see qualitative and quantitative approaches as complementary rather than antagonistic. They are a matter of style and technique, but do not mean, however, that the positivist never uses interviews nor that interpretivist never uses a survey. They may, use other methods as supplementary, not as dominant. (Glesne & Peshkin, 1992). Both can be used effectively in the same research project, provided that the most suitable one is chosen to answer certain questions but not inappropriately for other types of answers. Hence, the best answer frequently results from using a combination of qualitative and quantitative methods, or blending multiple methods to answer diverse kind of research questions.

In this study, the research question was narrowly scoped but with wide implications. The research aims to build a viable concept or theory that is testable and repeatable for professional wide research in clinical reasoning. This was constructed in view of the scarce literature and empirical studies in this area that hampered the growth in healthcare professional services, especially those practices which depend on human interactions. The

nature of professional knowledge and efficacy are not totally measurable or quantifiable. Typical pragmatists supported that a blended approach, including "belief in the value-laden of inquiry, belief in the theory-laden of facts, belief that reality is multiple and constructed, and belief in the fallibility of knowledge" (Tashakkori & Teddie, 1998, p.13) finds the best way to explore the research question of this study.

As explained, the study aimed to explore the practice that therapists are involved in the course of predicting patient's suitability in vocational rehabilitation in Hong Kong. To fulfill the objectives, a quick snapshot across the population under study was essential to put the whole study into current real context. In fact, this aspect of information was found missing in local literature as reviewed in Chapter 2. It could be obtained by using a questionnaire to survey on local practices in the region. The current preferences, trends and habits of practicing therapists could be obtained in terms of numbers and percentages. Besides, these figures could indirectly reflect the 'ends' of their thinking process in general concerning case management. The detail methodology of the survey would be presented in later section of this chapter. However, the 'means' of their thinking process might still be incompletely surfaced, especially the individual variance could not be analysed under such quantitative

regime alone. Besides, it gave no tracks for others to follow if they wanted to improve on their 'means' or predictive reasoning at work.

Since this study emphasizes understanding of human experiences and generation of theory rather than measurement, analysis, and prediction of causal relationships between variables, quantitative methodology alone is not enough to find out the full gestalt of the phenomenon. In the present study, hypotheses have not been formulated and no attempts at casual inference have been made. To enhance understanding and discovery, it warrants a methodology which is flexible and allows for exploration of the new areas of knowledge and for development of insight into the nature of the phenomenon. Hence, additional research component in qualitative paradigm was introduced to improve the richness of content and validity of this study.

Despite the substantial past work in the field of decision making, clinical judgment, diagnostic reasoning, and occupational therapist intuition, the distinctive process when therapist engage in predicting the clinical conditions of patients in mental health environment still remains largely undefined and under documented. This study seeks to understand and explain this process through the collection of experiences from groups and

individuals. Diers (1979) contends that when the research question requires a response based on understanding and explanation, the researcher is seeking answers to questions such as 'what is going on here?', 'how does this person feel about this?' or 'what does the experience mean?' This suggests attempts are being made to probe beneath the surface of an issue in search of meaning which enhances the understanding of behaviour.

Munhall (1989) points out that qualitative research uses an inductive approach which lends itself to going out and finding out what's going on and leads to theory development. In using qualitative methods the researcher is seeking to discover knowledge and to uncover new insights, meaning, and understandings from the authentic source and am looking at the whole within context. Thus, according to Munhall(1998), the use of qualitative methods is appropriate when (1) virtually nothing seems known about a topic or phenomenon; (2) what seems to be known or believed somehow does not seem accurate; (3) inconsistencies and biases are present and time has changed what is believed; (4) feelings arise such as 'something doesn't ring true', 'that's not real life', and 'something's going on here and I'm not quite sure what it is'; (5) I wonders what it would feel like to experience something he or she knows nothing about.

In this study, the researcher's aim is to explore and construct the experience of clinical reasoning process in the therapists. Clinical reasoning, although complex in nature, can be simply defined as the thinking processes of therapists when undertaking a therapeutic practice. Although occupational therapists have written extensively about clinical reasoning over the past 20 years, therapists are still at the beginning of understanding what clinical reasoning is and its importance to practice (Unsworth, 2004). Mattingly and Fleming (1994) describe clinical reasoning as being a practical know-how that puts theoretical knowledge into practice and as a complex (yet often common sense) way of thinking to find what is best for each client. Clinical reasoning encompasses how therapists think for their clients, when with a client, and afterward when reflecting on therapy. It involves intuition, judgment, empathy, and common sense (Unsworth, 2004). The kinds of quantitative methods that have traditionally been used to study medical decision making have limited application in occupational therapy research, since the profession is more interested in how therapists "think-in-action" rather than diagnose. Assessing therapists' clinical reasoning is no easy task because these cognitive processes can be studied only indirectly. An interpretivist paradigm, in its general tone, was chosen as the major part of this study for the following reasons.

Firstly, this is a study of the perceptions or experiences of participants in a manner which acknowledge the researcher's beliefs as an important factor in the research process. Being a senior therapist in the profession, the researcher has been conceptualized as an insider's perspective on the lived experiences of other individual therapists. Under interpretivist paradigm, it is important that researcher recognizes the personal beliefs and welcomes the view that understanding requires interpretation. Within the realm of social science or in study of human which is constantly influenced by symbolic interaction, the meanings individuals ascribe to events should be of central concern (Smith, Flowers & Osborn, 1997). Through interview and interactions with participants, the researcher can make sense of the participants' personal world being studied through a process of interpretation, and to explore new meanings and understanding beyond his/her realm of beliefs.

Secondly, with the rich descriptive and interpretative data that are embedded in a real context, it enables generation of new models or constructs through analyzing the data. A number of themes and sub-themes can be obtained in form of a narrative. The researcher is then able to attempt to understand and connect these themes in the form of a model building. Finally, models of relationships can be constructed that provide references for other researchers intending to study similar phenomena. This fits well with the objective of current study in

understanding the experiences of participants in clinical reasoning work where a large amount of rich and in-depth information of experiences was required. These are not achievable from the standard quantitative methodologies alone such as the use of questionnaire.

Reliability and generalization of qualitative research has long been an unsolved problem. To enhance this limitation, in this study, two steps were taken. First, the qualitative data was counter-checked for any unreasonable deviance or exceptions from the survey results. Second, a verification process of theory generated was appended to show its applicability on multiple cases.

The methods used was a creative and innovative design that cultivated from basic statistical concepts as Well as incorporating the qualitative structural analysis concepts, trying to see whether the most essential logic of the developed 'Model of Predictive Reasoning' could be practiced among others.

In the following paragraphs, the methods used for interviews would be highlighted first as it formed the major data source in this study and then followed by more detailed account for individual sub-studies.

Approach of Acquiring Clinical Reasoning Data

Qualitative research may be conducted in dozens of ways. Tesch (1990) sorts 27 types of qualitative research according to three major substantive questions:

1. What are the characteristics of language itself?
2. Can I discover regularities in human experience?
3. Can I comprehend the meaning of a text or action?

In this study, the researcher aims to draw from the philosophy and practice of experienced therapists the regularities of the predictive reasoning strategy and process. The language used would be dominated by professional jargon, and regularities of their experiences would probably be discovered as their professional context and practices are similar as long as it is comprehensible. A common approach used by researchers in the field is to compare the clinical reasoning of novices and experts. Through such contrastive methods, patterns of thinking can be most clearly juxtaposed and therefore understood. Research examples includes the work of Benner (1984) and Greenwood and King (1995) in nursing; Unsworth (2001), Strong, Gilbert, Cassidy and Bennett (1995), and Gibson et al. (2000) in occupational therapy; and Embrey et al. (1996) in physical therapy. Hence, the researcher focuses the

research on studying the expert's clinical reasoning process through their own language and identification of regularities between them.

The assumption is usually made that professionals in a number of fields know more than they can say. However, as shown by Schon (1983), among others, when confronted with an account of their performance, occupational therapists often reveal a capacity to articulate their tacit knowledge. Unsworth (2008) reviewed five methods suitable for eliciting therapists' reasoning. Two of these methods are described as concurrent since they ask therapists to write notes, or to use think-aloud techniques while doing a real or simulated case. The validity of data collected using concurrent reports relies solely on therapist's ability to write about his or her thought process (Unsworth, 2001). Besides, "speaking while thinking" can actually change the subject's underlying thought processes (Ericsson & Simon, 1993), and interfere with or even change the course of the therapy session. Therefore, retrospective reports are far more common.

The remaining three approaches are described as retrospective because they demand the clinician to recount reasoning after it has occurred. These approaches are known as free recall (in which the therapist presents his or her reasoning about a therapy session afterwards from memory), audio-assisted recall (in which the therapist listens to an audiotape of the

therapy session and uses this to aid recall of his or her reasoning processes), and video-assisted recall (in which video footage is used to prompt recall of his or her reasoning processes). Limitations found in each approach are analysed. Newell and Simon (1972) pointed out that retrospective accounts allow therapists to mix current knowledge with past knowledge, thereby providing opportunity for evaluating their own thinking in addition to presenting their thinking. This way of using hindsight is not welcomed by researchers. Another criticism of retrospective reporting method is the reliance on subject's memories of their thoughts. Large gap or distortions in verbal reporting may occurred, including those processes that are beyond therapist's consciousness (Martin et. al., 2004). Besides, in this study, to obtain consent from our subject clients who are suffering from severe mental illness for real-time recording, either in the form of audio, video or using an observer to write notes, are unlikely to be successful and is considered non-therapeutic. Hence, it is not a commonly utilized way of data collection method in psychiatric research.

In the spirit of the qualitative frame of reference in which most occupational therapy clinical reasoning studies are conducted, instead of high degree of accuracy of subject's recollections, the reasoning provided by the therapist is an accurate representation of their thoughts at the time of debriefing or interview is more important (Unsworth, 2008). To minimize the limitation of 'reliance on memory' and in view of problem of obtaining patient consents,

therapists participate in an in-depth interview in which he/she is asked to describe his/her clinical reasoning in general, or reasoning concerning specific events is adopted in this study. A semi-structured or structured interview format makes the interview as a conversation in which the researcher actively listens to what the subject is saying (Rice & Ezzy, 1999). In the interview, a set of topics was composed to ask participants to access a great deal of reflective information on "reasoning in general". However, when capturing about how a therapist's reasoning process related to specific cases, retrospective reporting with a debriefing interview was used in the multiple case studies (study 3).

Qualitative Framework - Phenomenology Overview

The most common qualitative frameworks for conducting clinical reasoning research are grounded theory, phenomenology, focused or broad-based ethnography, and action research. However, research questions that ask about the structure and essence of occupational therapists' experience of the phenomenon of clinical reasoning are best answered using a phenomenological approach. Unlike grounded theory, in which the goal is to develop theory, the aim of phenomenology is to provide a full description of the phenomenon of clinical reasoning. A phenomenological study attempts to understand reality from the perspective of the participants in their natural environment (Morse & Field, 1995).

Phenomenology is a science whose purpose is to describe particular phenomena, of the appearance of things, as lived experience. Cohen (1987) has pointed out that phenomenology was first described as the study of phenomena or things by Immanuel Kant in 1764. Merleau-Ponty (1962), in the preface to his text *Phenomenology of Perception*, asked the question, "What is phenomenology?" His description reflects the flow of phenomenological thinking, but Merleau-Ponty never offered a definitive answer or step-by-step approach to what phenomenology actually entailed.

In the current study, phenomenological approach synthesized the social scientist perspective in interpretation of individual meanings occur (and are made sense of) in, and as a result of, social interactions. The process of social interaction comes to have a symbolic meaning that is contingent upon the individual's interpretation. People subsequently modify their behaviour as a result of their interpretations of the social interactions. Meaning comes from a process of interaction with the world and set reflection about those interactions (Denzin, 1995). To interpret the resultant clinical reasoning behaviour of experienced therapists that built from their cumulative interactions with clients and environmental agents, the in-depth understanding of their accorded meanings to their own acts, disregarding I's or previous scholars' explanation and judgment, was the main objective of this study.

To apply phenomenology as a research method, Omery (1983) addressed the approach as inductive and descriptive. Phenomenological method is the trick of making things whose meanings seem clear, meaningless, and then, discovering what they mean (Blumensteil, 1973, p. 189). At the core of this assertion is the idea that phenomenological researcher must take enormous pains to prevent their understandings of the phenomena that they observe being contaminated by their own pre-conceptions or theories. Hence, Reflexivity is an important strategy to ensure and enhance the validity of the qualitative research and would be discussed in detail later.

Clearly, phenomenology is grounded in a variety of philosophic positions and procedural interpretations. Several procedural interpretations of phenomenological method are available as guidelines to this research approach (Colaizzi, 1978; Giorgi, 1985;; Spiegelberg, 1975; Streubert, 1991; van Kaam, 1984; van Manen, 1990). To eliminate the researcher's involvement of personal beliefs and to adopt the role of 'outsider' in the research setting was the pre-requisite reflexivity work. Hence, in this study, the researcher adopted the six core steps central to phenomenological investigations which satisfying the best of this. These are identified by Spiegelberg (1975) as (1) descriptive phenomenology involves direct exploration, analysis, and description of particular phenomena from unexamined

presuppositions aiming at maximum intuitive presentation; (2) phenomenology of essences involves probing through data to search for common themes or essences and establishing patterns of relationships shared by particular phenomena; (3) phenomenology of appearances involves giving attention to the ways in which phenomena appear; (4) constitutive phenomenology is studying phenomena as they become established in our consciousness; (5) reductive phenomenology in which the researcher continuously address personal biases, assumptions, presuppositions and suspend judgment to achieve pure description; and (6) hermeneutic phenomenology is a special process which comprises of naïve reading of text or descriptions, followed by structural analysis to identify meaningful connection and thirdly to do the interpretation as a whole involving repeated interpretive reading to ensure a comprehensive understanding of the findings. It is sometimes called 'interpretive phenomenology' to distinct its importance as a method to describe and explain human phenomena (such as health and illness). (Spiegelberg, 1975)

In short, phenomenology as a research method is a rigorous, critical, systematic investigation of phenomena. "The purpose of phenomenological inquiry is to explicate the structure or essence of the lived experience of a phenomenon in the search for the unity of meaning which is the identification of the essence of a phenomenon, and its accurate description through the everyday lived experience" (Rose, Beeby & Parker, 1995, p. 1124). However, , of

crucial importance is the ability of the researcher to use reflexive and other techniques to minimize the effect of their own past experiences and existing views on their perceptions. Other than the natural bias on the part of me by my profession, these techniques assist me in establishing a theoretical framework to better make sense of the experiences of the individual being studied.

Reflexivity

Reflexivity is an important strategy to ensure and enhance the validity of the qualitative research (Yarley, 1997). Reflexivity is accomplished by the researcher's conscious efforts in reflecting and disclosing the personal ideological orientation and motives for undertaking the research, how the context of the research may have affected the material obtained, and how particular theoretical suppositions may have shaped the analysis and the conclusion of the study (Ashworth & Chung, 2006; Yarley, 1997). Reflexivity can be classified into two major categories: personal and epistemological (Wellig, 2001). Personal reflexivity refers to how the researcher's personal experiences, interests, beliefs, values, etc. have shaped the research. Epistemological reflexivity is the researcher's theoretical assumptions about the research, the world that may influence the design, analysis, and interpretation of the research.

Personal Reflexivity: Declaration of Biases

I have summarized possible biases which may influence the current research in four main aspects:

1. *I am an occupational therapist by profession*

As an occupational therapist for over 20 years, I have developed an internal pattern of clinical reasoning in approaching various types of patients. I must admit that this habit of thinking will affect my interviews with other experienced therapists, in which I will focus on some critical areas that are familiar to me. Besides, I may be too early to interpret their meanings or essences, using my own language and framework. However, this tendency can be avoided by having a set of structured areas and questions for the interview, also through the review of transcribed data and interpretations by the interviewees to confirm the literal accuracy. On the other hand, my sensitivity and thinking habit can be an asset in carrying out the current research on the focus on the research upon clinical reasoning in which I may be able to interpret their literal meanings from professional jargon more.

2. *I view local experienced occupational therapists can 'do' better than 'talk' about their practices.*

From my observation, the local therapists, especially the experienced, seldom talk about their clinical reasoning in an overt and structured manner. Rather, they usually rely on case sharing of factual procedures that they have done for their patients but avoided or neglected the

importance of verbalising the thinking process that they have undergone. Or it is because that they themselves are not aware of their mental work in subconscious level. And I feel that with this preconception, my patience to hear and explore during the interview and appreciate the stories details they shared will help to build the richness of the content of the study.

3. My experience with severe mental illness(SMI) patients is minimal

As a clinician, my major work is with physically injured cases and vocational rehabilitation aspects. When I carried out this study I had been engaged in vocational training for SMI for only a year. Therefore, I could not assume that therapists dealing with SMI have the thinking strategy or clinical reasoning process as the physically injured clients. Therefore, I should have thought myself as new to the research population and should not take any of their opinions and responses for granted. A pre-study surveying the current local practices of therapist in the field was planned to help me to gain a new perspective.

4. I am a clinician but not a researcher

I am a senior therapist but not a researcher. However, in this research, I am wearing both hats. This is a frequent concern that clinicians cannot avoid if they enter into research. However, at least two precautions can be used to avoid the dual relationship. First, researchers must make efforts to reassure the interviewees before the interview that the

purpose of interview is frank and pure for research by avoiding giving comments, advice or interference to them. This was further clarified to the participants that they could stop the conversation whenever they felt uncomfortable to continue the process for any reasons. Secondly, I should try to listen, use a logical mind with curiosity, and have good relating skills to support a good atmosphere for participants to express themselves freely.

Epistemological Reflexivity: Theoretical Preconceptions

I have identified three major personal theoretical preconceptions that I consciously have in current research. All of them result from learning from the literature review.

1. *I believe in the multiple facets and staging of clinical reasoning process.*

This understanding has stimulated my research to be scientifically vigorous and at the same time creative and innovative in capturing the full gestalt of the phenomenon. But at the same time, I retained the openness and simple-minded especially in data interpretation and themes development, bearing in mind that I should be a 'stranger' to their narrations and expressions of experiences.

2. *I believe there are different implementation strategies of a model of clinical reasoning in mental health practices.*

Since mental health practice is a human-based service, while relying on one model of practice, individual therapists, especially those experienced ones, will find their best action strategy to achieve the best outcome for their clients. With this understanding, I think the chance of finding commonalities to build a model or theory of clinical reasoning is high.

3. *I believe in the limitations as Well as the power of phenomenological inquiry.*

Phenomenological studies of the human experience are a vital part of all caring professionals (Ashworth & Chung, 2006) due to its ability to let me gain an insight perspective in the study phenomenon and obtain a close experience of the issue of the study. However, its limitation is the inability to generalize to a greater population. Hence, in this study, a verification process of theory was appended to show its applicability to multiple cases. I expect to see I myself grow as well as the growth in positivist paradigm in research methodology through this journey of present research.

SECTION II

Methodology Applied

To summarize, in this study, although the researcher was mainly employing the qualitative phenomenological approach to serve the inquiry purpose on studying the expert's clinical reasoning process through their own language and identification of regularities between them (study 2), other methods were employed in two sub-studies to rectify the methodological shortfalls in terms of reducing my bias by a professional wide survey to inform me on current norms of practices (study 1), as well as improving the power and generalization of the model being developed by a verification process of multiple case studies (study 3).

1. Quantitative survey of the common practice of occupational therapists working in mental health service in Hong Kong (Study 1)

From the literature reviewed in previous chapter, the researcher is still lacking lack of much background information and documentation of Hong Kong. The researcher tried to identify the commonality and differences among the majority of practicing therapists within the field locally through a survey. Survey is a promising method enabling a quick snapshot of current phenomenon among a targeted population in numeric terms. This provided the basic framework of current professional perspectives on the subject matter under study, that facilitated the drafting of the content and scope of semi-structured

interview questions, and suggestive for the criteria of purposeful selection of interview sample for the second study.

2. Interview with experienced therapists.(Study 2)

The researcher tried to identify and categorize the essential elements and explore their connections in clinical reasoning process in general**. A Phenomenological Approach** was employed for data collection as well analyzing the rich content of the interviews to develop a framework of reasoning in practice. This would be an "Explicit Theory" so forth developed that includes a set of concepts that would be organized into list form, or in hierarchy, or in a network of positional statements as when appropriate.

3. Multiple Case Studies (Study 3):

With a set of essences and conceptual categories defined in the interviews, Process-oriented approach (Maxwell 1992; Mohr, 1982) is utilized to follow the events within the reasoning process in a specified client context to show the decisions made and judgment. Variable-oriented approach (Ragan, 1987) is involved that deals essentially with the relations among Well-defined concepts. It helps to extract the commonalities of strategies, check against the framework developed, that applied in multiple cases.

The methodology and analyzing techniques are further elaborated in detail under each sub-study context.

Study 1

Title

Survey on local practices of occupational therapists in mental health service in Hong Kong

.

Background

In this study, I aim to draw from the philosophy and practice of experienced therapists the regularities of the predictive reasoning strategy and process. The language used would be dominated by professional jargon, and regularities of their experiences would probably be discovered as their professional context and practices are similar as long as it is comprehensible. Hermeneutic enquiry focuses more on the language and environmental aspects of everyday experience, the researcher deliberately detaches himself or herself from the task (Barnitt & Partridge, 1997). Therefore in this study, in order to achieve a non-biased comprehension of the interview and facilitate accuracy in data transcription, I deliberately detaches from the study process. As the researcher is also a senior therapist, although not in direct mental health services, personalized beliefs and interpretations of professional practice

would affect the reliability and validity of data transcription. To familiarize with the current professional jargon and practices through a snap – shot survey would enable the researcher to gain a new experience and attitude towards the area under study and minimize misinterpretation in data analysis process in the main study.

Objectives

To collect the opinion of practicing occupational therapists who have worked in mental health services at least for 1 year regarding their usual practice in recruiting their patients for vocational rehabilitation.

Questionnaire Development:

A 19-questions survey was drafted by the researcher and reviewed by a panel of 6 practicing therapists of clinical experience from 1 year to 12 years on its literal meaning and relevance to local practice in terms of language used, rating method and inclusions. After amendment, they were distributed among a group of working therapists in local hospital settings and Non-governmental Organizations (NGO) by posted mail. (Appendix. 1)

Sampling

The survey forms were sent to 110 local occupational therapists in their working places, enlisted by Hong Kong Occupational Therapy Association who claimed to have been working in mental health services in past 5 years up to present. The questionnaires, coded serially, were sent without filtering to all candidates by post. They returned the questionnaires anonymously either by mail or by fax. Deadline was set for a month upon posting.

Ethical consideration

In order to ensure the truthfulness of data entry and higher percentage of return, a page of brief account of my intention of doing this survey as well as the usage of the data collected were attached as the front cover page of the questionnaire. Further to this, the researcher had highlighted here also, the right of the participant that they could directly contact the secretary of the Ethical Research Committee, who approved this study, or the researcher herself, in times of queries or complaints against this survey.

Data Analysis

Descriptive statistics were used for frequency analysis of rated items as well as self-reported items. Implications for the design of this study are discussed and verified.

Study 2

Title

In-depth Interview with Experienced Therapists

Background

Interpretive phenomenological approach (IPA) is a way of studying the perceptions or experiences of participants in a manner which acknowledges the researcher's beliefs and involvement as an important mediating factor in the research process. Chapman and Smith (2002) suggest that IPA explores how participants make sense of their experience, events, and actions while simultaneously recognizing that the researcher's own concepts and beliefs are required in order to make sense of the personal world being studied through a process of interpretation.

A number of researchers have used data obtained from IPA to generate new models or constructs (e.g. Dahl & Boss, 2005; Fade, 2004). After analyzing the data, a number of themes and sub-themes can be obtained in the form of a narrative. The researcher then is able to attempt to understand and connect these themes in the form of a model. Finally, models of relationships can be constructed that provide references for other researchers intending to study similar phenomena.

Objectives

The study is to explore the general clinical reasoning process of experienced therapists in providing vocational rehabilitation service for clients with severe mental illness.

Sampling

The current research is based on a 'purposeful sampling' method, in which the participants were selected using the criterion of relevance to the research questions (Willig, 2001). Because the research aimed to focus on experienced therapists that have been providing vocational rehabilitation for clients with severe mental illness, a sample comprising various locations of service rather than from major mental health hospitals are selected.

Rennie, Philips, and Quartaro (1988) stated that at the earliest stage of data collection, I's primary goal is to develop an understanding of what is most central to the phenomenon under investigation. The implication of this goal for initial data collection is that the researcher seeks participants who will likely to be able to represent the phenomenon. Moreover, the researcher makes no effort during the initial phase to assemble a heterogeneous sample; instead in the interest of promoting the emergence of interpreted commonalities among the participants. It is best, especially in the initial stage of the inquiry, to select a group of participants who appear homogenous with respect to the phenomenon of interest.

Inclusion and Exclusion Criteria

To form the sample of this study, it was started with a search to all listed professionals among major organizations involved in vocational rehabilitation for severe mental illness in Hong Kong in past 10 years, namely Hospital Authority, one vocational training centre for young adults and three NGOs serving over 90% of diagnosed clients. Invitations were sent to 110 therapists and only 3 occupational therapists and 1 social worker (who was working as in-charge of the supported employment service unit in 1 NGO) replied voluntarily for in-depth interview. For this study, it is operationally defined professional's expertise on the basis of their years of continuous experience in each practice area. The number of years with continuous experience' in a defined area of practice of no less than 5 years was recruited (in reference to the minimum entry requirement for specialist rank of local Hospital Authority).

In view of the small number of voluntary interviewees, the interviewees were requested to introduce another relevant candidate for the study. This process continued until the data became saturated. In this study, a good sample coming from different service locations of vocational rehabilitation were planned:

- Mental Hospital
- Day Training Centre

- Supported Employment Unit
- Sheltered Workshop

In order to improve validity of the data collected, other than occupational therapists, social workers were invited for interview as they were also the major mental health workers that involve in operations of employment services for clients with SMI in Hong Kong.

The number of participants in the qualitative study was not determined priori, but was guided by the data analysis process. Participants interviewed and subsequent case analysis proceeded until no new or contradictory findings were discovered

Ethical consideration

In order to ensure the higher percentage of return, a page of brief account of the researcher's intention of doing this survey as well as the usage of the data collected were attached as the front cover page of the questionnaire. Further to this, the researcher had highlighted here also, the right of the participant that they could directly contact the secretary of the Ethical Research Committee, who approved this study, or the researcher herself, in times of queries or complaints against this survey.

The Interviews

After the interviewees were identified, they were invited for a semi-structured interview consecutively.

Structure of the interviews

The current research employed a semi-structured interview method (Smith, 1995). Semi-structured interviews are used widely in phenomenological studies because of their greater flexibility, thereby enabling the interviewers to enter novel areas, producing richer data. During the interview, a set of questions were used as an interview guide, which were mainly referenced to the knowledge of me on a classical case management process that were thought to be related to the clinical reasoning process of individual therapist. This helped to involve the interviewees earlier to come into context. However, the interviewer was allowed to express according to their own pace and content, or to depart from the interview structure as long as it could facilitate the obtaining of experiences about the participant, rather than being limited by the pre-defined structure. Hence, the researcher conducted the interview in person to prevent deviance from the original subject and obtain the best richness of content.

The interview schedule was constructed around the main research question, "What are the experiences of the therapists in performing clinical reasoning for their clients in vocational rehabilitation work?" Besides obtaining basic background information of the respondents, the interview was structured according to the four major areas as proposed by the four research questions. The four major areas were: 1) reasoning framework, 2) process & procedure, 3) skills and competence, 4) perception of client's success and failure. (Appendix 2). The reasoning framework section included questions about their general beliefs and working standards. The process and procedures section questioned on their workflow and how they applied their reasoning framework in their daily clinical practice. The skills and competences section referred to questions related to their perceived abilities as an expert. Finally, the perception of client's success and failure section aimed to tap on their perceived effectiveness at work.

Through semi-guided interview format, it allowed flexibility in sequencing and wording of interview questions and allowed for additional phrasing to clarify specific participant responses. All interviews were carried out in the working place of the participants in which they could refer to any case notes or working files if necessary. All interviews were tape recorded with consent from interviewees at site. Follow up interviews, telephone calls, or

e-mails were used as needed to gather more data, test emerging hypothesis, and seek negative cases examples. All interviews were completed within two hours variably.

Translation & Transcription

The scripts were recorded in the original language of the interviewee. For most therapists in Hong Kong, they are well educated in writing and speaking in English fluently in daily clinical work. However, in articulation of feelings and description of experiences, they usually prefer to express in mother-tongue of Cantonese. In order to avoid mistakes in interpretation during repeated translation processes, the researcher proof-read the transcribed scripts that were completed by a professional Chinese audio-typists and the researcher then translated the data. The whole scripts in both languages were then proof-read by the interviewees. The interviewees were invited as expert panel for verifying the translation process. Excel software is used for verbatim coding and analysis

Summary of Research Design

According to Dauhl and Boss (2005), interpretative phenomenological analysis consists of four major steps. The first step is the coding of data. This is achieved by having researchers read interview transcripts repeatedly until they get a general sense of the participant's experience. The second step involves the identification of 'meaning units'. These units

represent a psychological perspective on how the phenomena are being understood. Third, the researcher evaluates the units in the attempt to obtain a deeper psychological insight into the units and to synthesize the units into larger sets of units. The final step involves the production of a 'structure of experience' in which the researcher synthesizes the units into consistent statements (Dahl & Boss, 2005). A summary of the process of data collection and analysis in this sub-study was shown below (Figure 2).

Pre-structured Case Approach (PCA) (Miles & Huberman, 1994)

In view of limitation of time and the research questions of this study are well specified, a 'quick and clean' way to focus and streamline the data collection method and analysis was employed here in this research i.e. Pre-structure Case Approach (Miles & Huberman, 1994)(Figure 3). It was more important in multiple participant studies where comparability across cases was critical for warranted conclusions than overloaded with huge volume of scripts of data. In Figure 3, it showed how this procedure differs from the more traditional one. Both are iterative, but the fieldwork in the pre-structured case was driven by the outline, the emerging conclusions, and the report draft itself. The process of data analysis went on throughout the research from the first interview and observation to the last.

Figure 2. Summary of research design

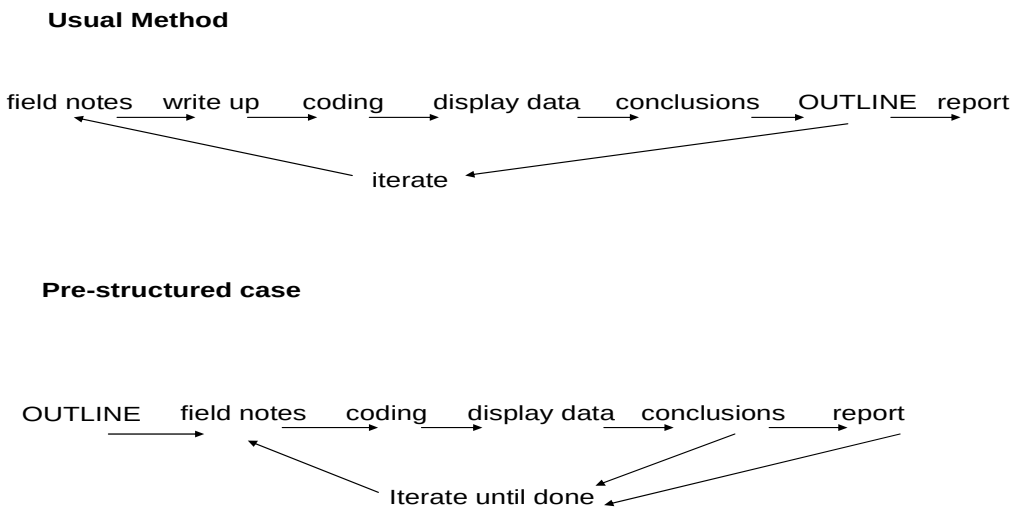


Figure 3. Traditional Analysis Sequence Compared with Pre-structured Case

In this study, the researcher developed a detailed conceptual framework (Fig. 1 in p. 56) and a set of detailed research questions (p. 17), and a clearly defined sampling plan, these forms a pre-structured case outline framework (Table 1), developed before any data were collected.

Table 1. The Pre-structured case outline

1. The screening / recruitment
    a. Time
    b. Content
    c. Venue
2. The stages of prediction
    a. Workflow or system
    b. Explicit triage criteria
3. The predictive cycles
    a. Factor analysis / weighing
    b. Structure and Priority
4. External factors
    a. client interactions
    b. environment
5. Exceptions / Negative cases

The pre-structured case outline, when completed, includes detailed data displays, as well as narrative sections accompanying them. The outline was, in effect, a shell for the data to come. Over several rounds of field visits, the researcher filled in successive drafts of the case, revising steadily; the final version of the case was ready shortly after the last field visit. Following the detail interview questions, the researcher has formed the outline from the first case interview. The aim is "to drive the data collection by the anticipated product" (Miles, 1990). The researcher then, knowing what the case has to look like, and further collected the data needed to fill in the shell. Specific data displays (matrices, organization charts, etc) were designed in advance.

Data Collection and Analysis

With the pre-structured case outline clearly in mind, data analysis began with the first round of data collection. The raw field notes were coded without being transformed into write up notes. Computer software Excel (MS office 2000) was used to store data in numbered lines with each sentence in one line to form 'unit of datum', or in repeated lines when assigning to more than one code. (Table 2) This helped in translation work as well as ensured the richness of the data for maintaining the full essence of the sentence meaning

during coding process. Besides, Excel provided quick search of datum in order of categories or themes.

Table 2 Excerpts of data display and coding in Excel format.

	Verbatim	Chunks	code	pattern code
1	Talk about the present method used here. When patients come here, I will use our professional judgment. Since they are day patients or our patients, I will more-or less watch their style, i.e. their motivation. To me, I feel	Use professional judgment to watch their style and motivation	mtv	work attitude
2	I believe in 'motivation'. In fact, I believe in human occupation model. Check for 'motivation'. Talk to them on their 'work plan'.	talk on their workplan	wkpln	work attitude
5	They don't know they have it or not. Initially when they come here, I observe their verbal response, reasonable or not, or / and how is their community contact. That means whether they are clear bout the present outside environment.	reasonable verbal response	vrson	Intelligence
6	They don't know they have it or not. Initially when they come here, I observe their verbal response, reasonable or not, or / and how is their community contact. That means whether they are clear bout the present outside environment.	community contact, clear about the present outside environmen t	com	Knowledge
7	BY our professional judgment, I know 10% to 20%. Of course I have to place them in the workshops to	observe their behaviour	beh	work attitude

	observe their behaviour. As we are OT, we observe punctuality, etc.			

The researcher reviews the coded field notes in form of Excel data table and enters data directly into displays of separate Excel tables named under each of the major Interviewing Questions (Table 3). This also helps in constructing their cognitive maps and decision trees later on:

1. What are the existing criteria and standards of recruiting an individual with severe mental illness in different levels of ladder in vocational rehabilitation?
2. What is the workflow or system for screening and assessment process?
3. What are the criteria of success in vocational rehabilitation?
4. How do the successful clients perform differently from unsuccessful client?
5. How do they identify further training for under-performers?

Accompanying analytic text and conclusions drawn from the displayed data are written. There are instances of missing or unclear data, and of unanswered research and interviewing questions. This provides the targets for the next round of data collection and allows entry of data from successive case while comparisons are possible in the Excel table displayed.

Table 3 Excerpts of data display and memo writing by Interview Questions in Excel format

Research Questions	OT1	OT2
1. What are the existing criteria and standards of recruiting an individual with severe mental illness in different levels of vocational rehabilitation?	Initially when they come here, I observe their verbal response, reasonable or not, or / and how is their community contact. That means whether they are clear about the present outside environment. **I believe in 'motivation'**.*(int. ref.)* In fact, I believe in human occupation model. Check for 'motivation'. Talk to them on their 'work plan'	Therefore, if a case with good social skills, they have advantage in finding a job, **disregarding educational level or others. I think this is true. *(int. ref).*** Especially that in SE where I know the companies. They select the cases according to some basic requirement. SO if all our cases meet these basic requirement, these companies will trust us saying whose performance is stable. If some case has better performance in social skill, it don't require us to put much effort in dealing with their people interaction problems.

This procedure was iterated until data collection done. Thus the process of data collection, analysis, and report writing were collapsed into one evolving procedure. With some experience, the researcher had a constant sense on being on top of the data, and remained open to checking and extending findings. Feedback from study participants were sought and incorporated along the way to verify and revise preliminary conclusions.

Coding of Transcripts

Since the researcher is not accessible for any professional software for qualitative research to assist in raw data management and multi-level analysis, Excel software was used to accomplish the coding process by the researcher alone through repeated reading of the translated transcripts. In current study, the thematic coding of transcripts could be summarized into three stages. The first stage begins with a detailed coding of the transcripts of the first interview. After the transcript was read for several times, similar experiences relating to or describing their clinical reasoning were coded.

The code system was structured from basic level to cluster level, i.e. from 'child code' to 'pattern code' to 'master code' to 'categories' and then to 'theme'. (Table 4) Each pattern code and master code represented statements in the transcripts with the same meaning, or phenomena. The coding continued with a detailed analysis of the statements in the transcripts. New pattern codes were generated until the full interview transcript of the first interview was coded. Reference was also made to the professional terms collected from literature reviewed and results of the survey (Study 1) that in turn being used as descriptors and codes at all levels as appropriate. New descriptors were added when succeeding data were analysed. In the second stage, the pattern codes were further examined.

Table 4 Excerpts of coding structure

code	Description	pattern code	master code	catagory	Sub category	themes
genbrv	brave to generalise	assertion	Intellectual abilities	thinking		Factors
confi	Confidence	experience	Learned abilities	thinking		Factors
negexp	negative experience	experience	Learned abilities	working	Negative marker	Factors
potential	general potential for work		prognosis	knowledge		Framewk
wkexp	work experience		sustain job	prediction		Process
profjudg	Professional judgment		professional competence	beliefs		Framewk

Clusters of pattern codes of similar nature were identified and grouped to form larger sets of master codes. These master codes were grouped further as categories. The categories then became a narrative account of the study phenomenon, in this case, the components of clinical reasoning process and descriptors of relationships among them. The third stage of the analysis began with the second interview transcript. The same procedure of analysis was carried out. A new code was formed if it was not previously found. The procedure continued with transcripts from another interview until no more new codes could be identified, i.e. data saturation occurred.

Saturation of Data

The extent of thematic coding of transcripts follows the rule of data saturation (Wertz, 2005). Wertz (2005) argued that "the nature and the number of participants cannot be mechanically

determined beforehand or by formula'. Data saturation occurs when no new themes can be identified in the participants. In this study, the coding of transcripts stopped when no additional findings of categories and themes could be identified from the interview transcripts and new data could only yield redundant information. In this study, data saturation occurred after the 6th interview. The total codes created were 247, 12 categories and 3 themes were identified in this study.

Data Interpretative Procedures

Within Case Analysis

The **within-case analysis** was performed by synthesizing data for each therapist from the interview and copies of case documents provided by the participants. Following the procedures as described under the phenomenological approach, the within-case analysis involves the evaluation of main themes, impressions, and statements or interpretations collected. The next steps for data collection in each case were also identified, and implications for revision or updating of the coding scheme were notified.

In this study, the researcher began with a finite numbers of ideas and interview questions; and constructed the Pre-structured Case Outline from the first case data. The researcher

took an initial cut at how some of these data might fit into the hypothesized process of predictive reasoning together to form the conceptual framework. Such a framework generated causal freight that the researcher believed happening during predictive reasoning process in our experienced therapists. It made guesses about which factors logically influence others, which ones were likely to appear together and which not, and which has to happen first for others to happen later (directional influence). This was a continuous work based on the conceptual framework that generate research questions, codes and sample of people, events and processes that give the framework a chance of working out. The researcher was alert to the factors that go together and that contrast with other factors, and they invited a closer look at something that might be underlying themes or patterns. All these steps meant that discrete factors were getting clumped into tentative families. If they turned out to stay in those families through successive data-gathering and analyzing cycles, they were good candidates for a "box" in the causal network or played some parts in the theory being generated.

Assembling fragments and coding of reflective memos

Marginal and reflective remarks were translated into pattern codes and master codes according to the complexity of chunk of ideas linked. In essence, they signaled a theme or

pattern that makes a difference locally. For example as shown in Table 5, OT1 revealed that 'motivation is a broad term that talks the overall style and attitude towards normal working as seen here'. This was later translated into a stream of factors such as "work plan" that later affected the key outcome factors such as "work attitude". Moving up another notch, patterns codes or master codes got extended into memos (Table 6). These coded data and memos would be pulled together in the Interim Case Summary (Table 7).

Table 5 Excerpts of datum coding and memo writing (file/OT1)

Verbatim (OT1)		chunks	RQ code	code	pattern code	master code	category	analytic memos
2	I believe in 'motivation'. In fact, I believe in human occupation model. Check for 'motivation'. Talk to them on their 'work plan'.	talk on their workplan	1.1	wkpln	work attitude	WP	factors	as she expect she can tap on the motivation (which is a more abstract thing) through discussing workplan with pt (is a concrete thing). I can view 'workplan' as reflecting or acting out of good motivation

Interim Case Summary

Base on the first interview transcripts, an interim case summary was constructed after the thematic coding process had been completed for the transcribed case (OT1) with 5 major categories identified, namely screening process, reasoning framework, factor weighing

process, key factors of client's profile, and exceptional or negative cases experience. (Table 7)

Later, a cognitive mapping process was performed to illustrate better the relationships of these categories for the first interviewed therapist.

Table 6 Category & themes development - Coding for memos and coded data

Verbatim & Memos	**Pattern code**	**Master code**	**Categories**	**Themes**
Self confidence, personal causation and interests are believed as 'can be motivated'. But not for value system.	can motivate	human	beliefs	Framework
No potential, no way to help!	exclude	human	beliefs	Framework
Insight is very important since I think it related to value'	insgt	human	beliefs	Framework
If the patients has no confidence, poor social skills, no contact with current work environment, no work skills, even lifting and carrying is not fit for him, how do you believe that this patient will be OK after the training?	profjudg	competence	prediction	Process
10 to 20 % failure in prediction, i.e., initially thinks that the patient is good and should be able to work, but result is different.	profjudg	Self efficacy	prediction	Process

Table 7 Interim Case Summary (based on file/OT 1) :

	Themes	**Categories**	**Master code**	**Memos**
1	**Reasoning framework**	Beliefs	Human Professional role Self efficacy	*1.* beliefs in human nature: *the value system; cannot be changed even after worked successful* 2. self perceived professional role & competency: *to help client to have a realistic picture of themselves in terms of occupational choice* 3. confidence in self prediction accuracy

		knowledge	Prognosis feedback	4. knowledge related to SMI patients characteristics & prognosis : n*ature of work provokes the symptoms. Job matching problems* 1. knowledge on changing job demands 2. failure because of symptoms . *3.* failure because of motivation. *No intention to upgrade although she has the skills, fear of stress and preoccupied with failure.* 4. Problem with goal setting on working,
2	Process	screening	Time	The assessment process for a SMI cases usually last for 2 weeks to a month.
			Content	collects data through interview, especially initial interview, further observation of their performance & characteristics in terms of behaviour , has a set of routine in assessing these patients 1. Self/setting - defined rules and regulations 2. Significant History 3. Assumptions 4. Standard Measurements 5. Observation Inferences 6. Weighing & Interplay of factors 7. Identify Choice and options 8. Review with clients 9. Decision 10. Intervention **11.** Outcome evaluation
			Venue	in the simulated workshops.

			Explicit triage criteria	Her process mainly focus on 2 objectives : 1. *to screen out those ready for work* 2. *to screen out those have potential to work through some training* She arbitrarily classified them into 3 levels, non-trainable, trainable and need not be trained (*good enough for trying open employment directly*).
		Concerns of Environment		5. referrers / doctors expectation 6. therapy facilities
4	Process	Key factors / categories of personal characteristics	Motivational factor	1. motivation is a broad term that talks the overall style and attitude towards normal working as seen here 2. as she expect she can tap on the motivation (which is a more abstract thing) through discussing workplan with pt (is a concrete thing). I can view 'workplan' as reflecting or acting out of good motivation 3. to differentiate lazy and no confidence is important as in-confidence can be changed and the other cannot 4. related to workplan & motivation to work; skills is not a factor of motivation
			Insights	1. insights related to highly deprived and lose contacts for many years. Not knowing current norms of value for money 2. fake about their own strength and weakness, may be due to insight problem, reasoning, judgment or fear of consequences if telling truth or simply a behavioural problem of used to tell lies 3. in ref. to human needs theory, this group have no urge needs to earn

				more money. 4. the better their insight, they will choose to stay in the comfort zone. 5. in ref. human needs theory; satisfy with patient role
			value system	1. cannot bear the consequences of failure 2. They have satisfied with present life quality. 3. liked to be cared 4. These are consider as factors affecting motivation 5. related to their perception of life roles 6. they are learning from their past experience that they are poor performer c.f. others; and they believe in that and become their own thoughts- learned deficits
			family factors	1. family relationship carries unique influence onto mental patient 2. family members fear they will be fired 3. family fear of failure 4. family influence may affect the intervention process, not a factor of motivation
			work skills work behaviour	1. work experience belongs to second level 2. self-awareness of own asset relates to Insight 3. punctuality is a form of work behaviour 4. trust relates to whether the patient is positive about people, friendliness and also sense of security; 5. more initiated
			learning and cognitive skills	1. follow order of case doctor 2. learn from positive example 3. learn from negative example

				4. realise different people address different things, not everyone can help them, or something cannot be known by some people etc. ie. Judgment of selection and relevance 5. they analyse the consequences of actions taken and choose the way they think effective - problem solving steps 6. aware of changes and seek opportunities to benefit herself 7. contribution of ideas related to offer help or solution 8. this relates to comprehension of verbal communication
3	Process	weighing factors	3 Levels : 1st level 2nd level facilitators	The characteristics that reflecting potential to work as assessed are of hierarchical structure that corresponds to the demand levels of the work placements that these SMI cases target. 1. OE & SE or lower have different consideration and hierarchy of factors 2. can or cannot be improved delineate first and second level motivation/ lazy/ value system is the first level; 3. community contact, knowledge about market and job requirement is second level. Confidence is the facilitator or second level of factors
5	Process	prediction	consent	the decision of whether to work or not mainly falls on patient's own decision, depending on how they see the needs of working in his life.
			Job Interview Job sustain Job finding	1. Social skills is the key factor for Open employment (OE) 2. social skills poor lower to Supported Employment (SE) 3. social skills is also factor for

				maintaining the job 4. possess work skills is a facilitator; speed of progress can be determined by the seek help behaviour
			Readiness to work	5. motivation means high readiness; skills comes next

Generating a Cognitive Map Variable List

Late during the data collection, it was ready to assemble the remaining pieces of the cognitive map. The first step was to generate a full set of mapping factors. It was to list all of the "events", "factors", "outcomes", "processes" and so on that seemed to be important and then to turn them into factors. The first list should be redundancies and over-differentiated. A list of core factors generated from the first interview of each theme was developed. (Table 8) Such lists typically combined "Constructivist" and "Conceptualist" approaches. Some factors came directly from the field (e.g. mental state, motivation, value system); others were there because the initial constructs from the survey or research questions oriented toward them e.g. insight, learning potential. In cross-case comparisons, the same variable was used to analyse further cases that the following situations were presented: (1) case-unique factors, (2) some factors were influential in most but not all cases. These were considered separately in finalizing the cognitive maps.

Table 8 List of factor generated under the theme 'Process' of first interview transcript (OT1):

Master code	Codes	Positive factors	Negative factors
Motivational characteristics	• motivation to work • workplan • lazy • no confidence	+ + 	 _
Insights	• highly deprived • lose contacts • value for money • realistic picture of themselves • fake about their own strength and weakness, • reasoning, judgment • fear of consequences • used to tell lies • no urge needs to earn more money. • stay in the comfort zone. • satisfy with patient role	 + + 	 -- -- --
value system	• cannot bear the consequences of failure • satisfied with present life quality. • liked to be cared • needs of working in his life. • perception of life roles • learning from their past experience • own thoughts- learned deficits	 + 	__ __
family factors	• family relationship • family members fear • family fear of failure		
symptoms and presentation	• Social skills		
work skills and habits	• work experience • work skills • self-awareness of own asset • punctuality • work behaviour • positive about people, friendliness	 + + +	

	• sense of security; • more initiated	 +	
learning and cognitive skills	• follow order of case doctor • learn from positive example • learn from negative example • Judgment of selection and relevance • analyse the consequences of actions • effective - problem solving • aware of changes • seek opportunities • contribution of ideas • offer help or solution • seek help behaviour • comprehension of verbal communication	 + + + + + +	--

The tactic here was to build a logical chain of evidence, a sort of "abstracting induction" (Duncker, 1945). It allowed guesses about direction of influence among sets of factors, and also informed about co-variation that need to check out in next interview or field study. A cognitive map was devised in the following steps taken:

- Reviewed the first specific case under study
- Translated the pattern codes into factors, that is, something that could be scaled (high to low, big to little, more to less)
- Rated the variable (i.e. high , moderate , low)
- Drew a line between pairs of factors that have some kind of relationship
- Drew a directional arrow between each variable that comes first (temporally) and these later ones it appeared to influence. Influence here means that more or less of

one variable determines to some extent the rating of another. The rating of the second variable might have been different had the first one not been there – a reasonable "mechanism" was involved.

- When two factors were covariates, ie. intervening factors, reviewed the full list of codes to see whether one fits here.

Following the above procedures, for the initial interview, a cognitive map was devised as illustrated in Figure 4. These fragment or cognitive maps were data based to stimulate thinking. This methodology was later repeated for other interviewed cases.

Figure 4 Cognitive map 1 (OT1):

Presumptions:

Assessment tools dissatisfying, use professional judgment only, not always reliable, local context affecting accuracy of prediction

Check for:

Lazy

Insight of disease → One of them identified → **Screen Out**

Illness affected behaviour

Symptoms

10-20% through interview (2-3 days)

NIL

Decision I **Stay for assessment**

Assess for Readiness To Work in 2-3 days

Value to work (High – Low)

Workplan (High – Low)

Financial needs (High – Low)

Decision II **All high >> Admit to Programme**

Identification of variables favorable to work

By observation in simulated workshops in 2-3 Ieks

Positive personality traits (Problem solving, EQ, Willing to help, More ideas)

General learning abilities

Learning attitude

Compliance to therapy (attendance punctual)

Like-dislike

Daily habits

Peer relationship

Social skills

Presentation and communication

Decision III **Placement** **OUT**

High potential	**Moderate potential**	**Low potential**
To competitive employment	With identified trainable components e.g. neg. experience, inconfidence	Job matching problem
Facilitators:		Low insight
Work skills		Long jobless
Work hx.		No contact
Less jobless		

Place in jobs

Cross Case Analysis

Cross-case analysis began when the main points and explanations were summarized for the within case analysis that were organized by theme and compiled. In the process of initial coding, comparison matrices as introduced by Miles & Huberman (1994) were constructed to compare properties and dimensions among therapists. (Table 9) Comparison matrices were an analytic tool used to visually display data in a systematic way so that core themes could be derived through repeated coding process, namely Reasoning Process and Reasoning Framework. Five major categories developed from the first interview were set as backbone for other following interviews data to add on if there were new or elaborated in its content if more in depth explanation or description were obtained. Finally twelve categories were confirmed from the cross cases comparison matrixes when all interviews completed.

Table 9 Comparison Matrix to show adding of variables from sequential interviews

Themes	Categories	Sub-categories	Master Codes descriptions
Reasoning framework	Knowledge		Disease(OT4) Job / market demand (OT1) Prognosis (OT1) Levels of Placement(OT3) Feedback from stakeholders & clients (OT1)
	Beliefs	Positive Negative Failure	Human nature(OTI) SMI clients (OT2) Self efficacy(OT1)

		Facilitative	Professional competence (OT1) Pre-requisites for work: (OT2) Thinking Working Relating Family
	Environment		Medical/welfare system (OT4) Outcome expectations (OT1) Facilities and resource (OT1) Tools , Time, Venue (OT1)
Process	Screening / assessment		Process (OT3) Measurements (OT3)
	Factor analysis		Levels (OT1)
	Decision	Success Failure	Suitability for VR (all levels) (OT1) Work readiness (OT1) Job interview (OT1) Job sustaining (OT1) Job failure (OT2) Job matching (OT1) Client choice (OT1)
	Training		Compliance (OT2) Skills (OT4) Abilities (OT1)

Follow-up interviews, telephone calls, letters, or e-mails were used to gather the additional data needed to complete the matrices. In the last step, these cognitive maps and variable lists were taken out to the field for "Members Checks" (Guba & Lincoln, 1981), to get confirmation and qualifications of the core themes developed. A cognitive map summarizing the commonalities from cross case analysis were drafted.

Methodological Rigour

Trustworthiness

In qualitative research, the reliability and validity of the research is called the trustworthiness of the findings. (Lincoln & Guba, 1999). Lincoln and Guba proposed four operational means to define and ensure the trustworthiness of the research: credibility, dependabilitiy, confirmability, and transferability. Creditability concerns how accurate and correct are the data collected. In this study, proof-reading, memoing, and data triangulation were employed to increase the creditability of the study. Proof reading by participants was performed in each process of data transcription, translation and chunk interpretations. This process also provided an opportunity for the researcher to counter-check findings, as well as to search for and discuss disconfirming evidence. Moreover, data triangulation was used to increase the validity of the findings. Dahl and Boss (2005) have suggested that data could be enriched by information given by other members in the same context. For example, in the present study, the data collected from occupational therapist and a social worker managing similar tasks in a different organization served as data triangulation to increase the creditability of the research.

Dependability of the findings refers to the stability of the data. This is normally achieved by an inquiry audit, in which an external professional transcriber was involved, while the researcher act as auditor in checking the record before translation was performed. In this study, a systematic collection and storage of data enabled an audit trail possible to ensure that the interviews were accurately translated and coded. Moreover, the analysis of transcripts for phenomenological analysis method introduced by Smith et al, (1999) was a dynamic and cyclical process. In this research, constant checking and rechecking of earlier transcripts for evidence found in later transcripts was performed (Smith et. al., 1999). In order to ensure that as many master codes and categories of potential interests as possible were identified. A cycle of constant checking, self-reflection, peer review and re-phrasing of the categories and themes were repeated many times in order to ensure a thorough analysis of the transcripts. (Table 10)

Table 10 Re-coding of core themes on Components of Predictive Reasoning after members check

Master code	Consensus meaning
Screening	1. The selection process is important to reduce failure of clients after vocational rehabilitation. 2. The successful rate is moderate and beyond satisfactory with possible causes in ineffective training for SMI cases or wrong/nil recruitment criteria into vocational rehabilitation programme at present.

Factors selection	3. There is no gold standard of selection or assessment among professionals, but there are several areas affecting the professionals during the process of selection 4. These predictive factors are identified partly from literature and mostly from clinical experience. 5. They are focusing on all behaviours believed to be reflecting the predictive factor, categorized as 'thinking', 'working', and 'relating'. There are facilitating factors and failure factors also. 6. At present, there is no standard assessment process or tools for the above factors for selection of clients. They utilize assessments in the form of clinical observations. They set up simulated tasks in a structured environment or 'workshops' and require clients to operate within for at least few days to 2 weeks.
Factors weighing	7. Factors for selection are of hierarchical nature where some factors are pre-requisite for the next ones. It also serves to determine the level of vocational goals for clients also, e.g. Insight can help one deepen self-understanding. But I think this is not the most important factor , this is second level. Its related to the later stage of occupational choice. This can be remedied later. motivation is of higher level. 8. They rely on job-trial (on-site or off-site) to feedback to the client as Well as therapists on accuracy of the job matching process, and further guide their training needs or job alternatives. 9. They acknowledge the limitations of existing assessment for insufficient simulated tasks to assess problem solving, memory or attention etc which includes something cannot be observed, nor to provide attractive and level appropriate environment for young cases. This affects their accuracy in job matching.
Options generation	10. In selection of clients for vocational rehabilitation, they focus on their 'Readiness for Work' against different levels of job requirement, including competitive OE/ SE, traditional SE & SW.

	11. To predict suitability of client and set preliminary goals and intervention plan for different levels of service : a. Direct placement service b. Short term coaching for placement service c. Training for placement service d. Long term training for placement service 12. Factors for predicting success in job interview is different in partial with job sustaining e.g. Facilitator : attitude for criticism, community contact, eager to learn attitude Job Interviewing factor: social skills Job selection factors: fear of stigma, real problems being identified, insight on disease, active symptoms, younger and non-chronic Job maintenance factors: family expectation, role perception, aware to environment, dare to ask, cooperate with people, ability to take up information and instruction, social skills(predict first 2 weeks in job with boss and colleagues)
Client consent	13. In considering successful outcome, consensus is emerging. Client's wish is respected. 14. To force the client into unfit level of work is a negative factor for job quitting. 15. Professionals are using more time to talk with clients on setting 'goals' and work within their limits. 16. Preserve their mental state stability is prime aim of rehabilitation

Confirmability is the careful recording and handling of data. Confirmability in this study was achieved by peer review and memoing along the research process, thereby aiding in the researcher's theory development. During the interview process, immediate voice memoing during digital recording enabled me to obtain the immediate feedback and impressions of the

interviewee. These procedures increased the confirmability of the data collection and the accuracy of the subsequent coding and interpretation of the transcripts.

Transferability refers to the extent to which the findings in the research study can be generalized. In this study, due to the small sample size, findings cannot be generalized directly. Hence, the researcher further engaged the findings obtained in a third study – multiple case studies to verify its applicability and generalization in other similar cases in the current practice of occupational therapists.

Triangulation of Interview Data

In this study, triangulation was done by a vigorous verification process of Field Survey to invite another group of experienced therapists to provide a rating of agreement to the naming and clustering of the categories and themes so developed. Those with agreement index less than 7 (out of 12 therapists) were renamed or reclassified into new/another categories as recommended. Selection bias of researcher was minimized also. (Table 11)

Table 11 Excerpts of Agreement Index of 12 therapists (non-interviewed) to the coded categories :

Code	Agreement index of 12 experienced OT	Category suggested	Category assigned
a trusting environment	**8**	**6**	1
able but unwilling	**11**	**3**	3
always agree to others' criticism on oneself	**4**	**3**	1
assimilation of experience	**7**	**4**	4
Attendance	**7**	**3**	3
Attention	**7**	**1**	4
attitude to criticism	**8**	**1**	1
awareness to surroundings	**4**	**6**	4
basic life needs	**9**	**2**	2
behaviour change due to illness	**11**	**1**	1
behaviour under token system	**9**	**3**	3
being influenced	**7**	**1**	1
Boring	**8**	**3**	1
brave to generalize	**4**	**3**	3
can be persuaded	**7**	**3**	3
Chronic	**11**	**1**	1
Communication	**8**	**1**	4
community contact	**9**	**6**	6
Confidence	**8**	**3**	3
Cooperation	**5**	**6**	1
Coping	**6**	**6**	1

Ethical Rigour

Informed consent and the assessment of potential risk and benefits are two broad categories of concern in phenomenological research (Dahl & Boss, 2005). Interviewees who were

professionals volunteered their consent for the interview. The interviewees were encouraged to supplement their expressions with real case notes and clinical documents to show their workflow, with all patient data being deleted when given to researcher. All survey forms, audio-recordings, transcripts, and other related material were kept confidential and were preserved in a secure location under researcher's custody. Regarding the potential risks, it was regarded as risk-free in the present study, provided ethical review was obtained through the local Hospital Authority.

On completion of the interviews (study 2), the researcher achieved successful formulation of all essential components of 'predictive reasoning' from the rich data. Two products would be resulted:

1. Following the Variable-oriented approach, the construct, including the scope, nature and content of predictive reasoning process of experienced therapists would be transformed into a variable checklist.
2. Following the Process-oriented approach, the generated concepts of predictive reasoning in general case management would be transformed to a diagrammatic presentation of Model of Predictive Reasoning.

Further testing of these two products from study 2 was required in order to build a valid theory for enriching professional knowledge and clinical research and applications. Hence, the third study was designed to serve for this specific purpose.

Study 3

Theory Verification - Multiple-case study

Background

In this study, the researcher used a multiple-case design since the researcher continue to draw correlations and evidence from a series of observations and scenarios which may be too arbitrary or incompletely demonstrated by statistical analogies. (Yin, 1994). This strategy was used for two reasons: for theory building and for theory testing.

Firstly, case studies can provide contemporary descriptions of recent events (Gilbert, 2005). The theory is emerged in the sense that it is situated in and developed by recognizing patterns of relationships among constructs within and across cases and their underlying logical arguments. From study 2 in this research, the researcher has successfully identified a

generalized idea about a class of objects, attributes, occurrences, or processes that has been given a name that forms the building blocks to 'abstract reality'. This developed 'construct' or 'concept' needs a process to generate a coherent set of general propositions used as principles of explanation of the apparent relationships of certain observed phenomena, or what the researcher called 'theory'. In theory development, the level of knowledge expressing a concept that exists only as an idea or a quality apart from an object remains at the abstract level. To upgrade to ***Empirical level,*** the level of knowledge should be reflecting that which is verifiable by experience or observation (Maduli, 2003).

Hence, theory building from case studies is one of the best, if not the best, of the bridges from rich qualitative evidence to mainstream deductive research. It emphasis on developing constructs measures, and testable theoretical propositions makes inductive case research consistent with the emphasis on testable theory within mainstream deductive research (Eisenhardt & Graebner, 2007). They have highlighted the importance of complementary relationship in using both strategies in justifying theory building:

> "In fact, inductive and deductive logic are mirrors of one another, with inductive theory building from cases producing new theory from data and deductive theory testing completing the cycle by using data to test theory. Besides, since it is a

theory building approach that is deeply embedded in rich empirical data, building theory from cases is likely to produce theory that is accurate, interesting and testable. Thus, it is a natural complement to mainstream deductive research." (p. 25-26)

In short, from study 2 the researcher have completed the logical process of establishing a general proposition on the basis of observation of particular facts, and in study 3, the researcher completed by another logical process of deriving a conclusion from a known premise or something known to be true.

Methodology

In this study 3, the cases of occupational therapists were studied retrospectively following the two approaches.

- With a set of modest middle-range factors or conceptual frameworks, **Process-oriented approach** (Maxwell 1992; Mohr, 1982) was utilized to follow the events in a specified client context within the assessment process to show the decisions made and the outcome.

- **Variable-oriented approach** (Ragan, 1987) was involved that dealt essentially with the relations among well-defined concepts. It helps to extract the commonalities of strategies, check against the framework developed, that applied in multiple cases.

Three forms: Work Readiness Checklist (Table 9), the Cognitive Map (Figure 3 & 4) and the Partially-ordered meta-matrix (Table 4) developed from the data in Study 1 & 2 were designed for recording systematically the practice that most of the experienced therapists usually engaged in their case management.

Sampling

Twenty cases were collected from the pool of 5 therapists with 2 to 10 years of experience. They were required to present their case management process in detail when interviewed by researcher and together filled in the 3 analysis forms provided by the researcher. Case record with deleted personal data were copied and provided by case therapists for analysis. Verbal descriptions and clarifications were sought further from the therapists in case I has queries over the documents. These cases were analysed and displayed following the hypothesized Model of Predictive Reasoning (Fig. 1) so developed in Study 2.

Data Analysis

Within-case analysis : Composite Sequence Analysis (case level)

The display format for the case analysis employed in this part should enhance our understanding of the interplay among the conceptual factors (Merriam, 1998) as well as the thinking chronologies of the therapists in behind scene. A composite sequence analysis at case level, i.e. a checklist format was used (Table 12). Major processes involving in a general case management were identified from the first interviewer reported and formulated the checklist items as:

1. Significant History
2. Assumptions
3. Standard Measurements
4. Observations
5. Prediction
6. Choice and options consented from clients
7. Decision
8. Training/Intervention
9. Outcome

The display accounted for what the therapist and the client "do" and "think" under each of the above listed components of case management in chronological order had called for much data transformation by the researcher. Much condensation and standardization had been done to formulate the data ready for entry into this meta-matrix format. A mixture of direct quotes and summary phrases was used. In addition, informant's responses have been pooled and crudely scaled in order to achieve standardization of quantity or quality of therapists' input e.g. the priority of reasoning. The matrix summed up the process where the client went through, and at the same time, compared the work of therapist in response to the client's performance across each component of the work process. Hence, the logic of prediction and decision-making in a timed manner or chronologically were demonstrated.

A continuous and interweaving 'Predictive Reasoning' and the time points of Decision Making were identified. Hence, the detail showing the essential components of the hypothesized Model of Predictive Reasoning were generated and consolidated in case illustration. The trustworthiness of the 'Model' was confirmed and enhanced

Cross-case analysis: Multiple-case Partially Ordered Meta-Matrix

To improve the generalization effect of the Model of Predictive Reasoning generated in this research, cross-case analysis was performed. Meta-matrix is master charts assembling descriptive data from each of several cases in a standard format. Cross case analysis depends on coherent within-case information. Other than simply a stack of the case level charts, the entries were distilled and filtered to case-typifying words for the confirmation of factors affecting the continuous predictive reasoning work while adhering to the original professional glossary terms as much as possible so that it can be more recognizable by the practicing therapists. For example, within the identified component of the reasoning process of 'weighing of Factors' in study 2, the strategy being employed by the therapists in the process was to dichotomize all the factors related to the client into positive and negative ones. (Table 13) Scaling is applied by them in which they had given the strength of factor as High, Moderate & Low that accounts for the weighing of each relative importance in affecting their prediction on the 'Suitability' of the job being suggested, "Readiness for work" or the 'Chance of Success' in later job interviewing and job sustaining. Hence, a summary table of core categories on "Factors affecting the 3-staged Decision Making" of therapist in their predictive reasoning was generated and their inter-relationship was explored.

Table 12 Sample Composite Sequence Analysis (case level)

12a - Case management Axis

Case 1								
stage of rehab	Screening		Assessment			Training	Placement	Outcome
	M/48 - Schizo + Depress - 5 years of security guard - Hx. Of bad temper, fight with wife want to resume as security guard	Potential to work with good work hx, bad temper, need further observe,	WCST - learning borderline Valpar 10 - follow instruction and problem solving acceptable	PROS concrete wk exp, highly motivate to work, urgent needs for earnings	CONS dull looking, no confident, queries in control of behaviour	Training in OT dept for 3 month ; Improved after training in social skills & confirm behav. control Maintained good work habits	Refer to Patient Retraining and Employment service with 10 sessions training given	found a job as security guard, work for 3 months now, memory problem detected by boss, changed of duties
Therapist Work process	**Significant history**	**beliefs**	**Standard assessment**	**Observations and predictions**			**decision**	**prediction outcome**
		Respect client's choice of job.			dull looking, feel unable, query memory, wk habit & learning OK	Job sustain OK: he likes the job, he needs the money for family, work makes him feel useful	Can try OE Go for SE if failed	**Successful**

Decision I	Decision II	Decision III
Recruit to VR	Not ready for direct OE Training and SE Placement	Adjusted to try OE Refer to Patient Retraining and Employment service for OE placement

12b. - Therapist Prediction and Decision Making Axis

Table 13 Sample multiple case partially ordered meta-matrix

Cross Case Analysis

Factor Study

Potential for Success for Work Rehabilitation

Therapist No.	Case no.		HIGH		MODERATE		LOW	
			pos	neg	pos	neg	pos	neg
A	BC-1-M48		motivated to work	feel unable	willing to accept advise			memory problem
			financial needs	no confidence	cooperative			
			concrete work experience	dull looking				
			normal appearance	hx. of uncontrolled temper				
B	BC-2-M52		motivated to work	off work for 15 years	cognitive fx OK	dislike people		denial psychotic symptoms
			financial needs	fair appearance				fake about habits
			willing to accept offers	poor hygiene				
			insight on ability					
			realistic goal					

Counting is also another method to show the coherence of the factors and the level of consistency of the factors among the caseworks. Graphic display was shown. By looking into the "doing most" responses, the researcher tried to catalogue them by looking for an inclusive gerund, something that would yield the underlying activity or concepts. A summary table or bar chart was also constructed to denote the frequency counting of the factors from the 20 cases presented from all therapists.

Summary - Generation of theory

To be credible the theory must have 'explanatory power'. Categories are connected with each other and tightly linked to the data. In this study, the researcher did not just describe static situations but also takes into account the dynamic processes in the setting under study. Glaser & Strauss (1967) state that two types of theory are usually produced in qualitative studies: substantive and formal theory.

> "Substantive theory emerges from a study of just one particular context, is very useful for researchers in the profession. It has specifically applies to the setting and situation studied. It means that it is limited. Formal theory is generated from many different situations and settings, is conceptual and with higher generality." (p. 156)

In this study, the theory generated was a substantive one, which had specifically verified and had merits towards the practice of occupational therapy. The quality and content of experienced occupational therapists' predictive reasoning was explored and described in detail. Other factors, both intrinsic and extrinsic, that predisposed to cultivate this way of thinking process and learned skills were enlisted. Through integration of these

components, the inducted theory was denoting a way of predictive reasoning that was potentially helpful to the therapist in making clinical decisions.

Chapter 4

RESULTS - REASONING FRAMEWORK

Recapitulation of Research Questions

The purpose of this study is to uncover the experience of doing predictive reasoning of occupational therapists in their daily practice. Specifically, the following questions have to be answered:

1. What variables are influencing their predictions?
2. To what extent as they perceive themselves as effective in the reasoning process?
3. What are the perceived critical components of the process?

The results of this study would be presented through two chapters. To answer the first and second questions, this chapter provides a description of the results of the study that related to the 'Reasoning Framework' of predictive reasoning which the researcher tried to comprise all the variables influencing their prediction into a collective concept. In the next chapter, a detail analysis and formulation of a model of practice from the results would be presented in answering the third question.

Introduction

In this chapter, the first section presents the reflections from the profession wide survey on exploring local practices. The second section details the results of the analysis of the interviews in an attempt to construct the model of reasoning framework of the therapists.

SECTION 1

The Survey of the common practice of occupational therapists working in mental health service in Hong Kong (Study1)

Results

Demographics: The response from the therapists was over 50% return rate. Fifty five therapists returned their questionnaire. Their average 'year of practice' in mental health service was 11 years. 98% of them were working in hospital.

General practice: 76% of them reported to have a structured screening system in their working place to screen their clients for vocational rehabilitation programme. The highest frequency of usage among the current methods or instruments for assessment was clinical observation (100%), followed by norm-referenced simulated work samples with standardized assessment

procedures and scoring method (67%); then come to the checklist type of assessments which also require clinical observational skills including Chinese Functional Needs Assessment (FNA) (55%) for scoring their basic functioning in daily living (Law,1999) , Neurological Cognitive State Examination (NCSE) (45%) for screening their cognitive functions in daily living (Fong, 1999), Chinese Work Personality Profile (CWPP) (18%) (Chan, 1998) and Workshop Behaviour Checklist (WBC) (13%) (Tsang & Ip, 1997) (Table 14).

Table 14 Frequency of usage of non-standardized & standardized assessment tools

N=55	Non-standard assessment (%)	Standardized assessment (%)
Workshop observation	100	
Valpar samples		67
Functional Needs Assessment		55
Neurological Cognitive State Examination		45
Chinese Workers Personality Profile	18	
Workshop Behaviour Checklist	13	

Reasoning process and components: Out of the assessment process, the priority areas of client's performance for consideration in recruitment into vocational rehabilitation programmes were 'motivation to work' and 'attendance to occupational therapy sessions'. (Table 15) They also reported a list of unfavourable factors observed from clients that they would certainly reject them from vocational rehabilitation programme were 'not attending occupational

therapy session regularly', 'poor motivation', 'poor perception of benefits of work', 'problem in insight', and 'unacceptable level of cognitive function' in priority. To elaborate more on the cognitive functions as described, they reported that the following areas were important for assessment in priority with percentage of agreement among respondents (in brackets), including attention(91%), memory(73%), reasoning(65%), judgment(51%), and language communication(44%), orientation(36%), language expression(33%), practical intelligence(18%), construction (13%), and calculation(13%). They also listed, in addition, the following areas related to cognitive functions that are relevant for considering in assessment for potential to work. They were: ability to learn from others, executive functions, social cognition, ability to follow instruction, frustration tolerance, ability to generalize, learning style, intelligence, mental flexibility, motivation to learn, non-verbal communication, optimism, problem solving, and divided attention.

Table 15 Priority factors in recruitment of patients into VR programme

N=55	Total Frequency (%)	Relative Importance (%)
Motivation	91	31
Attendance to OTD	64	38
Work history	45	7
Perception to work	44	5
Insight	38	4
Age	25	4
Cognitive functions	53	2
Work habits	55	2
Work plan	45	2
Mood	35	2

Physical tolerance	18	0
Social skill	9	0

Self efficacy in predictive reasoning: 60% of them reported to have confidence in the accuracy of the assessment. 62% reported to use standardized instruments in the assessment process although only 49% of them felt the instruments reliable and convenient for use.

Findings and Discussion:

Several important phenomena of current practice of occupational therapist were reflected directly or indirectly from the survey results. Firstly, 'Observation' was the general way of assessment format that were employed by all therapists at work. However, from researcher's perspective as a senior therapist, the reliability and validity of observation of clients' performance usually depends heavily on experience of the assessor, degree of simulation of the environment where clients were actually demanded in a normal work place, and length of observation period where clients' average performance was fully elicited and recorded. Hence, these extrinsic factors might affect the quality of clinical reasoning of therapists to certain extent. These would need further clarification and reflection from the interviewees later.

Secondly, standard assessment instruments that were commonly quoted for supplementing their clinical observations were in fact, infrequently used. Moreover, in view of the wide spectrum of factors to be observed within the scope of assessment, there were no golden rules, well established logic or mathematical models communicated explicitly in the survey that were used by the therapists to predict or make decisions in their process of work.

Thirdly, although no standards were expressed among them, commonalities were found in what they concerned most form the clients performance and their priorities were agreed in quite a high degree. This added to the demand of this study that some logic or reasoning were present among the experts that only through consolidating, visualizing and verbalizing their experience, could their expertise be contributable to the existing knowledge base of clinical reasoning in this field.

Other then these learning points, the survey results provided some focuses of interview questions. Firstly much clarifications and exploration would be spent on 'workshop observation' as it was revealed from the survey that it formed the integral part of data sources for their clinical reasoning. Secondly, the gaps of information that they could not gain from the standardized assessment tools would be explored as half of them reflected these were untrustworthiness for prediction. Thirdly, more attention would be paid to the nature and

definition of the feedback that they gained from past experiences that empowered them with confidence and competences in their predictive reasoning in daily work. Besides, from the listing factors and also the suggested factors collected from the questionnaire, a potential pool of codes was formed and be useful in data coding process in the interviews.

Through this pre-study of survey, it served the original purpose of the pre-study that the researcher would have a new learning on the area under study and eliminated the pre-conceptions of the researcher in data handling and interpretations in the studies that follows.

SECTION 2

The Reasoning Framework

In this section, it would describe the findings related to the theme of Reasoning Framework which all of the therapists interviewed put much emphasis in their conversation and significantly identified from the rich data collected. It is important to this study as it was interpreted here these are the variables that were affecting the whole process of predictive reasoning insidiously. And through their self reflections on their own cases, they made conclusion of the effectiveness of existing practices and ways of improvement.

Background of the informants

In this study, a total of 5 occupational therapists working in different locations and 1 social worker worked as manager of a supported employment (SE) unit of a major NGO consented to be interviewed. (Table 16) The social worker, being the major employer of the clients with SMI being trained and employed in their SE units, was sampled aiming to act as a good source of triangulation for the validity of our findings from the therapists.

Table 16 Demographics of Interviewees

Name	Working location	Post	Years of experience
OT1	Day Hospital	Unit in charge	15 yrs
OT2	Supported Employment Unit	Team leader	13 yrs
OT3	Acute Hospital	Vocational rehab unit i/c	14 yrs
OT4	Day Hospital	Unit in charge	14 yrs
OT5	Sheltered Workshop	Assessor	13 yrs
SW1	Supported employment service	Manager	5 yrs

Six semi-structured interviews were carried out with five occupational therapists working in different settings including psychiatric hospital, day hospital, supported employment unit and sheltered workshop. The informants have over 10 years of experience in mental health services. One social worker posted as the manager of the Supported Employment service of

an NGO was included to verify the coherence of service objectives and relevancy of the data within vocational rehabilitation.

I. Variables Influencing the Prediction

In this study, 3 major themes and 12 categories were identified. (Table 17) from which the model of predictive reasoning was interpreted and constructed. The details of the model and the inter-relationships of the themes and categories will be presented in next chapter. Variables affecting the prediction of the interviewees was grouped and termed as Reasoning Framework, which was one of the major themes identified from the interview data. 3 categories are interpreted: Internal reference, Knowledge and Environmental issues.

Table 17 Major themes and categories

Themes	Categories	Properties
Reasoning framework	**Internal Reference** **Knowledge** **Environmental issues**	**Personal to @ therapist**
Prediction	Suitability for VR Readiness for work Choice of jobs	Time-specific Hierarchical
Process	Screening Factor selection Options generation Consensus building Factor weighing Decision making	Cyclical Repeat at each prediction

Every therapist interviewed had her/his own developed framework of reference in interacting with clients and the environment. They were using their professional skills, knowledge, experiences, and beliefs to find out the actual picture of the potential of clients; and further on to generate the best consented choice. It was interesting to discover from the study that core categories describing their framework of practice were quite homogenous. Their predictive reasoning strategies were built on this framework of reference. The framework could be arbitrarily separated into three areas: presence of an internal reference, knowledge and concerns to the environment. (Figure 5)

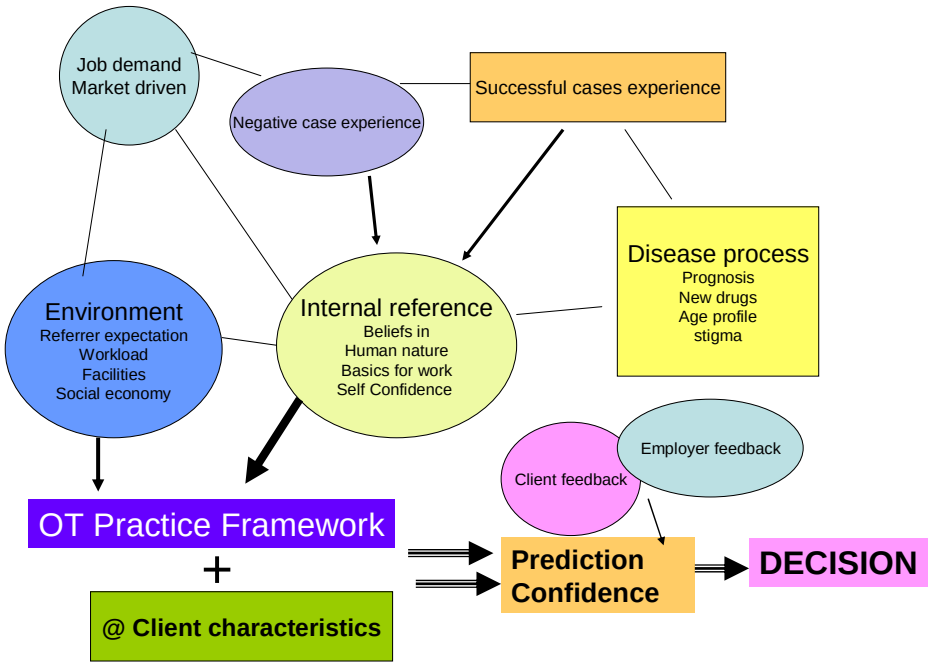


Figure 5 Factor Diagram of Reasoning Framework

Assumptions and Beliefs

It was identified that the assumptions underlying the Predictive Reasoning was that the therapists had a positive and committed attitude towards their clients and are aware of the importance of identifying clients' needs and choices before making clinical decisions and implementing possible interventions.

They were found to **believe in their professional competency** to help clients to return to work. They expressed their views as follows:

1

OT5	1	*My belief is that human nature is good, every person want to improve oneself. This is true even for mental patients. But if you talk about motivation, as you suggest…I would also analyse for him that, in fact, he also wants himself to be good, but there should be something that stops him from getting a step forward. I will* ***focus on finding out what this barrier is. And see if I can solve it.***
	124	*I are doing rehab, I have to* ***help them to maintain mentally stable.*** *They have certain level of workability. I hope to build up their workability. They may have a job before and deteriorated due to the Mental illness. I think at least I* ***bring him back to try his previous level****. Total failure, I never think of this question.*
OT3	90	*This is our role in our training. If the case can do everything, it won't need me. Just because they cannot do it, I can help him to justify that the can set their goals. The whole process is* ***help him set the goal and help him realize the goal.*** *To let the case review his ability is important*

OT4 24 *My role is to **provide chance for them to explore their ability and see whether he can work.** But at the end, if he insists to find that kind of job that he is not capable, then it is difficult for us to help him.*

It was described in this study that the Reasoning Framework was subjected to modifications, enrichment and elucidation whenever changes occurred in the environment, either extrinsic or intrinsic to the therapists.

Internal Reference

Internal reference of the participants is referring to their beliefs and knowledge related to mental health practice. **Personal beliefs & assumptions** varied among different participants, in terms of their personal upbringing as well as the effect of cumulative feedback from their experience in daily encounters at work or off work environment. The major areas from master coding were:

1. human nature, traits of clients with SMI
2. basics or pre-requisite for a person to work

A. Human Nature & Traits

They developed own perception of the human side of clients with SMI with definite patterns of **behaviours and traits**.

2

OT5	*21*	*I think the MI case has **deficit in assertiveness** or use other better term. I think they are too easy to agree with other's criticism on them. I think many MI cases have relatively **lower self image and confidence***
OT5	*80*	*For some case, I expect them to be like that. They **want themselves to be perfect**. They will feel incompetent just for minor problems in doing the job.*
OT1	*28*	*I find that, …., in this setting, the male patients who are on CSSA **Even they have the skills, they are unwilling to work***
	29	*The male group is worse. The **female group has better motivation***

They believe that **value system** in human could not be altered, and so does the SMI, but you could change their interest by providing appropriate incentives, e.g. financial needs. They also believe that every person, including SMI, **wanted himself or herself to be good** but may lack opportunity to make choice.

3

OT2	*14* *15*	*Every case **has its own dreams.** I call it dreams not because they are impractical, some are achievable. But it may be in the future and not suggested by therapist to take this step at this stage.*
OT1	*40*	*Their **own wish** is quite important. Of course, the younger group is more willing to change, that means easier to re-motivate them.*

OT1	*95*	*So **'Lazy'** represents good potential or no potential? **No potential, no way to help**! This intrinsic thing is deeply rooted…. I tried my true feelings for you and you cannot be changed, then you are helpless. So **lazy that the value system is so deeply rooted that cannot be helped***
OT5	*121*	*Firstly, I think to succeed is to reach what they want, of course, what they **want is really very low level.***
	122	*So **they don't have the chance to walk up there and don't know it's so good.** I think after he Int up and have a look, they may choose a lower level living, just to maintain their basic living, most important is maintain mentally stable.*

B. Basics for Return to Work

Goal is believed to be priority for a person to consider to improve and to work.

4

OT3	*71*	***If he has no goal, he cannot work.** You push him for a small step is meaningless. Even you can successfully push him to try SE, he will return and fail. His goal is not there, only just the therapist has done his job. He has no benefit.*
	74	*Therefore, in the process of active training, goal setting is very important.*
	75	*It is not simply to set a goal, but **to help him to know the way forward. You can say that I am assessing him**.*

They believed that for a person to return to his/her job. There should be some **pre-requisites or basic things to achieve** before consideration interventions.

5

OT2	*27*	*From our past case experience, those that are successfully find a job and worked happily are those with little education. They will try manual work or* ***don't care about what type of servicing work offered****.*
OT2	*100*	*I sometimes think that those* ***smarter groups are performing poor****, their* ***social skills are problematic. They cannot work outside.*** *But just a while later, they come back and said that they have found a job.*
OT4	*5*	*Besides, I have to observe their mental state. In fact, mental state has influenced many aspects. If their* ***mental state not good, you don't have to think about going to work.***
OT4	*7*	***How great his motivation*** *to search for job, willing to so the job or not… If he doesn't want to work, you don't have to bother him.*
OT1	*43*	*What's important is their* ***habituation of a certain lifestyle****, occupational lifestyle that they don't need to do any work, and is happy to be in the community.*
OT1	*47*	*They are accustomed to this way of life and* ***do not bother to change anything****, even if there is some change, they will loIr their expectations to shelter workshops. But some even refuse ….*
OT1	*194*	*For psychiatric patients, I always think that skill is not most important thing. I would* ***emphasize how their illness affecting their behaviour****. I always think that if they are willing to learn, they can learn. Of course, if their symptoms are too obvious, then it is not OK*

Without full understanding and **psychological preparation towards work**, the clients with SMI would not succeed in VR.

6

OT5	*25*	*I think it may be due to long period of unemployment. They **do not know the existing society**. Although they may have chance to work (under supervision), it is still rehabilitation, no matter in the hospital or shelter workshops. There is a certain difference with outside world.*
OT2	*13*	*Therefore, I are not doing simply a listing or matching of jobs. I are **doing something on their thinking process.** To let them understand what is the value of the job, its benefits and why therapists suggest him to do this but not others.*

It was the **human trait**, especially their **social performance**, more than the abilities or skills that cause failure or success at work. The strength of this belief affected their confidence to make prediction.

7

OT5	*16*	*If you say cleaning job, he should have the skills. Actually, cleaning skills is not that important as the demand is little. However, they cannot succeed either. It is not the problem in their skills. In fact, it is **the problem of their social aspect, to go along with other people.***
	19	*For the MI case, their **problem usually around accepting others comments, inter-personal relationships,** having heard others' bad comments on their poor performance. They will then frustrate or feel that they cannot do Well.*
	30	*They will sometimes exaggerate it, e.g. they are being scolded very loudly. It is because they cannot accept other's criticism, or they may think it usually happens often on them. If I say that they have some deficit on ability, it certainly is around this area. They are **weaker in social emotions & EQ** especially in adjustment to small changes.*

OT2	*43*	*In the training, I will understand our patients more. Not only for work skills. Work skill is important, but many companies accept brand new staff. They expect them to learn the work process. Therefore, apart from work skills, social skill is the most important. I can see* ***many cases working outside has major problem in social skills****.*
OT1	*370*	*For those who are usually unresponsive, not smart, are bound to be failure. Their trait is like that. So what I talk about is important* ***is to observe if there is trait like good in problem solving, EQ, willingness to help, more ideas. This is quite accurate to predict.***

They had more assumptions in their observations and interpretations concerning potential in returning to work. They talked about the **hierarchical nature** of factors for making prediction on the 'suitability', 'readiness' and 'choice' for job placement. And the higher level of factors should precede the lower level factors in terms of importance and strength in their reasoning process. Here are some examples.

11

OT3	*29*	*I use motivation and learning potential to include all things in screening. Motivation means whether the patient can change his condition.*
OT1	*238*	*Paying attention is important. Attention to the surrounding, awareness is important.*
	87	*That means for a patient with potential, he should have good attendance, good social skills before you think he can work.*
	32	*Then financial situation is one of the factor that is considered before considering going to work or not, no matter they have the ability or not.*

OT2	*186*	*Patient's self control of her own symptoms is very important. Some cases have delusions but they are not shown with problems.*
	110	*For the social skills, I cannot demand so high for the in-patients compared to the normal people level. However, some basic skills should be observed and requested in the hospital setting e.g. giving response.*
OT1	*122*	*Confidence is not an important factor for considering 'potential', but can facilitate a faster progress. These are facilitating factor, not determining factors .*
	139	*Besides social skill, to cooperate with others, to take up information is an issue. For example, when others tell you some information and teach you how to do things, if you cannot take up others' instruction. This is not a social skill. I think this is learning*
	142	*To cooperate is talking about readiness. Your willingness to share duties, how ready you are?*
	145	*Community contact is of minor importance. It is a recognition phase when they make occupational choice. If they don't know what job types are available in the market, they constantly are saying they want to be office assistant. Now there is no such job* .
	148	*The job market is different now. E.g. the pay is offered for what kind of input, they should have a recognition. Some may insist on their previous perception. But I think this is not the most important factor, this is second level. It's related to the later stage of occupational choice.*
	161	*Work skills has to be observed, but in not a criteria of not accepting them. If no working experience, then no work skills. Working experience is valid but only a consideration.*

OT5	*12*	*Firstly, I have to assess if he has the confidence that he can succeed in doing the job. Also he has the will to face the problems during work, as I expected that already. To see whether he is prepared psychologically to solve the problems that arose….. These are all psychological issues, psychological readiness is important.*
OT2	*84*	*Only that they have the motivation that they can perform Well in attendance and punctuality…..If he cannot reach these requirement, he cannot work outside.*

Besides level of importance, they have other strategies to use these factors in prediction and decision, namely assigning (1) **strength** to the factors as 'High or Low' and (2) **outcome** bearing as 'Facilitative & Failure' factors, and (3) ascertaining **success** in 'Job interviewing & Job sustaining' factors.

12

OT4	*3*	*How to decide who will go for SE or OE? How to draw a line? I have to observe whether they have energy to work, how great the energy?*
	6	*From my experience, their past work history reflected some information to us, eg. If their previous jobs lasted longer time, their chances for SE or OE will be greater.*
OT1	*88*	*I will see how poor their attendance is, 80% is OK. And I will see what caused poor attendance.*
OT5	*11*	*It really depends on my observation on job specific requirement. From behind, I will check his skills, see whether he wants to do the job, any confidence. May be he can do it now but cannot maintain the job. E.g. they may pass the interview and then work for only 2-3 days and quit. This is unsuccessful.*

OT2

50 *Many companies feel that our clients' attitude is not so good. Some companies employ our clients, they give the comment that our clients' work capacity not as good as the normal people, but they appreciate our clients eager to learn and work*

88 *But for obedience, it may be related to what I have talked about social problems. Under this aspect, you can find some cases who are bright but not obedient. He will argue back if you ask him to do something. Is he really following instruction to do the job?*

Although there were no gold standard as what the most leading factors to account for success in employment of different levels, **the scope and nature of clients performance to be assessed or observed were** invariably agreed to quite a large extent by the therapists. **One hundred and four such factors are mentioned** in the data grounded from their descriptions of the clients' performance on thinking style and abilities, working style and abilities, people relationship style and abilities, and lastly family influence. (Table 18)

II. Perceived Self-efficacy in reasoning process

Although they had no definite form for assessment, they **believed in their observation and interpretation made in the workshop environment** and they could pick up the bits and piece of hints to make prediction for the general performance of the client, at least to make recommendation on the level of VR. They were becoming more inclined to have **job trial** and let client to experience what they chose first.

Table 18 **Work Readiness Checklist for SMI** ***Code: Neutral factor ,***

Personal style	**Thinking style**	**Motivation**	**Interpersonal style**
daily routine	insight in disease	attend regular training	liked to be cared
Mood / symptoms	insight to change	motivation to change	Communication
Education	judgment	motivation to improve	offer help
Age	basic life needs	improve social status	verbal response
community contacts	goal directed	confidence	Assertive
appearance*	realistic goal	acceptance of control	**insight in people relation***
financial needs*	**inflexible thinking***	**initiation of actions***	**trust in people***
personality trait*	**perfectionism***	**self esteem***	**dislike in group***
patient role satisfaction*			**fear of people***
abnormal behaviour			socially passive
Lazy			
Work Style	**Work potential**	**Intellectual potential**	**Emotional Style**
insight in ability	work experience	general alertness	willing to accept offers
Insight to work	work history	general intelligence	**positive to accept comment***
off job period	work speed	attention	**seek help***
desire to work	work tolerance	concentration	**attitude to criticism***
worker role satisfaction	work accuracy	information reception	**feel unable***
work plan	specific work skill	processing speed	**able but unwilling***
willing to try	work stress tolerance	verbal reasoning	fear of failure
Cooperation	finger dexterity	verbal comprehension	fear of stress
follow order	knowledge about market	executive function	fear of change
eager to learn	knowledge about job demand	generalization of skills	fear of consequences
willing to share duties	**social skills ***	coping with error	submissive to criticism
persistence to work*	**relationship with boss***	decision making	low self expectation
	punctual at work*	critical thinking	fear of stigma
Family Expectation	**follow instruction***	**memory***	negative experience perception
family supportive	**relationship with coworkers***	**learning from experience***	Insecurity
family fear of failure	tension under supervision	**problem solving***	
family protection	limited job interests		

negative factor = (blue box) **** failure factor = red***

9

OT5	*130*	*I think this is a trial,* ***let him test his own abilities and interests.*** *This is also true to me. If I do not allow him to try, I don't know him also.* ***After the trial, I think he understand himself more.*** *I think it is seeding. At this moment, he does not want to go out. I have some case only use 1 month to go for outdoor project (SE), but some may use 1 year.*
OT2	*197*	*But those with moderate abilities, they see the need to be trained and improve their skills here in OT.*
OT4	*28*	*After completion of this preparation period, if he wants to go out to work, I will let him try and introduce him a job. I follow the SE programme to match job for him. After matching, I know the result in very short time.*
	29	*If he worked for few days but rejected, I analyse with him the reasons, talk more on his own problems. This is better because he* ***always complain the tasks here(in OT) are too easy and low demand, work pressure is small.*** *To go for outside job, it is different. To let him try and no argument is needed when results comes out.*
OT1	*376*	*I would say the behaviours are some pre-requisites. The environment here* ***provides a platform for us to observe*** *them.*

They developed self-efficacy in making accurate prediction in a simulated environment from their observations on human trait within a short period time. This **differentiated themselves from the novice therapists.**

10

OT1	*274*	*At present, there is no specific assessment. The only one that can be used is Worker Personality Profile. But I think the coverage is incomplete. It is not a direct measure and not covering all. But I cannot see that our conventional used tools can help in assessing these aspects.* ***Mainly depends on professional judgment. In fact, I think this is quite dangerous.*** *Just like apprenticeship. When I am free, I will talk with the OTII or observe how she handles the case, or* ***know only during our case sharing session****. But just like us, you can learn for these client types that I have here. If I work in a long stay ward patients, then you will have no chance (to learn other client type)*
OT4	71	*For new therapist,* ***I teach her to observe*** *the few things as previously talked in the workshop environment, e.g. problem solving, acceptance of supervision and instruction. Following the guidelines in CWPP like social skills, communication, presentation, control etc. I would tell him* ***to glance through these for knowing basic observations.*** *Then go deeper into details.* *But if other* ***tools that can help our clinical judgment is better****. The content is like a checklist of what I have mentioned. Yes, in behaviour or skill terms. IQ is useful as a reference so that I know to train up to his level is OK. But this does not affect my work in finding job for them.*

As revealed, they **relied mainly on clinical observation**, partly because of lack of useful tools in the field, and partly because of the limitation in the therapy environment. They are aware of the **short fall of existing approach.**

8

OT2	*195*	*Just as I have said earlier, I **cannot predict those things happened in the cases.** They may say to you that they have found a job already after coming back for 2 days.*
OT2	*201*	*However, I **may become too conservative** after seeing too much weakness of them. I always think that they are not ready. Therefore, I always remind myself to encourage them to try.*
OT1	*283*	***10 to 20 % failure in prediction**, ie, initially thinks that the patient is good and should be able to work, but result is different. Since we **are quite stringent** and I have to clearly sure about the patients before let him try to get a job. I **cannot generalize the cause of failure in prediction a**nd observation.*
	290	*I think it might **due to the symptoms.** I just place her in Disney Land. She is quite psychosomatic. Whenever there is new change, she has lots of somatic complaints. I gave her counseling etc. but she finally persists to day she cannot continue and feel too hard for her.*
	291	*Some **failed because of motivation**. One case who has tried sales in the Tai Wai shop for a prolonged period but she said when I phoned her, 'I want to quit.'*
	322	*In our service, I usually **miss their physical demands**. I usually emphasize their behaviour but missed this area.*

a) Knowledge

As a trained professional to work with SMI clients, they owned a sound **knowledge** background in:

1. psychiatric illnesses, the disease process, prognosis as well as the relapse factors. In working as a expert in vocational rehabilitation,

2. the job market, the changing demands and expectations from different level of placement..
3. knowledge from direct feedback from clients, the service users, the employers and family members.

Their knowledge were being continuously updated from new innovations in psychiatric drugs to new service model for clients with SMI.

b) Disease Process

They realized the clients' problematic and bizarre deficits in multiple areas including thinking, cognition, communication and self confidence that manifested **vast problems in going to competitive employment.**

13

OT2	*96*	*The smarter cases, the more argumentative they are. They have many excuses. This group usually late or absent. But* ***some of them really can find jobs outside****.*
	115	*They may or may not be able to improve their social skills in day hospital. If their poor social skill is due to their mental handicap, or due to the disease it is difficult, not relating to learning. Yes, it really related to the disease which is difficult to treat.*
OT1	*116*	*For those without confidence, they will refuse firstly. But they are willing to try if you persuade them few times.*

They also had the knowledge of their disease process that a permanent disability persisted for SMI patients and **to retain the stability of mental state was more important** than to promote their social ladder to return to work.

14

OT5	*128*	*What I have allowed them to try wouldn't result in increasing severity of their illness. Relapse is important. I won't allow this to happen. This is only a trial as long as he is willing to go. No one guarantee the result on trial*

They realized the clients may be **unreliable to make reasonable choice** or set goals and their insight towards own disease and abilities were questionable.

15

OT3	*48*	*He may have too high self-esteem. After he has the illness, he would think that 'if I go out to work again, I should not be able to do my previous job. Then it's better not to work' It's better not to work to avoid failure. I am bound to lose if I go out to work. Fear of failure, can't face the consequences.*
L	*80*	*Many people do not believe that the mental patients can set their goals, they are lazy. It is not a problem. If they are lazy, they can set a goal to shelter workshop. It is not a problem. You think he is lazy because you think he shouldn't go to shelter workshop.*
	89	*Many people believe in this. That is why I have to do some more things. They think the cases cannot set goals, I also believe that they cannot set by their own, require our help.*

From evidenced research, they realized the SMI patients were **trainable in certain aspect and** could be improved with younger age & better medication, that to **provide a well match job could improve the outcome** of the VR service.

16

OT2	*102*	*That is the miracle of SE. Some case you think is not OK but the reality is not. Maybe they are motivated to improve their*

performance somehow. I, one way, is to improve their performance. If they have one area of deficit, I see from the perspective of SE, to improve them is to let them reach requirement. The second way is to adapt the job to suit his ability. I have many cases who cannot wake up in the morning. I will introduce some jobs here that start work at 7:30 from Monday to Friday for part time job. These type of job certainly not suitable for that group as talked above. At the same time, I have one job that starts work at 5:30pm work for 2 hours a day. This is suitable for those with poor daily attendance and punctuality.

	119	*Therefore, I adapt the job to suit them. I choose a job type that require not so high in social skills.*
OT5	*55*	*I arranged him to do pamphlet dispensing. He is OK as the job is not demanding high quality function. As long as he is willing to do, wages paid to him every week. Immediate incentives for him would be better. This type of case does not require a lot of active rehab as long as he is willing to do this kind of job. I teach him some methods and most important is he can tolerate the hot weather and stand for few hours.*

c) Job market demands

Their knowledge on specific job demands and market situation could facilitate the job matching accuracy (YS)

17

OT2	*7*	*To be practical, I will review his work history and see what the job types he has done. And I also review what our SE team knows about the existing job market and job nature. BY matching these, I know whether the case can fulfill the job outside.*
	21	*For other jobs, like in computer network co. their successful rate is higher since I clearly understand*

		the job nature. But for others, I base on our general understanding on the job to discuss with the case
OT1	*309*	*TO review that cases who failed in job, my first question is to find out any problem in job-matching. As a therapist, is it that I don't understand the job nature before I recommend to the case, or agree the case to try. Am I wrong in this aspect?*
	313	*Since it is outside my control when she is actually in the working environment. Not only the patient, I should have good knowledge about the employment market before I can recommend to them. Therefore, sometimes, I will go also or I will ask the case if I think my knowledge is not enough. I will ask why she failed, and secondly, I will say something I don't know also and hope she can tell me. Then in the coming cases, I will bear in mind to consider some more things. So in this type of case, I will think if I missed some points concerning the working environment.*

d) Related environmental concerns

The therapists always reflect their continuous awareness towards their environment that was usually not under their control, e.g. economy and structure of current employment market of society

18

OT2	*38*	*In fact, the companies will not consider whether it is SE or OE, you introduce a person to come must be able to work……This is the Chinese HK culture. They expect a person introduced by us can achieve not too far below 100%. Therefore, if I want success, I have to train up our patients.*

Summary

The results presented in this chapter have defined clearly the inclusions of variables affecting their reasoning process, and at the same time, therapists revealed the high level of self efficacy in their existing practices. To summarize, the beliefs, knowledge and related environmental concerns was affecting and facilitating the development of the Reasoning Framework of therapists. These factors were changing as the world change, and so do our therapists. The reasoning framework, like the backbone of a plane, shaped and held the whole model of reasoning in therapists work throughout each journey of casework. Their implicit reasoning framework, therefore, will create their internal standards of "readiness", "suitability" and "choice" of job placement for their clients to work at a particular moment. In the next chapter of discussion, it would firstly be reflected in their explicit triage criteria, priority of predictive factors and further in their choice of work placement for the client.

Chapter 5

RESULTS - PREDICTION & DECISION CYCLES

This chapter provides a description of the results of the study that aims to answer the third research question as to identify the critical components of the whole reasoning process. A model of predictive reasoning was evidenced from the results and being successfully constructed be their inter-relationships as stipulated. It presents the generated model of predictive reasoning and its relationship with therapist's reasoning framework. Verbatim quotations from the transcripts would be elaborated that provided evidence for the substantive model.

III. Perceived Critical Components of the reasoning process

From the interview data, three main themes 12 categories were identified (Table 14, Ch. 4). The cognitive map extracted and summarized from the cross case analysis of the 5 respondents (figure 5) revealed that other than the theme 'Reasoning Framework' that was discussed in previous chapter, several common characteristics identified related to the

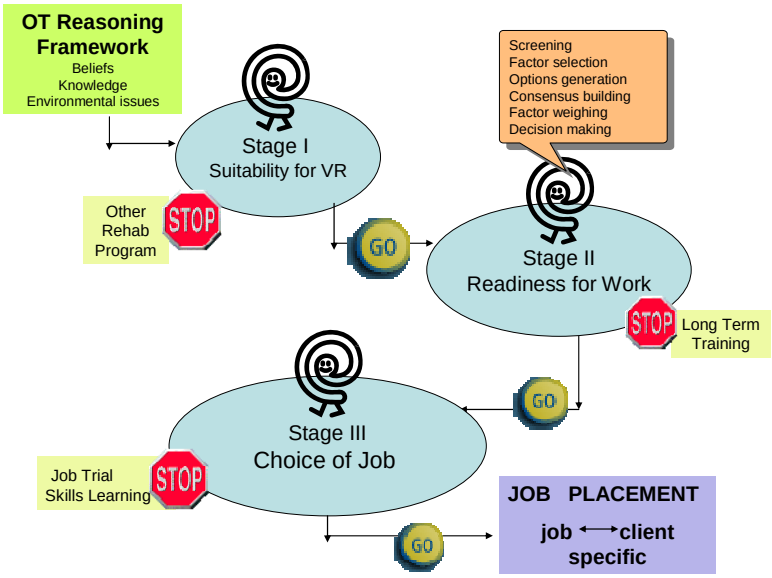
process of predictive reasoning among the respondents which the researcher collectively coded as themes of 'Process' and 'Prediction':

1. Prediction - It was a chronological process that one level of decision should be accomplished, and was the pre-requisite for another level of decision-making. 3 categories were interpreted namely: (I) Suitability; (II) Readiness; (III) Choice
2. Process: It embedded a cyclical process of thinking that they repeatedly perform to accomplish that level of decision making. 5 categories were interpreted namely: Screening, Factor selection, Options generation, Consensus building, Factor weighing & Decision-making.

Model of Predictive Reasoning

The model generated comprises of few critical components or core categories that were interpreted and viewed separately as Reasoning Framework, Staged Prediction and Decision Making. (Figure 6) However, they were believed to be interacting dynamically, affecting each other and continuously happening within the casework process as long as the therapist demands the necessity of using any of them.

Figure 6 Generated Model of Predictive Reasoning



It was described in this study as an open system where the Reasoning Framework was subjected to modifications, enrichment and elucidation whenever extrinsic or intrinsic factors changed in the therapist's environment. The Prediction Process, functioned like an engine of the therapist, performed its crucial role in the whole process of casework. Although it was fluidal and dynamic in operation, its component parts were solid and specific; and its performance depended on the will drive of the therapist within her/his own Reasoning Framework. Decisions being made at each stage of casework were products of the Prediction Process. The cycle of prediction process repeated itself, with varying choice of contents and considerations, to facilitate the establishment of the best Decision for that stage of therapy. Each stage of prediction was happening in a consecutive way and preceding the

next one in an ordered manner. No exceptions were found in this pattern of reasoning work in our sample as well as in the 20 cases reported from the other group of therapists. However, resembling one of the therapist's reflections of 10 % to 20% failure in prediction, 5 cases failed the prediction i.e. 25% in our study.

General Description

From this study, Predictive Reasoning in occupational therapist surfaced as a fundamental scientific, social as well as psychological process of ascertaining client best suitable choice in vocational rehabilitation (Figure 7). It emerged as a dynamic integration of the cognitive, psychological and interpersonal behaviours, which therapists adopted in order to decide on the best choice of clients in all mental health settings for vocational rehabilitation. Conceptualized as the major clinical practice of occupational therapist, the process of Predictive Reasoning involved a series of purposeful cognitive process through which, in interacting with clients and the environment, therapists use their professional skills, knowledge, experiences, and beliefs to find out the actual picture of the potential of clients; and further on to generate the best consented choice. It was through the process of Predictive Reasoning that therapists established a therapeutic relationship, provided the

platform for their intervention to support rehabilitation and to protect clients from vulnerability to harm and relapse.

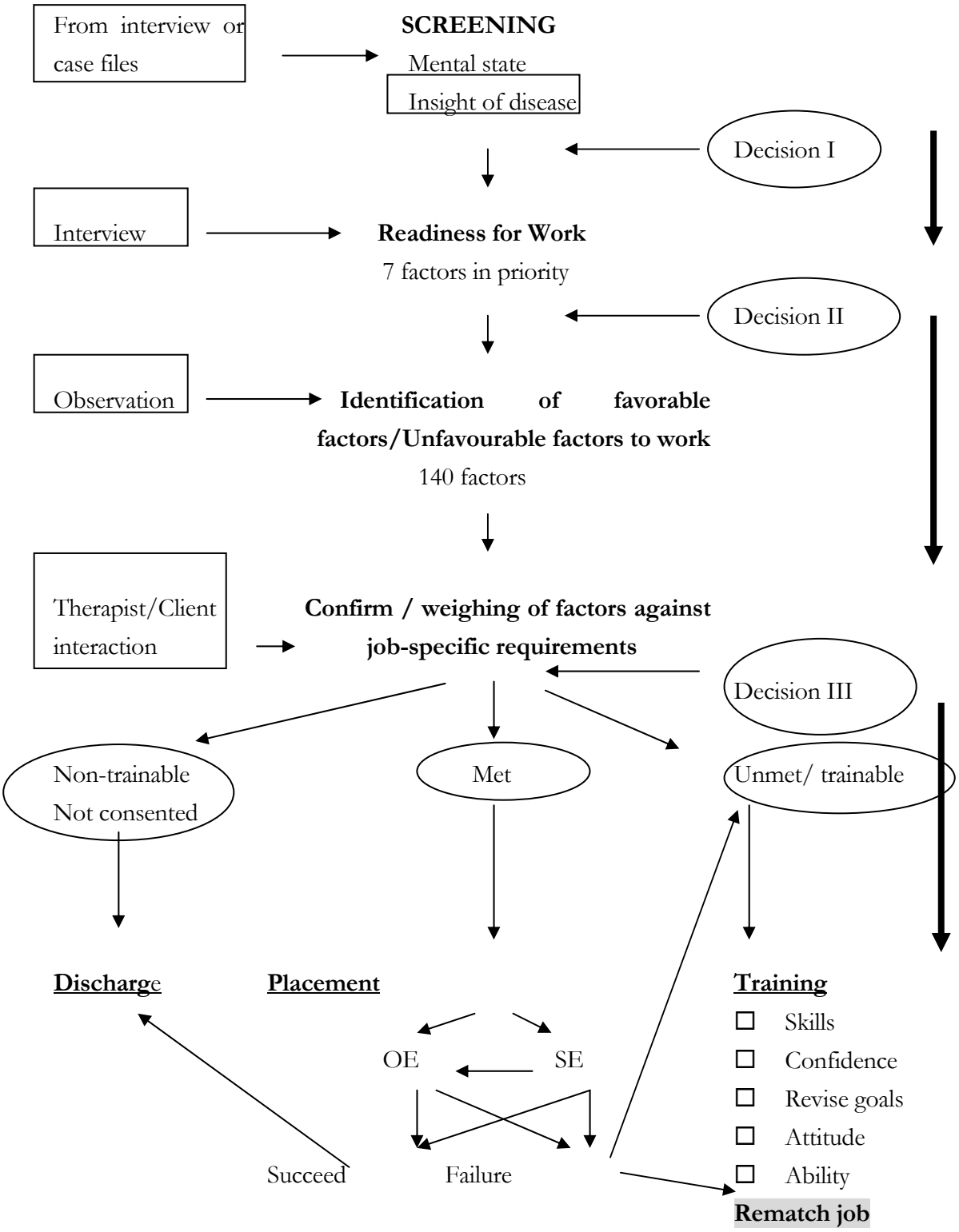
The assumptions underlying the Predictive Reasoning was that therapists had a positive and committed attitude towards their clients and are aware of the importance of identifying clients' needs and choices before making clinical decisions and implementing possible interventions.

Core Strategies

The components of the process were interpreted as the core categories. The process of predictive reasoning of occupational therapist in their casework was identified in the study as strategies to envision client's future, choice exploration and confirmation as follows:

1. Screening - Ascertain the client's current context
2. Factor selection - Identification of favorable and unfavourable factor towards work
3. Options generation - Determine preliminary goal
4. Factor weighing - weighing and Prioritize various factors against the desired goal
5. Decision making

Figure 7 Cognitive Map – Decision Tree Summarized From Cross Case Analysis



These strategies were working collaboratively with client, gaining their consent to proceed and choice of options happened throughout the whole process.

This process of Predictive Reasoning happened whenever the therapist involved in Decision Making for the client in each step towards their future plan to work; and during their recovery process from hospital to community phases of vocational rehabilitation service. The purpose, content and strategies of the predictive reasoning cycling within each stage of Decision Making varied. Each process of this cycle was a theoretically complete unique strategic behaviour. The processes were interdependent; each was equally necessary to ensure adequate and thorough ascertaining. If Process 1: *ascertaining the client current context* was incomplete, Process 2, *Identification of favorable and unfavourable factor towards work* was faulty, Process 3, 4 &5 would be impaired.

Three stages of Decision Making were identified in the study that was happening in sequential manner:

Stage I: Decision on Suitability for Vocational Rehab service

Stage II: Decision on Readiness to Work

Stage III: Decision on Choice of Work

The stages (in brackets) were identified from the explanations of the therapists:

20.1

OT5	*114*	*When a new case comes in, after the first interview, I have a preliminary plan (I). Then I place him in the workshop and intensively observe him for few days or a Iek. Then if I have a real job and place him in the job trial and observe, and I will have an initial view on him (II). To be conservative, I need 1 month to make a plan for him. Then I will talk with him about his motivation and the high value of the outdoor project (III). If I do it so intensively, I think I can complete it in a month.*
OT2	*1*	*For SE service, when an OT thinks that his case is ready who showed motivation during the interview and his level of ability is suitable for going out to work, he will be referred to us (I). I will then assess the conditions whether he will be placed to workshop or directly finding jobs for him(II). Variations may be when OT refers to us, he was ready, or he will be discharged soon, or our workshop cannot provide suitable training at his ability level as our workshop has certain limitations and can provide at most 1 -2 simulated training.*
OT3	*26*	*The point is that many cases were unsuccessful, there should be some reasons. In fact, unsuccessful can be due to our ineffective treatment programme, or secondly I have recruited inappropriate candidates. Therefore, I have to set a gate to classify who are suitable for active(vocational) rehab and who are suitable for other rehab programme (I)*
	100	*Since I have contributed myself to help him, to facilitate him as I have his work history and picture of illness. I therapist has an answer in our mind (I). Therefore, I think he can set the goal through the*

process.

OT1	*1*	*Talk about the present method used here. When patients come here, I will use our professional judgment. Since they are day patients or our patients, I will more-or-less observe for their style, i.e. their motivation.(I)*
	9	*And I observe how far their potential is, not so specific. But to see if this one is fit for work (I). Then I can screen a group that can truly go for 'competitive employment' (II). Between SE or OE, I will observe further (III). Another group is what I go for 'shelter', i.e. cannot go out to community. That has separated these 2 groups. This is what I usually do*
	80	*Since I have a trial day. Within the first week, I will see if his attendance is good or not, and whether he like or dislike. After the trail day, I will give him a locker key and confirm that I accept him here (I).*
	155	*I will accept them into this pool, if repeated (failure), they will be dismissed.(II)*

These staged-decisions might be performed by the same case therapist followed the client's whole recovery process, or it might be completed by different case therapists belonging to various settings providing vocational rehabilitation. They attended to the client when they were referred by doctors or case therapists of preceding phase of rehabilitation, e.g. case therapist in a hospital made the first decision that client is suitable for VR service and upon

discharge, refer the client to another case therapist in a day hospital. He/she then followed the staging to accomplish the remaining Decision Making process.

The processes of prediction and decision-making cycling in stages of the vocational rehabilitation programme were well elaborated by therapists also and will be presented here accordingly.

Stage I: Decision on Suitability for Vocational Rehab Service

This stage referred to the initial interview with the client for screening out the unsuitable ones, i.e. not yet ready for vocational rehabilitation in their course of disease recovery and also those lacked any potential to start working towards employment of all levels. It usually took few days to a week for the therapists to make the decision.

Strategy 1 - Screening

It was the first objective of therapists to explore everything about the client and examine his/her suitability for work at the current stage of recovery. After they received the referred client, they performed thorough interviewing, medical notes review, and supplemented by few sessions of observation or measurement if necessary. They expected to extract the

significant history of their disease, their social background, work history and observe for any factors indicating 'unsuitable'.

21.1

OT3	*48*	*He may have too high self-esteem. After he has the illness, he would think that 'if I go out to work again, I should not be able to do my previous job. Then it's better not to work to avoid failure. I am bound to lose if I go out to work.' Fear of failure, can't face the consequences.*
	77	*They have been isolated from the outside world for quite sometimes, how can they go out by themselves. They only rely on their previous job experience. Naturally, I ask a lot.*
OT4	*5*	*Besides, I have to observe their mental state. In fact, mental state has influenced many aspects. If their mental state is not good, you don't have to think about going to work.*
	8	*I assess him through interaction with him, ask his work plan and also observe his daily attendance, regularity and lateness.*
OT1	*67*	*When asking about their work plan, I usually will ask once at the beginning (of interview) to collect some information. As a start, I ask who is your case doctor? The doctor referred you to this day hospital. Do you have any expectations? How do you think it would be? To ask in general. I will then see if he has worked before*
	68	*And also look into his background and will ask if he is thinking about working on a job? Do you have any plan? Do you want to try? Or arrange anything?*

	73	*And they will talk a lot like: I think so, I want to resume work as a clerk. Some will say 'No, I just come to see..*
	31	*They clearly stated that I have enough with CSSA, enough for food and expenses, can play mahjong sometimes (gambling), come back here for meals. This is acceptable for me already.*
OT4	*39*	*They claim these as other people's problem. 'Why can't I take a cigarette during work? To have temper is normal, why can't I throw a temper at work?' Some cases even say these to me. They have no insight that these (behaviour) are problematic, their self-control is poor also. How can they return to work? The young cases which I receive here recently are all like that. I feel a headache to find jobs for them. This is their personality problem …..For these cases, no matter what I do for him, they can only get to this level.*
OT3	*71*	*If he has no goal, he cannot work. You push him for a small step which is meaningless. Even if you can successfully push him to try SE, he will return and fail. His goal is not there, only just the therapist has done his job. He has no benefit. …. It is not simply to set a goal, but to help him to know the way forward. You can say that I am assessing him.*

<u>Strategy 2 – Factor selection</u>

Therapists started their process with their beliefs concerning the 'pre-requisite for work' and possibly the polarity of essential elements pertaining to work. Three factors were regarded as 'pre-requisites for work' and described by them as (1) Mentally Stable, (2) Motivation for

Work & (3) Insight to disease process. Therapists expressed about the inclusive features under these headings:

Examples of Mentally Stable:

22.1

OT1 130	*In fact, being discovered as MI, besides being seen by their symptoms like self giggling and self muttering, problematic social skills is another cause.*
OT4 74	*Mental state as described by doctor is useful and I would delay them if unclear about this.*
OT1 182	*Practically, even if I have done Valpar 5 for him, his clerical skills is OK, but his behaviour is really poor. Then he is not fit (for work).*
OT2 186	*Patient's self control of his/her own symptoms is very important. Some cases have delusions but they are not shown with problems.*

Examples of Motivation for work:

23.1

OT4	10	*I can observe in a week, including his willingness to work and if he/she can work or not, for majority of them. Even if they say they can, it turns out to be negative.*
	38	*They have limitations in their ability, e.g. they easily forget what they are taught. They have deficits in memory, attention span, easily get lost track in conversation, cannot follow what others are talking about, lose concentration and*

		insight. They externalize all these problems as others problem. This is their attribution style.
	48	*For active work rehab, I have recently a case like this. I introduce her to do a job. She replied that I cannot do this job, it's too harsh, to stand for the whole morning is not OK, and being scolded is not OK. She has very poor memory and I think it is mainly her motivation problem. She has no motivation and don't want to work, I won't waste my effort.*
OT1	*2*	*I believe in 'motivation'. In fact, I believe in human occupation model. Check for 'motivation'. Talk to them on their 'work plan'.*
OT2	*70*	*If they have the motivation to work outside, they will understand. They are cases that have no motivation. They come here just for training. YOU can only push them a little further. Motivation is very important and should be very strong if they want to go out to work*
	72	*To assess their motivation, I have to define the motivation? I have many cases who are motivated to come back to hospital for training but if you ask them to go out to work, they will directly say that they will not leave. Don't push me, sir. Of course, I will tell him that under HA policy, I do not allow them to stay so long.*
	200	*I can find out which area they have has weakness. But this weakness may not be what the job required. Then he can be encouraged to try the job. Of course, the case should have motivation. If he has good motivation to work, he will attend the training as he sees the value and benefit of it. After longer period of training, I know them more, and I can make a better recommendation base on their real performance.*

Examples of Insight to Disease:

24.1

OT1	*184*	*If some cases come here, it seems they do not have any insight. Always feels that they can do clerical job, but they are slow and non-responsive. Then I will do a work assessment for him and let him see the scores. 'you are listed at the end of the percentile range, your profile cannot reach standard'*
	418	*Insight is very important since I think it relates to 'value'. If you have wrong insight, your value system will be distorted also. Insight includes how one knows where he has reached in the course of his illness. e.g. I am now in acute stage or I am at a plateau now or I am in that stage of the illness? So if one understands his own illness, when he goes out to work, he would know how to assess himself on the symptoms and progress.*
	424	*The second thing is to know one's own skill level, whether he know his abilities in reference to the market demand. Do they match?*
	425	*Insight also included how one goes along with other co-patients. Whether he knows others dislike him and he is still treating others as friends. It also refers to the external recognition. He thinks he can be a doctor but actually he didn't have such skills.*
	428	*….I feel that he has no insight. He doesn't know about the external environment and his skills do not matched. I think this is also insight. It refers to understanding of ones' own strength and asset, plus the matching of these with the reality needs.*

By elimination, they **conceptualized what clients were to be excluded** from vocational rehab service, i.e. that they defined those who do not benefit from the service. The

identification process was unique across all participants who worked in different stages of service. They shared similar content under this area: **firstly no motivation or expressed wish to work; being perceived as satisfying with the existing patient role or lazy and secondly with active psychiatric symptoms or poorly controlled behaviours.**

25.1

OT4	*10*	*I can observe in a week, including his will to work and if he can work or not, for majority of them. Even If they say they can, it turns out to be negative.*
	13	*In fact, I teach them to solve problems. But for the youngsters referred here, they do not listen. They just think in their own ways. They will not listen if you comment on them. These groups have lower chance of success. If they go out to work, their bosses ask them to do things, they will not listen. Who would like to employ them? These can only be observed in our workshops. I can confirm this in a week.*
	58	*In addition, he has to learn social skills. They are withdrawn and seldom talk. Just as I said before, they also have problem like self-control and easily get agitated, cannot accept criticism from others.*
OT2	*151*	*If confidence and motivation are not ready, I need to do something for him before he goes to find jobs.*
	55	*They can do very fast in a 10 minutes assessment. But when placing him in the carwashing workshop for training, if you tell him he has 3 cars to wash, he will prolong the work process and work slowly. ……. They have the pace and speed, not related to their physique. You say this as lazy. I would rather say they are still playing the patient role, cannot tune in the level of competitive*

work.

OT1	*294*	*This type of case is like that. They will get worse but I will try our very best to help them. Let them try whenever there is a chance. It would fail nevertheless. Actually, this is problem of motivation. And in the area of 'value'*
	101	*Being lazy is not equal to motivation, but is related. I feel that motivation is of higher level. Being lazy is more behavioural. I think that low motivation with support from the environment will enhance his laziness.*

They assessed the clients through their questioning in initial interview (structured or non-structured), reviewing medical notes, especially work history and their experience in interpreting client's responses. One therapist expressed t**he inaccuracy in screening** the clients as it was hard to differentiate the motivation to attend therapy, the motivation to be discharged from hospital and the motivation to work in their contacts during their in-patient phase. They **accepted all those who were willing to attend therapy** sessions and provided initial vocational rehabilitation programme to them as regarding they all have chance to work when discharged. Hence the outcome of existing service was affected as the recruitment is not specific. Other therapists showed similar view in **the limitation of assessment in reviewing the true picture of the client** by observation only in the present facilities.

26.1

OT3	*32*	*Also, his motivation will change according to his environment. He is not suitable at this moment does not mean that he is not suitable forever. But he is not willing to change at this moment. Maybe after 1 month, I will reassess him again. This is better than our usual method. In fact, I have nil assessment previously for motivation. I don't assess whether they are motivate to work, or join our programme, I just accept it if they come to attend our Main workshop training. Then he is motivated. He just tells..*
	36	*In fact, I can use stage of change to screen them,…… If they are motivated to be discharged from hospital it may not mean they are motivated to work .*

<u>Strategy 3 – Options generation</u>

The goal within this stage was **primarily gaining client consent** to come back for therapy department for a further assessment of "readiness to work". This was usually conveyed to the client after ending of the initial interview. For those that definitely found unsuitable, they would be informed of the **reasons for delaying consideration for working** at the current context. Client's choice was firstly being negotiated within this first day or week as therapist described.

27.1

OT2	*9*	*After job matching, I have to obtain the case consent. When he returns to work, he must know very clearly about his own ability and also the job requirements, the good side and bad side of the job. They must know why they are placed to do this job. Otherwise, if they don't understand or have a clear message on our suggestions, they will usually feel difficult to sustain on the job.*
OT3	*84*	*I think the patient cannot always go for OE always because of poor cognitive skills. …… His goal is to go to shelter workshop, I can just see whether his capability reach that level, then no problem will arise. I always, say what their environment changes, their goals will be changed also. Then they will change their choice. Forcing them create more serious problem. I failed together.*
	104	*Then I will analyse slowly with him and ask him to do some assessment to review his results to him, what is his strength and weakness. How his choice is not suitable for him. I have put this into the second part when the choice does not match his capabilities, not putting in the first part. If their choice is lower than their capabilities, say choosing shelter workshop, I will allow him*
OT4	*21*	*He has to make a decision. I have to give him a longer period to observe his ability and then to take back clerical jobs. If he is eager to work in order to make money, I tell him to consider other jobs first. I discuss with them with all the advice. However, I respect their choice. YOU cannot push them or they will say you don't know how to help them to find jobs. I would say I am always working on this as Well as anything that can be done. You have to support them.*

<u>Strategy 4 – Factor weighing</u>

The current context of vocational rehab service was divided into **levels of competitiveness**. Different levels of work have **different requirement** on the candidates. Therapists screened clients with this in mind to ensure that they could enter, at least, the lowest level for them to be recruited into the VR programme.

28.1

OT3	*133*	*For motivation, I use assessment for stage of change. As long as he is not within the stage of pre-contemplation, I will accept him into active training. ……If they are willing to go to main OT, they have certain motivation to start rehab training.*
OT4	*52*	*For those who really want to work, I will check his workplan. If he failed in one job, I suggest change to another. Be an office assistant, doing messenger work outdoor is also OK for him. Advise him on the plan. If his ability is poor but he still wants to work, let him try shelter workshop.*

<u>Strategy 5 – decision making</u>

Here they made their FIRST Decision of recruiting the client who were mentally stable, insightful and with expressed motivation to work to VR service and entered into second stage of Decision Making.

Stage 2 : Decision on Readiness to Work

This stage was to confirm their 'Readiness to Work' for those who expressed that they wanted to work.

The accuracy of this decision depended on the **'familiarity' of the therapist with the client**, usually they claimed that client might refuse to comeback for their assessment. Therefore, their **compliance to come for assessment** for a reasonable **long enough duration** for them to have a more wholesome observation is important. It usually completed within 2-3 weeks.

29.2

- OT4	*9*	*If he has no motivation, he will come one day and absence for another. This can be obviously seen.*
	65	*But for the younger, I will have less chance to observe them, as their successful rate for finding job is loIr also. Since I do not know his actual abilities and when I introduced him some jobs, he would demand a lot of things e.g. too long working hours, not willing to face people, working place too far way, etc. I will try to persuade him to come back for a week, or even 2 to 3 days. I have to see him to do something here. Then I know if he can work or not. If he insists not to come back, he has to wait for long period as I cannot match jobs for him again for a long time.*

	69	*There is another case. I have used Valpar assessment for him with good results that should meet OE level. But still he can't find jobs since he does not talk with people and does not communicate. Therefore, to rely on standardized tools is not sufficient as they cannot allow us to observe other behaviour. Although everything is fast nowadays, I have to observe clearly in at least 1 or 2 days, not to say coming for a week.*
OT1	156	*Within the first 2 weeks, I will also observe their skills. i.e. work skills or vocational skills or any special skills* .
	169	*I will observe during the few weeks here, see how he is changed in DH. I can see some changes in their behaviour. Also observe their habits if it is better. Mostly are unwilling to come back, those lazy ones only come back for few times and then quit. Some even come back with red rain signals. I will assess their changes. Can be observed within 1 month. Also observe their behaviour within workshop, how they come along with other patients. Some enthusiastic patients can quickly form peer groups with others*

Again, therapist expressed that the trueness of elicited performance of the client in the controlled environment and the degree of **generalization to a competitive working place was also in doubt.** For example, money and boss supervision could not be provided in an OT environment.

30.2

OT2	*108*	*To observe their social skills, OT department is not a perfect environment. For cases from day hospital or even in-patients, you can see them become smarter in day hospital, no matter in appearance or/and interaction with people. They have learnt the style of outside world again.*
	172	*I cannot simulate the job environment that have them working under the sun for 12 hours. I have training environment without air-con. As you see in HA, I have 24 hour air-con*
OT1	*331*	*It is difficult to simulate some scenarios here in the workshops.*
	338	*There are cases that initially expect failure but succeed at the end. They will go to find open employment by themselves. They will go out to find job without considering anything. A few may succeed but not many. I am accurate in prediction but there is exception. The reason may be I cannot provide role recognition and money here.*
	344	*As the patients are getting younger now, they have many old schoolmates. They say that they don't know how to answer them what they are working. If I go out and find a job, with a role recognition (it is better)* .
	346	*Another thing is money, it is very practical. If I have money, I will work harder. I think these 2 factors cannot be provided here and therefore they may fail here but succeed when going outside. I think our environment is not a real work situation.*

<u>Strategy 1 – screening</u>

Therapist ensured to triage very early for the high potential group from the low potential group with better understanding of the client's true will, general behaviour and social environment during course of interaction. Therapists shared some of their experience in the tedious process in digging out the true picture of the thinking process and behaviours in order to confirm and to screen out these 2 different groups of clients. The low potential group referred to sheltered employment level, while the remaining was considered with high potential would be further assessed for SE or competitive employment.

31.2

Examples of low potential group:

OT5	*34*	*I think not many clients in shelter workshop have such kind of positive thinking about learning process. Even there is, it only at the level of knowledge but not in actual practice.*
	51	*Or some may resist to even minor changes. They would not change anything. This group has problem in motivation. Basically, you think they have the ability to do better, but they probably rely on CSSA (social security fund). There is another group which has poor insight. They think they can go for OE. I will let them try to find OE jobs. It's OK. But they can't find any.*
OT2	*149*	*Yes, there is. Say when I discuss with the case, I continuously feel that they certainly can't do the job due to motivation problem or confidence problem. I will think this case is not ready to go OE.*

	61	*Or they may not have the sense to go out to work. They have receive so much training before which are demanding such level only, so they keep on like that. Just complete the job, not concerning quality or speed.*
		.
	67	*To teach them to learn the new concept, I will firstly see if he really has the ability, or he only lacks motivation. I have to stand beside him for almost 20 minutes to half an hour sometimes. Supervise him all along. Do not allow him to do repetitive work or take rest. Sometimes, they may slow down in the middle, I will tell him that I have other task for waiting for him after completion. This is to push him faster as many jobs are waiting for him. If they are more ready for outside work, I will feedback to him that the present level is not meeting outside demand.*
	70	*If they have the motivation to work outside, they will understand. They are cases that have no motivation, they come here just for training. YOU can only push them a little further*
		.
	75	*So I have classified our patients into few types. One group is highly motivated to come back here and feel very happy every morning to come back here. Some others really want to leave. After a period of time, they want to leave, no matter it's going to NGO or shelter workshop. They don't want to stay.*
OT1	*365*	*For those who are assessed to be 'failure for OE', they will still get smarter in shelter workshop. But they are at that level only.*

Hence, the **lower potential group were clients fit for sheltered employment** only characterized with stable work habits but high resistance to change, low self expectation,

satisfying with existing passive role and financial situations, not concerning quality and speed at work. They didn't want to stay in hospital but not yet ready to the competitive environment.

Their self confidence on the **accuracy of professional judgment was high** and believed as the best method for clients with SMI as traditional practice in psychiatry.

32.2

OT1	*7*	*With our professional judgment, I know 10% to 20%. Of course I have to place them in the workshops to observe their behaviour. As I are OT. I observe punctuality, etc. etc.*
OT2	*198*	*I use more on our professional judgment in deciding the amount of training needed and observe the whole picture of them.*
OT3	*57*	*Just to observe their behaviours? It will depend on which approach you believe. Some believe in clinical experience and clinical judgment. When you ask him "What is clinical judgment?" He said it was his experience. So he will directly feel that the case is like that. Especially the psychiatrists who highly believe in their own clinical judgment. The other approach is to believe in figures, even if you say clinical judgment, you believe in figures also, because you have seen the same as before.*
	61	*On the whole, it is figures that I believe. You told me that his learning potential is just like that, from what you comment? So the more evidence, the more you make others believe. I say I have seen him once and talked with him and concluded*

as such. That means I have asked him a lot of Mathematics, and he can answer, I believe that his learning potential is good. So I am studying his extent of learning and is doing some sort of assessments.

	63	*Therefore, during the interview, I have done assessments but your assessment is called WCS but mine is not. See how you define it. If I have a cut-off point for the assessment and tabled it out, see which one is more believable. But the approach is different. In mental health, I are more inclined to clinical judgment since it relates to our education.*
OT4	*77*	*More information from cognitive assessment can help, but I would still believe in myself. You use the WCST to test out that he is a non-retainer. I can also get this result from my observation here for 1 day only.*

However, some of them reflected **covert worries towards reliance on their professional judgment** only in daily practice.

33.2

OT1	*277*	*I cannot see that our conventional used tools can help in assessing these aspects. Mainly depends on professional judgment. In fact, I think this is quite dangerous. Just like apprenticeship. When I am free, I will talk with the OTII or observe how she handles the case, or know only during our case sharing session.*
	281	*My God! How will the future be? When I am old and retire, how can the experience and expert be transferred to next generation? No special skills / expertise left!*

<u>Strategy 2 – factor selection</u>

Although there were minor variations, the positive factors with highest level of importance in the consideration of "readiness to work" were well grounded from most of the therapists. They comprised with 8 items, namely:

1. Motivation for Work
2. Realistic work plan or goal
3. Insight on abilities
4. Learning potential
5. Social skills
6. Financial needs
7. Psychological preparation to face problem
8. Steady work history

Besides, they required these positive factors to be of HIGH magnitude to reach acceptable level, otherwise, failure occurred easily.

34.2

OT2	*71*	*Motivation is very important and should be very strong if they want to go out to work.*
	80	*If they want to go out to find a job, they should have a need. It may be to earn more money. This is a very practical issue. That means their existing financial situation if not enough to support his living that he wants to earn more. I have a case now which a case has $10,000 @ month for his family of 4 members. I tell him that he may not be able to earn so much now when he is working outside.*
	82	*The other feature is they have the motivation, but it may or may not reach the level of open employment.*

	179	*As they haven't worked for so long, you should realize that they have support all along, a big safety net. Once faced with problems, they won't solve but escape from it. Therefore, some will quit the job after 1 or 2 days when they discovered that real picture of the job.*
	49	*To work in the companies, they will not know all the work skills. They just require them to be able to do basic things. But their attitude to learn, they social attitude towards colleagues, their willingness and sincerity to work are important.*
	3	*During interview, maybe I discover that the case is recently out of job only and his education level, work history is very steady and stable. For cases with all these characteristics, I can directly create a job plan with him, job matching for him.*
	23	*So in summary, some will receive training first, some show they can read, I will accompany them to find jobs. Usually these cases are jobless for short while only.*
	154	*As I talked, if they have a need and he is not that worse overall performance, esp. social skills, as long as he has shown the motivation and that he wants to find job, and he is intermittently doing some jobs, then I will think this case has potential to find jobs, although it is difficult to predict the speed and success of job finding.*
OT4	*19*	*In the other words, I only make sure he has the motivation, he is willing to come back here, clarify his choice of job and interests, in addition to his work history and experience, I will let him try employment.*

	3	*How to decide who will go for SE or OE? How to draw a line? I have to observe whether they have energy to work, how great the energy? Also their learning potential, whether they can learn even complicated things. So when they go out to work, their chances are greater. … From my experience, their past work history reflected some information to us, e.g. if their previous jobs lasted longer time, their chances for SE or OE will be greater.*
OT1	*354*	*During intake, I will ask what their plan is, do they want to resume their work. Some case will say very early that they want to find job. To earn money and find job. If they have a mission, they will voice out clearly and early when they come.*

For those that needed **further confirmation of the strength of the positive factors** identified were assessed purposefully in the controlled environment of therapy delivery locations. They utilized interview and observation in simulated workshop environment from 2-3 days to 2-3 weeks, **depending on whether the clients willing to come and availability of relevant workshop** tasks for the client.

35.2

OT2	*202*	*I have tools of assessment, like observation in workshop training. That is the most practical one.*
	54	*If you ask him to come back for several sections, you can observe their attendance and punctuality.*

	200	*I can find out which area he has weakness. But these weaknesses may not be the job required. Then he can be encouraged to try the job. Of course, the case should have motivation. If he has good motivation to work, he will attend the training as he sees the value and benefit of it. After longer period of training, I know them more, and I can make a better recommendation base on their real performance.*
OT1	*372*	*Should I first assess these abilities before observing their behaviour. If I focus too much on behaviours, and compliance, I would miss to providing chances for those that are not? It is because of the problem of setting. If you are not obedient, you will create problems here. In fact, it can really observe them after they are settled down here. You cannot settle down, I have no chance to observe. So if you have little time to stay here, I cannot observe how you perform. Accuracy is one question and how to arrange the environment to provide a chance to observe, or whether the patient allows you to observe is another question. They are the boss.*
OT2	*34*	*I query about his learning ability if he cannot answer our questions Well. So if I have some doubts in directly placing him at work, I will put him into our workshop.*
	46	*I will then choose some workshop related to their future work for their trial. There are lots of training elements in the workshop. This is done before they find jobs. It is a good place for us to observe and assess them.*

Client's **reluctance to attend assessment** or not performing well, might be due to not interested in the tasks given. This especially happened **in younger clients**.

36.2

OT2	*90*	*Many cases are like that. They will do but lots of grumble and complaints. They may say they can perform Well when they have a job outside. I will tell him that you come here for my assessment. If you think you can go for open employment, you have to do Well here to show me and make me believe you can. If you cannot perform Well here, how can I introduce you to the companies? If the doctors ask me, I cannot base on your saying to answer to him that you can go for OE. I have to really see how you perform.*
OT1	*90*	*If he feels bored to come to OT, I will talk to him and asked if he dislikes the group. I will further explore whether he is lazy or being influenced by external factors. If it is external factors influence him, I will manipulate the environment if OT can.*
	93	*I can arrange for you something you feel better. Most typical one is car-washing team for male patients. They like to move around and to ask them to sit for 8 hours is not possible* .
	366	*In some cases which I think are 'failure in OE', they insist to find job and succeeded. Or in fact, they are not interested in here, and do not respect the demand in DH.*
	381	*Unlike those older patients who are so loyal to come here, those youngster patients are eager to find task to do here. But now, the patients are smarter. There are more resources outside, many NGOs arrange functions for them. Something has changed.*

For those non-chronic clients with marginal problems only, they preferred to search job for themselves. However, it was contradictory to therapists that they should had chance to observe in order to ensure that they have the right insight on their own deficits and match with suitable job. Otherwise they reflected failure occurs easily.

37.2

OT2	*199*	*I cannot control much in the out-patient group with higher ability.*
OT4	*68*	*However, there are cases which participants are so smart and have many ways to find job himself. But he still comes here to see if it is faster here. He has some jobs at hand. This needs no assessment to be succeed*
OT1	*369*	*Usually this group of patients has good social skills, more active, and has more support from their peers.*

Some also expressed it is needed to give environment for client to gain insight. Job matching problem was always a factor for failure in sustaining jobs. SMI patients have good presentation skill to get interview passed but not sustaining the job long due to their poor coping abilities and un-prepared for problems arose in workplace.

38.2

OT5	*132*	*Some may change after coming back from job trial. They understand that the outside world is so different. When you work as sales, the customers have feedback. …. They feel that our coach talks to them so loud and is not nice. …. But they will see that the sales*

		in next shop being scolded loudly for wrong doings, they will listen to us and accept us easier as I are teaching them. This is a learning process. They learn to differentiate which is good and which is correct or wrong. At least they are exposed to these. They steps forward in job trial but not up to the level of work trade at this moment.
OT4	*57*	*For those with potential, I would train more on problem solving. Many times were discovered problems in cases but stood aside doing nothing. They will think negatively and quit the job. In fact, for those with potential, to sustain the job is very important. In addition, they have to learn social skills. They are withdrawn and seldom talk. Just as I said before, they also have problem like self-control and easily get agitated, cannot accept criticisms from others.*

<u>Strategy3 – options generation</u>

Setting goals with patients was not described in detail in the data, might be due to the unintended questioning towards this area during the interview. One therapist suggested that this was the most important step for VR for SMI, However, therapist usually did not believe that SMI could make realistic goal. They u**sually do not involve clients and gain their consensus,** or make **unrealistic goal or incorrect expectation of job** arose from missing this very important step.

39.2

OT2	*16*	*Therefore, I have to make him realize why he should choose this, benefits and drawbacks. Then when he has the motivation to accept to do this job, I will start the action plan of job finding. I have different ways of doing this but I have the source and network of companies. There are the usual ways of action plan for job finding, eg. using internet with him and get the immediate response and feedback to him, whether this job is suitable for him. It is better to let him find out a large lot of jobs and fail in interview since the jobs are not suitable for him. They have no target, or even finding wrong jobs or using wrong methods for interview.*
	25	*High education causes trouble sometimes. Not because of the job requirement, but due to their cases' expectation too high.*
	159	*For those who quit within short period of time are resigned themselves. Maybe it is because they feel unsatisfied. They may find the true demand after longer period of work, which is quite different from just working for 1 or 2 days.*
OT4	*31*	*Is the self-exploration process not enough for them? Normally, if you place him in a real situation and fail, he should review himself. But for our cases, he repeatedly fails in outside jobs, he don't think the problem lies in him. Almost 1/3 of cases are like that. They are of younger age, around thirties, with form 3 or above level of education. Since they are more educated, they want to find jobs they really want. But for those of older age, they do not have such high demand. They demand sufficient earning for food and having a job. I can easily assign non-skill work for them.*

They also reflected the emerging self-awareness on **gaining true wish from clients** by hearing them more and talk to them with heart.

40.2

OT1	*254*	*I find that some case actually have potential. But I think it is the responsibility of the staff that they don't know how to maximize their potential. This is what I call conscious use of self. I find that if I can really lead them to trust in me and they will try, they won't know how well they can perform if they try.*
	257	*I think 'trust' is very important here. But this 'trust' is not an individualize thing. Whether our external environment can provide this thing. It is not an internal thing. Their trust is based on their own observation. They are smart..*
	260	*Sometimes, when I advise strongly a patient, they will listen to the content to see whether I am unreasonable. They always say that the therapist is very cruel to them, but they know it is good for them I observe them and they observe us also.. They will see that this case has done so many things under this therapist, with improvement shown. Then they will trust this therapist. And be willing to continue coming back.*
	361	*I always stressed the gain from work is more than proportional. Besides earning money, you have recognition, and you can expand your social network I talk to them in our group work to motivate them. However, it is quite difficult for them to identify. Only if I have more contact with them and talk with individuals to assess and try to observe how they think...*

However, **insight towards own abilities or deficits is always a barrier** for clients to consent to setting realistic goal. Therapists had much more to work on in minimizing its affect in the predictive reasoning process.

41.2

OT4	*20*	*Some say that he has been doing clerical jobs in more than 10 years. He doesn't know computers. I discuss with him to get a more realistic plan. I will let him try here if he wants. He turns out to have problems in attention and memory. He needs much time to learn.*
	25	*I find a job but he is not fit for work. Then he would realize the problem. To provide him to chance to self-explore is very important*
	30	*Some cases, after trial, I can say that they have no insight. They say it is not because they are incapable but no chance is given to him. The demand is too high. This group will be much difficult to handle. Their chance of success is even lower.*
	35	*The younger cases feel no interest to come here if they say I cannot test out their performance here. So it's better to let them try outside work is better. I let them try as fast as possible. If they fail, I let them try few more time. First time they fail, they will blame others. The second time they fail, I ask them, they still blame others. But for the third time, I will ask who should be blamed for the problem?*
OT1	*184*	*If some cases come here, he seems does not have any insight. Always feels that they can do clerical job, but he is slow and non-responsive. Then I will do a work assessment for him and let him see the scores. 'You are listed at the end of the percentile range, your profile*

cannot reach standard'. Let them see themselves. Or the other way round, he always says I am not fit. Let them see how Well they can achieve. Let him gain insight.

Family acceptance of goal could also create barriers.

42.2

OT4	*76*	*I do not have special arrangement in meeting their family member. For some case they won't disclose their bad things, I will talk to family instead. E.g. when I see that case's mental state is not so well but he didn't say and still can present here. I would ask family how he is going recently and get more information. To collaborate with family is a good thing.*
OT1	*33*	*Family members' expectation is also considered. Mother and others murmur to them, telling them to be like this or that. Some may over-protect the patient, telling therapist not to ask them to work.*
	35	*I have a case started to attend 'circle C' since year 2000. I told him and his mother that his skills are competent for SE. His mother replied that I will allow him to work only if you can find him a job in government that he will not be fired. Some parents are very protective. It became a barrier that they are unwilling to work. Family members' expectation is important.*

<u>Strategy 4 – factor weighing</u>

When the therapists prioritize among the favorable factors and unfavourable factors to work, the process was not standardised, rather they depended on knowledge of therapists on the specific requirements of different levels of employment or specific jobs targeted in general.

Among them, they are **good at screening out the Sheltered Workshop (SW) level** in terms of working behaviour that could be observed in their simulated workshop environment in hospitals. The characteristics of clientele attending SW as described by AC were obedient, low energy comparable to the low potential group identified by therapists in previous section (29).

43.2

OT5	*39*	*I have few OE cases in our shelter workshop, unlike SE group. Therefore, I have very few that succeed in OE interview. The range of ability of this group of MI in shelter workshop is big. They may have different diagnosis. Some of them even have not achieved basic work speed*
	44	*Psychomotor retardation may be really caused by the disease (drugs), their work speed can not reach acceptable level. There is only very small portion of them here have similar work speed as normal people. For MI case here, I have some of older age. They stay in SW for maintenance only. They are around 60+ and have passed their working age.*
	47	*I have another class that has poor work speed, around 40 to 50 % of normal, although their cognitive ability has around 70 to 80%. A few have achieved 70 to 80%*

		normal work speed. But I are doing assembly work here only. For cleansing task, I have another class of cases. Another thing is about work habit problems, just like absence from work or frequent lateness.
OT3	*116*	*Is it that some work types e.g. SE or SW requires behaviours rather than ability? It doesn't matter that you don't how to calculate, You are just required to be obedient and to settle down. Isn't it? This is the reality and the requirement of the organizations.*
	120	*They want someone to be easily managed. Not every case is so obedient. Their policy has some problem. It directed our service also. As I know that the more obedient one is, one has a better chance of acceptance, therefore I choose the obedient one. That is the predictor of success. Although the new SE jobs require high level of abilities and skills, the number of places is few. Majority of SE is not like that. That is the exceptional. …. Therefore the most important is for patients to be obedient and not arguing.*

To screen out the **high potential group into SE or competitive employment,** a lot more were to be observed and confirmed further in longer period of time. They tended to stress on people skills and social attitude by direct measure in people environment, work abilities and intellectual skills were indirectly assessed through their performance or behaviours in unstructured work tasks and through human contacts.

44.2

OT5	*104*	*It relates to problem solving and decision making. They basically don't know about priority of tasks. They do not know how to set priority. They do not know this task is more important. Even he knows its importance, he just don't like to follow. This is his decision making and problem solving. I assess these also by observation. I do not assess these things separately. I ask them questions. Say, if you see a man taking something from the store and start to walk out, what would you do? These (assess components) are included in their answers like I tell them how I can handle comments.*
OT3	*19*	*They are of skill level since it is a behavioural assessment. It has a hierarchy of behaviour. E.g. it has some items reflecting motivation. I observe these components through behaviour. Or even cognition, like whether he can concentrate in working. This is a behaviour through that I can observe and guess his cognition through this behaviour. But is it not so tailor-made as I do the cognitive tests? It is still a cognitive test, with some cognitive components to be assessed, but not singled out.*
OT4	*15*	*Concerning the learning potential, I rely on the general tasks given to them and see whether they can do.*
	60	*I are training at skill level. e.g. if he goes for clerical work, I let him do tying training and let him monitor by himself. I then know his typing speed and knowledge of using the software. I also assign some tasks for him to observe, e.g to observe his physical tolerance is to ask him to come back for 4 half days of 4 hours each. Or place him in customer service e.g. in café, I teach him how to serve customers. I have no specific assessment for their basic abilities like memory or train memory.*

OT1	*181*	*I will also do work assessment. Practically, even if I have done Valpar 5 for him, his clerical skills is OK, but his behaviour is really poor. Then he is not fit (for work). Therefore, I 'm not using work assessment frequently only as a reference.*
	190	*I really won't rely on it to screen patients for OE or so. In our daily contacts, inside our activities, I give him a Chinese typing job and he can finish it within a very short time. You will more or less know what he is.*
	212	*…. I will even observe whether the case will offer help to others. When they come back here, say one patient with poor mood and talk to peers, some patient will suggest him to talk to staff. This reflects that he knows where to seek help.*
	216	*If they are willing to help, social skills is good, I think this patient will learn better as his learning is more, he can learn from others experience also, and learn new things. Then he will teach others. Next time if someone has such problems, he will offer help again.*
	219	*Just like I always encourage them to talk to staff if there is any problem. You will see them using their judgment, to choose the things to talk to the staff. They will also choose which staff to talk to in order to be effective in getting things done. Judgment is important, but this is of higher level.*
	242	*……If they have initiative and eager to learn attitude, it is better. They will attend to what others are doing, will learn from them. They will take up skills more effectively and faster, an effective learning. They will give many ideas in the group. They will give opinions, are willing to talk. This reflects they understand your sayings. They have processing. They will assimilate their past experience. Or otherwise, they cannot give their opinions. If you don't attend to others, nothing to*

talk about, don't answer others…. I think this is related to motivation.

397 All the above I have said, "yes", belongs to human traits, not directly related to the job. They are application of skills. They provide more information about the patient. If there is a tool to assess, I can spend less time. But I think it is not necessarily a criteria tool. It allows me to understand the case easier and have more information, just like an IQ test from CP.

In our sample, these **factors matched fairly well with the requirement from the user side**, i.e. a SE unit who employed the clients from the OT units under study.

45.2

*SW1 32 What makes me think that he is suitable? The biggest concern is his **mental ability**, e.g. whether he has suicidal ideas or violent behaviour. Then I will explore whether he really want to work. If these 2 basic criteria are not met, I will not admit him. I accept only those who are **motivated to work and with stable mental state**. **Educational level and work history comes later.** So even they have low or no education, after our training, say, OK in cleansing work, I will assign them to go out to work.*

43 Then they will enter a work trial period. The coach responsible will assess and score them and I will observe the level they can reach according to the scoring and comments from coach.

	44	*For example they **have the ability** but the attitude is not so good. OR **the attitude is good** but the ability is not high enough.*

Some factors were raised by the manager of the SE units that required more emphasis by the therapists, namely:

1. physical tolerance especially to stand for 6-8 hours continuously
2. insight on the need to learn and improve
3. self reflective learning from observing others and from experience

46.2

SW1	*192*	*…But I think the focus is more on the work attitude than the skills. I should see whether he really wants to learn. …..They should observe by themselves in the work site. And then to adjust themselves. This is learning. If he can't learn in this way, he is better not coming here*
	76	*Areas that they should learn may include how to **concentrate.** Most important is to concentrate and pay attention. Understand that why he should learn these things, understand our teaching. This is important. **Good learning attitude,** know that he has deficits. Otherwise, he thinks there is no need to learn.*
	199	*Many of them do not realize that they are unable to do the job. They always think themselves as almighty.(lack of insight)*
	200	*They never realize that their basic things are not OK. The ways they talk with others are not OK.*

	55	*Besides, they have to stand for very long hours, even all others things are OK but poor standing tolerance, then they would fail. Some shops require standing for 6 hours, some 8 hours.*

In view of the limitations in observational assessment, to improve the accuracy of job matching, some therapists **started to consider other standardized direct measurement** on client's potential, abilities and preferences in a faster and reliable manner would be useful and contribute to the prediction reasoning process. However, this served as a reference only and they still believed in their own observations to make the professional judgments.

47.2

OT2	*207*	*Information on tests of basic abilities like concentration, problem solving etc for a new case when coming to see me, will be useful, but not for every case. The score of the test may give me a crude picture of him. Although the assessment results does not directly equal to his work performance later. At least I know his strength & weakness areas but do not know whether he can generalize his strength in application. This is useful. Say if his memory is poor, I can realize that his work performance in relation to this area is not good. Yes, I can know the limitation of our clients from these tests. I can demand more other training on these limitations, more focused. Or I would avoid jobs that require these areas. It can help.*
OT4	*79*	*It's OK if somebody has done this already or I have a quick tool to do. Then I can test out in the actual environment. To have data is always better and more scientific to show to others. Everything by clinical judgment is over simplified. To present in this way may*

be more convincing. And provide evidence for the case to see when persuading him.

OT1	*273*	*I do not have the habit to perform isolated assessment for problem solving, judgment, motivation, attention, memory and trust level as you described previously. At present, there is no specific assessment. The only one that can be used is Worker Personality Profile. But I think its coverage is complete. It is not a direct measure and not covering all.*
	404	*Since I have to assign him immediately into training workshops, if I have a tool, I will know earlier his long term plan, how far I can demand this patient and expect him to go. For those better cases, I will place more resources and heart to help him. For those with no potential, I will screen out them to other places.*
	411	*This is especially good for new therapists. When she newly came here, I have thought about how to teach her the methods, just like apprenticeship as I have said before. It doesn't work sometimes. ….. if the patient is smart, you under-assess him, he will come back for the training. He will feel bored. But if I have done the assessment and saying that you at this moment showing the potential like that, later I will reassess again. I feel I am more secured.*

SE & competitive employment have different emphasis on the factors identified while some were **considered as more important in OE** e.g. good social skills, flexible thinking and better learning potential.

48.2

OT5	*64*	*To try outdoor work (SE), I first check for his physical tolerance, e.g. you have to stand to do cleansing job. Besides physical tolerance, if going outdoor project, he has better community orientation, at least know how to use transportation. These related to the job demands.*
	77	*There are cases that return and claim unsuitable for them. Firstly, they feel tired for prolonged standing. Secondly, they psychologically feel that they are incompetent for the job, may be due to poor physical tolerance. Besides standing, they have to lift cargoes and goods delivery in retail work. Or they require the worker to be more active. The demand is different from here.*
	97	*In practice, I teach them after every incidence happened since the employer will demand a feedback on how to handle the incidence.*
	101	*I agree this is problem of habituation. But it also related partly to their sensitivity of other people's need. Some of them may say there is no reason that I should do it for you or to follow you. They just realize that it is the requirement of job that they should behave like that. But some are really inflexible. Their ability to adapt to outside demand is very low.*
OT2	*24*	*Education level is not very important in SE.*
	120	*Therefore, if a case with good social skills, they have advantage in finding a job, disregarding educational level or others. I think this is true. Especially that in OE where I know the companies. They select the cases according to some basic requirement. So if all our cases meet these basic requirements, these companies will trust us saying whose performance is stable. If some case has better performance in social skill, it*

		doesn't require us to put much effort in dealing with their people interaction problems.
OT3	*1*	*Let's review the difference between the cases expected for open employment and non-open employment in planning the active rehab. The difference is that for open employment, whether the patient is able to do the job specific skills is important. Whereas in SE or SW, their general working behaviour e.g. social skills are of first priority.*
	129	*Those high level jobs are entering into OE level, therefore they are job specific. But as you talked earlier, these apply to all jobs. If you quarrel with others, you are bound to fail even you are very smart. This is needed in OE or others.*
OT1	*129*	*If their social skill is not good, they will always feel frightened being known by others that they are mentally well. In fact, being discovered as MI, besides being seen by their symptoms like self giggling and self muttering, problematic social skills is another cause. If their social skill is good, which I think is important. If your social skill is poor, how can you go out to work? If that is so, I have to tune down to lower level of agency base SE training, rather than to competitive market SE training.*
	200	*Say when using computers to type a passage, there may be some problems or tables to type, or assign a disc to him. Some will just sit there if they don't know how to do. Some will ask staff in details. Seek for help when in trouble Patients who are braver. Brave to try out things, something like generalization.*
OT2	*125*	*In fact, I observe these 2 things when I recommend them for a job. Ability or workability including social skills are all important. I better say like that. In finding*

		a job, those employers will consider their appearance first. Hence, therapist tends to emphasize their presentation in making their recommendation
OT4	*4*	*Also their learning potential, whether they can learn complicated things. So when they go out to work, their chances are greater.*

Strategy 5 – Decision Making

Here they made SECOND decision on 'Readiness to Work' at 'Appropriate Levels of employment'. They were ready to enter into the next stage to find a placement or destination of work that would best fit their wish, abilities and living style, with risks of relapse being reduced to minimal. With the Level of Employment determined and accepted for the client from the previous processes, they usually classified the client's needs before placement as follows:

1. Direct placement service
2. Short term coaching for placement service
3. Training for placement service
4. Long term training for placement service

This step affected the speed of placement and amount of intervention by the case therapist for the client.

Stage III – Decision for Job matching

For those cases that were assessed to be 'Ready to Work' should have possessed the basic attributes that believed to achieve the standards of requirement in the assigned level of

employment. Other than the SW level, the other 2 levels of employment had multiple choices of job nature and location that required both the client and therapist to work together to do a job matching process. This process might take a few days, or even months, depends on various factors like vacancy availability, job trial results, amount of preparation training needed, stability of client's performance and networking of the therapist etc..

The whole Prediction Reasoning process at this stage was more an ongoing and dynamic one. Mixed strategies were shown that depended upon a close interactive process between client & therapist. Further participation and reassessment in the workshop training or job trial helped to consolidate the preference and ability of the client to ensure a better job matching.

49.3

OT5	*108*	*Like when time comes when you are set to have meals but there are dirt for immediate clean up, I give this situation to them and ask them how he would handle. I even ask if the employer only tells you there is dirt around, or no one tells you, or you see it yourself. There are different levels of situation already. I ask these questions regularly. I ask them at the first time when I plan him to do a specific job or to a certain work trade for training. I don't ask out of no reason. This can help to decide giving him which type of job? At the first time, I simply ask them some questions to assess his problem solving and decision making.*
	113	*For job specific ones, I would have a plan for him, an initial plan for him to try some jobs, I would ask some job specific questions. Through daily conversation, I*

also observe his cognition, problem solving etc.

OT2	*5*	*How to match job? It bases on few things. To be complete and more academic, I should do a work assessment which can give us a little bit more information. To be practical, I will review his work history, see what are the job types he has done. And I also review what our SE team knows about the existing job market and job nature. By matching these, I know whether the case can fulfill the job outside.*
	9	*After job matching, I have to obtain the case consent. When he returns to work, he must know very clearly about his own ability and also the jobs requirement, the good side and bad side of the job. They must know why they are placed to do this job. Otherwise, if they don't understand or have a clear message on our suggestions, they will usually feel difficult to sustain on the job.*
OT2	*133*	*Presentation can lead us to consider how many job types can be offered for him.*

Therapist usually had **a job bank available in their mind** in carrying out this process. This could be clearly seen in their casework.

50.3

OT2	*145*	*In summary, if the case said that they want to find a job when they come here, I will assess them according to the job requirement of some available job natures. During the interview, I will think of any suitable jobs for them and match his suggestions.*

The process in **assigning level of importance to the factors** under consideration had no definite rules, nor any norm reference or job demand profile for the therapist to decide on. It was done with regarding to the specific job chosen, user requirements and the specific context of the client at that moment. That depended on individual therapists' reasoning framework, interest, accessible data and observations during the said period. They made inference and prediction based on the self confidence on the coverage and accuracy of result interpretation. The weighing of factors was **counter-balancing, inter-relating and case sensitive.**

51.3

OT5	*89*	*The cleansing company complained that he really works too slowly. It really sees how lucky you are. Some of them are looser and say that it's OK. They will reflect to us. I will say that this is a new worker and I then change his posting to a less obvious location and train him up. He will be relocated back afterwards. All customers will have feedback. They usually complain about slowness.*
	92	*They feel that they are not smart enough, no flexibility. Some clients especially let the new entries just go to lunch at the set time. They just don't bother anything. I have this type of cases often. They just have this limitation of inflexibility. Besides, I also have cases whose output is not meeting the demand of employer.*
OT2	*40*	*Their concept is not providing training, is working for money. This is a practical issue. They have to pay without any subsidies from Government. Even the*

		Government is not doing this, why should they pay for you just to serve the society? …. This is the Chinese HK culture. They expect a person introduced by us can achieve not too far below 100%.
	127	*They have put this as priority. They know that those employers have bias towards mental patients. Even your patient has good working ability, but their appearance and presentation is not so good, they will fear of them at first hand. Therapist will think this is a disadvantage and chance for success is lowered. They will choose those with normal in appearance. They are affected by this.*
	129	*I have the same situation in SE. The employers tell us that they don't want other colleagues to know that they are mental patients…. so as not to be blamed by other staff. Anyway, this is affected by the market.*
	144	*When you analyse the job, the demand on every aspect is high in clerical job. Also they usually work in a close proximity. It's easy to discover their weakness.*
	187	*But that depends on which type of job they are doing. If the job doesn't require too much social contacts or staff are not so close, they may not detect it. Also mental condition should be stable, otherwise, everything shows.*
OT4	*16*	*…. I will confirm which type of job they want to do. These types of job do not require high capability, e.g. pamphlet dispenser on street. They are not required to be very capable. I will match their wish with the level of demand of the job.*

To summarize, to **predict for success in VR**, two main core strategies were extracted from the therapists' experience: to **ensure 'Success for job interview' and 'Success for job sustaining'.** Some factors leading to success in these two areas were similar in nature, while some were of different categories, level of importance and strength.

Mixed strategies for decision making

Here they made the decision of the choice of job for the client and envisioning success for the client.

To recapitulate the ultimate objective of VR, therapists identified the outcome of VR has different levels and their **definition of "success of VR" services** were shared when they have "met the client's choice, abilities and maintain their mental health condition in their appropriate level of gainful employment"

52.3

OT5	*118*	*In theory, I should ask the client how he views himself as success in work rehab. Not what I feel is successful for the client. I have talked with some clients. Some say that they are not successful since they are in the workshop all day long. But I have a job here is enough and satisfied. I stay in the workshop just for pass time. I do not care about how much subsidies gained here. Some cases do not care about money, but some want to go for OE.*

OT1	*432*	*In vocational rehabilitation, there are 3-4 levels of outcome: fail, moderately fail, mildly fail and succeed. If the case failed, I will review the reason for his failure. Can it be changed? Can it be trained? It's the middle group. The remaining are those cannot be trained. Although they have been trained before, I will give them some more chance. In fact, this chance is given to me. Most probably if I placed them wrongly.*
	439	*TO conclude, it should be 3 levels. Fail, Failure with identified reasons and Succeed. When the cause cannot be identified or changed, they will enter lower level.*

The Generated Theory – Staged Model of Prediction Reasoning

In this study, the theory generated was a substantive one, which had specifically merits to the practice of occupational therapy. The quality and content of experienced occupational therapists' predictive reasoning was explored and described. There were intrinsic and extrinsic factors interpreted from the therapists' narrative talks as well as their previous caseworks that predisposed to cultivate the following theory of predictive reasoning process.

Every therapist in this study built up their prediction based on their Internal Reference of Practice for clients of SMI which was insidiously contemplated by their beliefs,

assumptions, knowledge and related environmental concerns during their professional training days as Well as the ongoing absorption of clinical experience. Through integration of these components, they created a process of predictive reasoning being utilized whenever they have to make decision for their clients in the vocational rehabilitation programme. Firstly they ascertained the current context of the client based on the significant history and understanding of the needs and wish of the client through interviewing and brief observations or testing. Secondly they identified their clients' favorable and unfavourable factors related to work within 2-3 weeks time. Thirdly they determined their goals for work and gained their consent. Fourthly they weighed and prioritized the factors against the consented goals; and finally arrived at a mutually agreed decision that guide further intervention plan and actions.

The expert therapists applied their Predictive Reasoning dynamically in making their clinical decisions for the clients in vocational rehabilitation programmes.

For clients with SMI for vocational rehabilitation programmes, three stages of Decision Making were identified from the rich data excerpted and the process of predictive reasoning were evidenced to be recycled during each stage by the therapists.

In stage 1, they decided on the suitability of the client for recruitment into vocational rehabilitation programme where mentally stable, possess insight and general motive to work were crucial for decision.

In stage II, they decided on their readiness to work and appropriateness for different levels of employment i.e. sheltered (SW), supported (SE) or competitive employment (OE). Here the factors were further weighed in terms of importance and strength. Eight factors were mostly selected as crucial for general readiness to work, but carrying different importance and strength with respect to different levels of employment requirement and emphasis. Training needs was also determined.

In stage III, they decided on the nature or specific job that matches clients' ability and interest. Therapists usually called forth more information and updated knowledge from the related work environment in their reasoning process in order to achieve a more promising outcome in job matching. They evaluated their cases outcome intermittently and 10% failure rate of their predictive reasoning process was reported although not a formal estimation.

Summary of Results

To conclude from the results as shown in this chapter and previous one, Predictive Reasoning in occupational therapist was proven as a fundamental scientific, social as well as psychological process of ascertaining client best suitable choice in vocational rehabilitation. It emerged as a dynamic integration of the cognitive, psychological and interpersonal behaviours, which therapists adopted in order to decide on the best choice of clients in all mental health settings for vocational rehabilitation. Conceptualized as the major clinical practice of occupational therapist, the process of Predictive Reasoning involved a series of purposeful cognitive process through which, in interacting with clients and the environment, therapists used their professional skills, knowledge, experiences, and beliefs to find out the actual picture of the potential of clients; and further on to generate the best consented choice. It was through the process of Predictive Reasoning that therapists established a therapeutic relationship, provided the platform for their intervention to support rehabilitation and to protect clients from vulnerability to harm and relapse. They were aware of the importance of identifying clients' needs and choices before making clinical decisions and implementing possible interventions. That echoed the interpreted assumptions as at the beginning of previous chapter that the therapists had a positive and committed attitude towards their

clients and are aware of the importance of identifying clients' needs and choices before making clinical decisions and implementing possible interventions.

Chapter 6

RESULTS - THEORY VERIFICATION

This section describes the results of real case studies collected from another group of practicing occupational therapists in an attempt to verify the relevance of the generated theory on the Predictive Reasoning Pathway in current practice.

Multiple Case Studies

Twenty cases were reviewed from 5 voluntary occupational therapists with 2 to 10 years clinical experience in VR for SMI patient. These 5 therapists were chosen since they followed their cases across every phase of vocational rehabilitation programme. They were required to report their case management process in using the Case Study Form (Table 3, p.84) and the Work Readiness Assessment Form developed (Table 9, p.105) ; and supplemented with interview by the researcher to clarify ambiguities arose from the documents. 20 Case Summaries in form of Case Study Partially Ordered Meta Matrix were reported.

Findings

A summary description of the 20 cases studied was presented in Table 19. Clear evidence was shown among the participating therapists in their case management that they have engaged the predictive reasoning process as generated from this study.

Table 19 Summary descriptions of sampled therapists and cases

OT	Cases	Significant History
A Male/2 years experience Working in Hospital Day hospital Out-patient unit	Case 1	M/48; Schizophrenia and Depression, 5 years as a security guard History of bad temper, fight with wife, want to resume occupation as security guard
	Case 2	M/52; Schizophrenia with 15 years out of work, education up to F3
	Case 3	F/ 34; Schizophrenia and off job due to disease for 1 year F7 education level with 1st year Open University attended. Worked as Accountant clerk until onset of disease.
	Case 4	M/43; Schizophrenia with mild Mentally Handicapped. Received F5 education and worked for 9 years as Speed delivery worker. Off job 1 year recently.
	Case 5	M/42; Chronic Schizophrenia with F3 education. Worked as Office assistant for few months only. Had tried in Sheltered workshop for half year but failed. Off job for2 years. Now Living in hostel for recovered mental patients.
B M / 10 years experience Working in	Case 6	F/40; Paranoid Schizophrenia educated at Master level As librarian for 8 years, and worked as administrator for 1 year until onset of disease. Now off job for 1 year.
	Case 7	M/27; Fixed delusions that others intend to harm him based on previous hallucination. Not responsive to therapy. Quitted online business recently.

hospital, day hospital, out-patient unit & community OT service	Case 8	M/41; Schizophrenia with no obvious psychiatric symptoms. Defaulted FU in recent admission with thought disorder with bizarre speech. Off job for 10 years already.
	Case 9	F/21; Schizophrenia with borderline Mentally Handicapped. Suffered from delusions and admitted for 8 months. Drug compliance is good and work for family laundry shop all along. Discontinued recently due to people conflict at work.
	Case 10	F/32; Schizophrenia with F7 education. Mentally stable and work in family business all along. Discontinued due to poor performance. Started work as part time tutor for 1 week.
	Case 11	M/37; Chronic Schizophrenia with F5 LCC training , work for mother's store. Denial of auditory hallucination and no insight, and afraid of readmission to hospital.
C F/ 4 years experience Hospital Day Hospital	Case 12	M / 34; Obsessive Compulsive Disorder worked as Graduate trainee of aerospace engineer. Terminated after probation due to people relational problem. Off job for 1 month.
	Case 13	M/23; Schizophrenia with F5 education and 1.5 years in vocational training institute for hotel management. Worked as part time waiter. Off job for 3-4 years.
	Case 14	F/21; Schizophrenia with self harm behaviour. Avoid talking medical history and denial of symptoms. Off job for 3 months
	Case 15	F / 35; Schizophrenia with F5 education. Worked for 2 Clerical jobs in 4 years previously. Off job for 4 years. Blunt affect with no smile on approach.
	Case 16	F/47; Chronic schizophrenia who live alone and all along shoId fear of people. Worked as Company secretary for 3 years and Account clerk for 2 months with supervisor complaint. Off job for 8 years.
	Case 17	F/41; Bipolar disorder and worked as full time office assistant for 1 year. Off job for 5 years. Easily relapse at work. Had tried cleansing work for 3 months and quitted recently.
	Case 18	M / 44; Adjustment disorder with F3 education. Off job for 3 years and attempted suicide in 2006. Now shows low mood. Divorced recently and under financial stress. Worked as Security guard for 4-5 years but with poor working relationship.
D F/ 12 years experience	Case 19	M/29; Paranoid schizophrenia for 10 years with repeated admission and poor drug compliance. Attained F5 education and Hotel training for 9 months. Quitted job in hotel due to

Worked in Day Hospital		feelings of paranoia towards supervisor and customers
E F/ 10 years experience Worked in Day Hospital	Case 20	F / 49; Dysthymia for 2 years with low mood and severe anxiety problem. Divorced recently and started living alone. No working history before.

The Reasoning Framework

All therapists in this study have clearly indicated that they have certain internal reference or preceding criteria in selecting or judging the suitability of the client to return to work. The most frequently voiced ones were:

1. Respect Client choice and disease prognosis

- "Respect client's choice of job". (OT A)
- "Not pushing and maintain rapport" (OT B)
- "Allowance for her to try her choice to find OE first" (OT C)
- "Aim at prevent relapse at work, just for engagement" (OT E)

2. Importance of good self control at work

- "Try SE only if keep tidiness, daily routine maintained & work habit OK" (OT A)
- "Will consider work only if client developed work habit, good attendance to therapy and improve accuracy at work" (OT B)
- "Only consider work if Daily routine and hygiene developed" (OT B)

- ☐ "May try SE if behaviour improved" (OT C)
- ☐ "Will try SE if attendance & punctuality to therapy improved" (OT D)
- ☐ "Consider work if daily routine developed" (OT E)

3. Insight and Motivation were positive factors

- ☐ "He motivates because of financial needs. As long as he showed motivation, let him try SE" (OT A)
- ☐ "She won't take up or sustain the job if finding jobs that she doesn't like" (OT A)
- ☐ "Back to OE despite personality deficits due to young age, insightful and good work skills" (OT B)
- ☐ "Should build up insight before job matching" (OT C)
- ☐ "Recruit to VR if higher energy to find jobs" (OT D)
- ☐ "Recruit due to definite work plan related to his skills" (OT D)

5. Showed concerns to family factors

- ☐ "Respect mother's request to let him try resume work" (OT C)

<u>Prediction and Decision making Process</u>

Here evidence was extracted to show the 2 distinct features of this process: (1) three consecutive staged decision-making; (2) cyclical factor analysis & options consideration within each stage.

It was clearly shown from the 20 cases that consecutive decision making were present in our therapist's reasoning process. Besides, when therapists decided that the client failed at first stage, he/she would not enter into stage II or stage III.

Within the 20 cases, 5 cases were found unsuitable for vocational rehabilitation programme at the time of screening and were rejected (at Stage I) from entering into further stages for consideration. *(Case 5, 7, 8, 11, 20).*

For those who have accepted into VR programme, they would utilize their core strategies to further consider whether the clients was ready to work immediately or to delay with a course of short term training first. So they were focusing on the appropriate timing or 'readiness' of their client to start work by assessing all basic factors or requirement in 'working'. Besides, they also provided a decision on the type/ nature of 'work placement' that the demands their client could meet. These verified the Stage II of our model of predictive reasoning. Hence, the following recommendations were noted:

- ☐ SE (Supported employment) with short term training (case 1, 10, 13, 15, 19)
- ☐ Not meet OE (open employment) level, SE with short term training (case 2, 6)
- ☐ Ready for direct OE (case 3)
- ☐ SE with long term training (case 4, 9)
- ☐ Not ready for direct OE, training then consider SE (case 16, 17)
- ☐ Job-hunt by self for OE with short term training (case 12)
- ☐ OE with short term training (case 18)

Utilization of core strategies with repeated factor weighing and options generations in a cyclical manner were also evidenced in the cases reported. They showed assigning of various importance levels to the clients' performance and also classified these factors into positive ones which are contributive to returning to work, or negative ones which are affecting the chance to returning to work. (Table 11) Also they reported some definite characteristics which are causing failure at work. The degree of consensus among them regarding the nature and variety of these factors were high and also those with more negative factors were opted for SE more, while those with more failure factors were rejected from further rehabilitation.

There was also evidence showing that they involved themselves a lot in completing the Stage III process in matching appropriate jobs for their clients. Some cases that were not meeting the target in Stage II, either due to incapability of client, or failure to meet consensus with client in choice of job, were suspended to proceed to Stage III like in case 6, 10, 16 & 17.

Counting was used to show the coherence of the factors and the level of consistency of the factors among the caseworks. Graphic display was shown here. By looking into the "doing most" responses and also 'highly important' considerations, it could be catalogued by looking for an inclusive gerund, something that would yield the underlying activity or concepts. A bar-chart (Figure 8) was constructed to denote the frequency counting of the factors from the 20 cases presented from all therapists. It was identified that the 'doing most" area of assessment is 'Work Potential' , followed by 'Work Style', 'Personal Style', 'Intellectual potential', 'Motivation' 'Interpersonal Style', 'Emotional style', 'Thinking style' and 'family expectation'. (Table 21)

Therapists were requested to assign the level importance of the factors in their process of prediction reasoning. The High Importance factors were 'work style', followed by 'work potential', 'personal style, while the 'intellectual potential' factors were top of the list of

Medium Importance. 'Family expectation' was considered mostly as Low Importance factors. (Table 20) Individual factors that were being rated mostly as High Importance consisted of appearance, insight in ability, daily routine, desire to Work, work plan, punctual at work, insight to disease, realistic goal, off job period & social skills at work. These seemed to resemble the results from the local survey of current practicing therapists (Study 1) as presented in Ch. 4.

Table 20 Summary of Factor Weighing for 20 cases

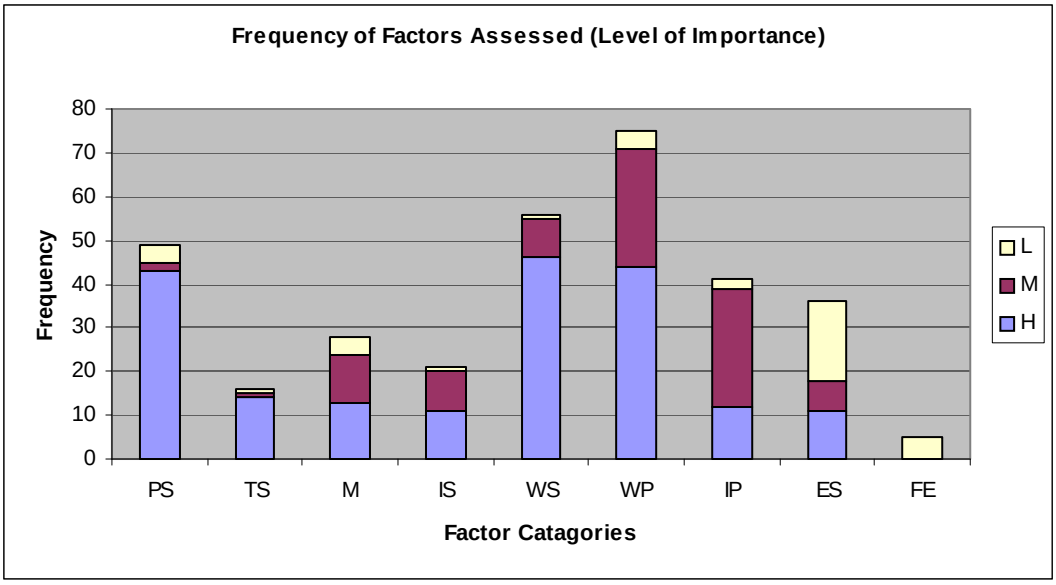
P = positive; N=negative

	HIGH	MODERATE	LOW	FAILURE	PREDICTION	OUTCOME
Case 1						
P	5	8			OE with training	Successful
N	4		1	2		
Case 2						
P	5	4		1	SE with training	Successful
N	2	2	2			
Case 3						
P	7	3			OE + coaching	Successful
N		1	1			
Case 4						
P	2	1	1	3	SE	Failed
N	6	2				
Case 5						
P	1	2	1	4	Not suitable for VR	Rejected
N	5	1	1			
Case 6						
P	9			2	SE with training	Failed
N	2	3	2			
Case 7						
P	1	1	2	3	Not suitable for VR	Rejected
N	7	1				

Case 8						
P	0	1	1	1	Not suitable for VR	Rejected
N	6	1				
Case 9						
P	3	1		5	SE with training	Successful
N	4	2	1			
Case 10						
P	3	1		7	Try SE after client developed insight	Failed
N	6	5	1			
Case 11						
P				2	Not suitable for VR	Rejected
N	5	6				
Case 12						
P	11	1		4	OE with short term training	Successful
N	5					
Case 13						
P	7	1	1	4	SE + short term training	Successful
N	5	3				
Case 14						
P	3	2	1	4	SE with training	Successful
N	8					
Case 15						
P	4	1			SE with long term training	Successful
N	6	3	1			
Case 16						
P	3			2	Not ready for OE, Job hunt self + coach	Defaulted Failed
N	6	6	1			
Case 17						
P	8	1			Part time OE	Successful
N	6	2	1			
Case 18						
P	9	1		1	OE + Training	Successful
N	4	4	1			
Case 19						
P	2	2		6	SE + training	Failed

N	7	11	1			
Case 20						
P	1	2		4	Not suitable for VR	Rejected
N	14	8	1			

Figure 8 Results of casework analysis – bar chart display



Remarks: PS = personal style, TS = thinking style, M = motivation, IS = interpersonal style, WS = work style, WP = work potential, IP = intellectual potential, ES = emotional style, FE = family expectation.; Level of importance= L-low, M-medium, H-high

Verification of the Theory

From the 20 cases reported and analysed, the researcher could verify the following characteristics of the staged model of predictive reasoning process generated that it was being evidenced in the daily practices of experienced occupational therapists.

1. It comprised of 3 major themes and 12 core categories that were interpreted as the Reasoning Framework, the Prediction Process and the Three - Staged Decision pathway.
2. They were dynamic interaction, affecting each other and continuously happening within the casework process as long as the therapist demanded the necessity of using any of them.
3. It was an open system where the Reasoning Framework was subjected to be influenced, modified, enriched and elucidated openly, by sources of client's significant history, interpretation of their desire, work plan, results from standardized assessment & observations, in addition to their own beliefs and assumptions.
4. The Prediction Process's is comprised of core strategies of:
    a. screening of significant work related history,
    b. recognition of patterns to build up beliefs and assumptions for specific case,
    c. additional observation and assessment for identification of relevant factors
    d. goal setting with collaboration of client; change goal according to client's consent, and/or family expectations
    e. further weighing of factors, further observation to confirm or change client perspective, if necessary

f. continuous prediction and decision making at critical time-points

These strategies were solid and specific as displayed along the 'therapist's axis'; and its performance depended on the will drive of the therapist within her/his own Reasoning Framework. Decisions being made at each stage of casework were products of the Prediction Process. The cycle of prediction process repeated itself, utilizing varying choice of contents and considerations at different time points, to facilitate the establishment of the best decision for that stage of programme.

5. Each stage of Decision Making was happening in a consecutive way and preceding the next one in an ordered manner. No exceptions were found in this pattern of reasoning work in our sample as well as the 20 caseworks from the other group of therapists.

6. However, 5 cases failed the prediction i.e. 25% in our study. The causes of failure might be :

    a. Respected family expectation and allowance was given against therapist's prediction. (case 4)

    b. Un-compromised client consent on the choice of level of employment or job nature, especially failed in clients with poor insight (case 6, 10, 16)

    c. Client's mental state changed or unstable during course of therapy (case 19)

7. The experienced therapists were found making more early decision to reject cases from VR service when the clients were assessed to be not suitable. (OT B, case 5, 7, 8, 11; OT E, case 20). Younger therapists tended to give more time in observation and hoped to gain better client's consent by changing their insights, which were found usually not successful in the case series.

Table 21 Results of casework analysis - Frequency count of factors

Work Readiness Checklist for SMI

Personal style	**H**	**M**	**L**	**Thinking style**	**H**	**M**	**L**
daily routine	11	1		insight in disease	10		
mood	8	1		insight to change	4		
appearance*	18	1		judgment		1	
financial needs*	6			basic life needs			1
community contacts			6	goal directed	1	2	
personality trait*	2	3		realistic goal	10	1	
education	1			inflexible thinking*		5	
age			3	perfectionism*			
abnormal behaviour	5	2					
patient role satisfaction*	3	1					
lazy	3		1				
Work Style	**H**	**M**	**L**	**Work potential**	**H**	**M**	**L**
Insight in ability	17			work experience	13		1
Insight to work	8			work history	14	1	
off job period	10	2		work speed	12	1	
desire to work	13	1		work tolerance	9		1
worker role satisfaction	2	3		work accuracy		4	
workplan	13	2		punctual at work*	15		
persistence to work*	10			specific work skill	14		
willing to try		10		work stress tolerance	8	1	
cooperation		6		finger dexterity			
follow order		2		follow instruction*		4	

eager to learn		6		social skills for interview*		10	
willing to share duties				relationship with boss*		6	
				relationship with coworkers*		7	
Family Expectation	**H**	**M**	**L**	knowledge about job market*			9
family supportive		1	6	knowledge of specific job*			8
family fear of failure				tension under supervision		1	
family protection				limited job interests		2	
Motivation	**H**	**M**	**L**	**Interpersonal style**	**H**	**M**	**L**
wish	1		1	insight in people relation*	7	2	
motivation to change	2	2		liked to be cared		1	1
motivation to improve	2	3		communication	7	5	
improve social status				offer help			1
confidence	8	1		verbal response	8	4	
initiation of actions*	2	6		trust in people*		4	
self esteem*		3		assertive		1	
acceptance of control		1		fear of people*	2	1	
				socially passive	2	1	
				dislike in group*	3	2	
Intellectual potential	**H**	**M**	**L**	**Emotional Style**	**H**	**M**	**L**
general alertness	1	2		attitude to criticism*		2	
general intelligence	2	6		positive to accept comment*		3	
attention	4	2		seek help*		6	2
concentration	1	3		willing to accept offers	3	8	
memory*		12	1	fear of change	1		
information reception		5		fear of consequences			
processing speed		7		fear of failure		2	
verbal reasoning		2		fear of stress		3	
verbal comprehension		5		feel unable*	2	3	
executive function		4		insecurity		1	
generalize skills		2		submissive to criticism			
problem solving*	1	7		low self expectation		1	
coping with error		2		fear of stigma		3	

decision making	1	1		negative experience		1	
critical thinking				able but unwilling*		1	
learning from experience	3	6					

Blue – negative factors; failure factors*; H=high importance, M=medium importance, L=low importance

Chapter 7

DISCUSSION

This chapter begins by looking at the results obtained and comparing them to existing theories and empirical findings from previous research. The recognition of occurrence of staging and cyclical characteristics of reasoning process is more explicitly presented in this study than normative literature.

A Dialogue with Existing Theories and Empirical Findings

Results obtained in this study compared and discussed with those of similar existing empirical studies. The discussion followed four major characteristics of the model, the Staged Model, developed in this research:

1. It was a chronological process that one level of decision should be accomplished, and was the pre-requisite for another level of decision-making. Three categories to describe the three levels were interpreted namely: (I) Suitability; (II) Readiness; & (III) Choice.
2. It embedded a cyclical process of thinking that they were repeatedly performed to accomplish that level of decision making. Five categories to describe strategies of the

process were interpreted namely: Screening, Factor selection, Options generation, Consensus building, Factor weighing & Decision making.

3. Therapist professional competency accounted for their judgment and decisions. Three categories to describe their competencies were interpreted as: Internal Reference, Knowledge and Environmental Concerns

4. It was a continuous interaction of bargaining and negotiation on relativity of fitness among the therapist, the client and the environmental context.

Models of Predictive Reasoning

A three stages model of predictive reasoning comprised of the therapists' implicit reasoning framework and explicit interaction with clients and environment was developed in this research (Staged-Model hereafter). Young and Quinn (1992, p.14) defines the chief functions of a model is to "provide a framework for complex data, facilitative visualization of phenomena, facilitate communication of ideas, and suggest predictions about the real world and stimulate the development of theories." Three models have been described in the occupational therapy literature to explain the phenomenon of clinical reasoning. These models were developed using what was described as a "scholarship of practice" approach

(Kielhofner, 2005). In other words, some of this information was generated from pure speculation, whereas other aspects were derived from study in environments where professional reasoning occurs such as in clinic. In this study, the researcher was pioneering the development of a model of clinical reasoning using an innovative approach to investigate the perceptions and experiences of the sampled therapists in their real clinical context. Although the scope and domain of this study was limited to vocational rehabilitation in mental health practice, the trustworthiness and contributions of the findings in professional knowledge and practice was basically improved in comparing with the traditional ones.

Cyclical Process of Prediction and Decision

There are four classical models of clinical reasoning in occupational therapy literature developed so far. They are: 1) the linear model as outlined by Dewey (1934) and described by Ryan (1998); 2) Higgs and Jones' spiral model (2000), 3) Unsworth's (2004) conceptualization of a three-tier hierarchy of clinical reasoning, which draws heavily on the work of Mattingly and Fleming (1994), and 4), Unsworth and Schell's (2006) ecological model of professional reasoning.

(1) Dewey' model is a classic description of general reasoning, resembling the hypothetico-deductive model of reasoning used in early medical studies and reported in Mattingly and Fleming (1994) and Roger's and Holm's work on diagnostic reasoning (1991). Basically, this model is linear and consists of five stages in problem solving situations: reflecting on ideas, formulating hypotheses, evaluating hypotheses for truths, determining a course of action, and formulating a verbal statement to represent the hypothesis (Ryan, 1998). This model works well in situations such as when a diagnosis is required. However, it is less Well suited to explain reasoning in health science (Unsworth & Schell, 2008) and is not comparable to the reasoning process or the Staged Model as described in this study. The course of action was more complex and multi-facet with 5 critical components identified and interpreted. (Table 22) Is in health care science field are now increasingly aware of the contextual aspects of cognition and thinking. What is directly happening around the clinician has a direct impact on thinking and reasoning. Rich descriptions on the details of the clinician interaction with the client and the resultant modification of behaviours are essential to provide a better comprehension of the many processes being taken, that is definitely not involving simply problem-solving situations; and that certainly not confined to tasks of diagnosis-making only. This is especially true in this study that the therapists were describing their multi-facet involvement in the prediction process. Instead of investigating truth or false as in

diagnosis making, they were undergoing a continuous interaction of bargaining and negotiation on relativity of fitness among the therapist, the client and the environmental context as one of the participant said:

> "If he has no goal, he cannot work. You push him for a small step is meaningless. Even if you can successfully push him to try SE, he will return and fail. His goal does not exist, only just the therapist has done his job. He has no benefit. …. It is not simply to set a goal, but to help him to know the way forward" (OT3)

Table 22 Descriptions of Critical Components of Predictive Reasoning

Master code	Memos
Screening	The selection process is important to reduce failure of clients after vocational rehabilitation. The successful rate is moderate and beyond satisfactory with possible causes in ineffective training for SMI cases or wrong/nil recruitment criteria into vocational rehabilitation programme at present.
Factors selection	There is no gold standard of selection or assessment among professionals, but there are several areas affecting the professionals during the process of selection These predictive factors are identified partly from literature and mostly from clinical experience. They are focusing on all behaviours believed to be reflecting the predictive factor, categorized as 'thinking', 'working', and 'relating'. There are the facilitating factors and failure factors also. At present, there are no standard assessments or tools for the above factors for selection

	of clients. They utilize assessments in the form of clinical observations. They set up simulated tasks in a structured environment or 'workshops' and require clients to operate within for at least few days to 2 weeks.
Factors weighing	Factors for selection are of hierarchical nature where some factors are pre-requisite for the next ones. It also serves to determine the level of vocational goals for clients also, Insight can help one deepen self-understanding. They rely on job-trial (on-site or off-site) to feedback to the client as Well as therapists on accuracy of the job matching process, and further guide their training needs or job alternatives. They acknowledge the limitations of existing assessment for insufficient simulated tasks to assess problem solving, memory or attention etc which includes something cannot be observed, nor can they provide attractive and level appropriate environment for young cases. This affects their accuracy in job matching.
Options generation	In selection of clients for vocational rehabilitation, they focus on their 'Readiness for Work' against different levels of job requirement, including competitive OE/ SE, traditional SE & SW. To predict suitability of client and set preliminary goals and intervention plan for different levels of service Factors for predicting success in job interview is different in partial with job sustaining e.g. Facilitator : attitude for criticism, community contact, eager to learn attitude; Job Interviewing factor: social skills; Job selection factors: fear of stigma, real problems being identified, insight on disease, active symptoms, younger and non-chronic; Job maintenance factors: family expectation, role perception, awareness to environment, daring to ask, cooperate with people, ability to take up information and instruction, social skills(predict first 2 weeks in job with boss and colleagues)
Client consent	In considering successful outcome, consensus is emerging. Client's wish is respected. To force the client into unfit level of work is a negative factor for job quitting. Professionals are using more time to talk with clients on setting 'goals' and work within their limits. Preserve their mental state stability is prime aim of rehabilitation

The Staged Model of this research was a non-linear model explains more the repeating and cyclical cognitive work that the therapists performed during the reasoning process.

And the cognitive skills that were performed are sensitive to the context as well as to the persons acting within that context. This approach is more inclined to 'situation cognition' described by Greeno (1989) that involves consideration of the environment in understanding the participants' thinking.

B) The Staged Model developed in this study resembles some features of the spiral model as described by Higgs and Jones. Both models are using a progressive approach to depict the clinician's growing understanding of the client and the clinical problem during their interactions. Six elements were identified by Higgs and Jones in their patient-centered spiral model namely reflective inquiry, integration of cognition and knowledge, nature of the problem, knowledge, environment and client's input. Comparing with the Staged Model, Higgs & Jones model is only reporting part of the reasoning process that the researcher discovered in this study.

The elements identified above were similarly identified in this study, However, being interpreted as only one of the core theme of the whole model, the Reasoning Framework'. It is regarded as playing an essential role in the whole predictive reasoning process as assumptions and beliefs shape what therapists see, affect the interpretation they make, and

guide what course of action they select. Further discussion on assumptions would be presented in later paragraphs.

To improve on the Dewey's model which only explained the process components of thinking, the 'spiral' characteristics of Higgs and Jones model pioneered to explain the reasoning process in two dimensional manner, that is, the process and the structural content. Similarly, this study also reflected in further details the content of the therapists' thinking e.g. the 140 factors of performance or the 7 criteria of readiness at work (see Fig. 4, p.74), in which therapists indulged during the prediction cycles. Furthermore, the Staged Model suggested how these factors or content of thinking being manipulated throughout the reasoning and decision making process, i.e. the cyclical feature or the "Prediction & Decision Cycle " as named in the study findings (see Chapter 5) which includes screening to ascertain the client's current context, factor selection in identification of favorable and unfavourable factor towards work, options generation to determine preliminary goal, factor weighing to weigh and prioritize various factors against the desired goal, consensus building to gain client consent to proceed to make choices from options; and then come to decision making. Further evidenced in this study, this process was not only happening once during a client's work, but is repeating whenever the therapist has to make prediction and decision throughout the 3-levels of decision making for the clients. Hence, the spiral features have

been denoted more than once in the diagrammatic presentation in this study as below. (Figure 9)

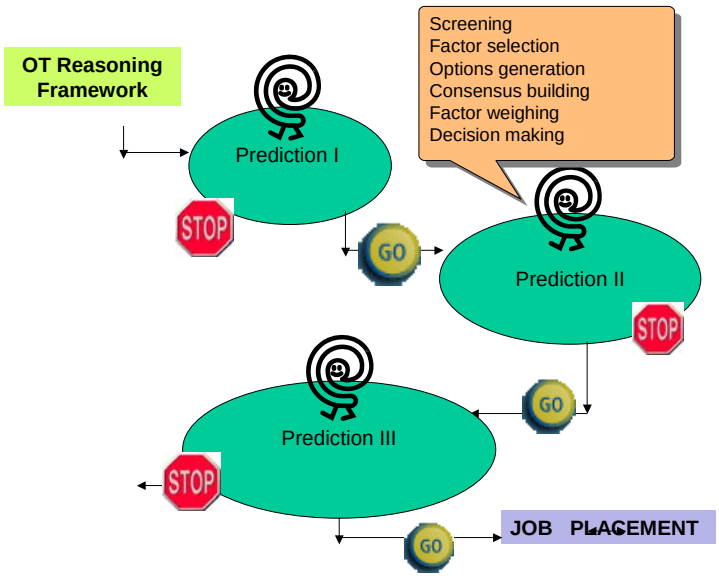


Figure 9 Cyclical prediction process and its components

C) Similarly, Unsworth (2004) proposed a three-tier hierarchy model to depict the relationship between the different types of clinical reasoning found through her own research and mostly from former scholar's work by Mattingly and Fleming (1994); Schon (1983, 1988); Barris (1987); Hooper (1997); and Schell and Cervero (1993). The hierarchy was constructed in terms of the nature of thinking processes that the therapists underwent during clients' interaction, i.e. context driven, client driven and worldview that represents sophisticated thinking incorporating one's moral beliefs and socio-cultural perspectives. However, unlike the Staged Model presented in this study, it did not correlate with the

chronology or flow of therapist's work in actual practices and that may not be useful for novice practitioners to learn and apply in their clinical work. The chronological feature of the Staged Model was another important component that noteworthy in professional teaching. It initiated to provide senses on 'When' to talk, to ask, or to act appropriately and effectively during a case management process that many novice therapists feel eager but find no way to learn. And this is also important in avoiding novice therapists to quickly fall into traps of "habits of expectations" in their daily practice when they felt helpless on the little references or literature available.

D) The most recent published Ecological Model of Professional Reasoning by Unsworth & Schell (2006) improved their previous work to successfully link the reasoning process directly to therapy action, and it is shaped by factors intrinsic to the therapist and client, as well as extrinsic factors in the practice context. As previously stated, this constructed model still draws on the work of many others in a meta-synthesis of scholarship like Tornebohm (1991) for the general form and key components in parts and Mattingly & Fleming (1994) for the major kinds of reasoning and many subsequent studies of clinical reasoning as a multi-track process (e.g. Crepeau, 1991; Creighton, Dijkers, Bennett & Brown, 1995; Unsworth, 2004, 2005). Although without research directly on its theory, the postulation of 'the symmetrical and reciprocal interaction of the therapist and the client, having each of

them held a 'personal lens' under the practice context' seems applicable in actual practices. Coincidently, the therapists in this study were found to have an additional 'professional lens' to inform him/her the professional knowledge and experience required in the practice. This structural presentation was highly consistent with what I was presenting in this study.

In contrary, the findings in this study serves to provide more details and evidence that these reasoning work, although dynamic in nature, still showed a chronology and causal relationships in explaining when and how the therapists perform the thinking and the resultant behaviours during Predictions and Decision Cycles.

Besides, the researcher advanced the model further by introducing the staged characteristics in the decisions making process to reflect the progressive nature of the growing understanding between the client and therapist and to set upgrading goals for the client to extend potential as well as to fit in the best environmental demands. Anyway, this is consistent to what Fleming (1991) proposed that therapists, in their expert practice, will consider possibilities over time for the client, given the client's particular situation and the therapist's experience with other clients. Therapists are involving all forms of reasoning, synthesizing them to guide interventions under the imagined possibilities.

On the whole, the findings of this study seems superior to previous literature not only by its originality from direct vigorous research methodology, but also its comprehensive reflection of therapists professional reasoning in actual clinical practice.

Three Consecutive Levels of Decision Making

In this study, three stages of Decision Making were identified that occurred in a sequential manner: to decide on suitability, next to decide on readiness and then to decide on choice and find the best fit. Almost none of previous literature of occupational therapy or other similar professions has mentioned this characteristic explicitly under the faculty of clinical reasoning. However, it is described commonly in the general literature that decision making (d-m) is the process of choosing a solution between two or more alternatives, aiming to achieve the best possible result for a given problem (Voskoglou, 1994). It is obvious that this process has sense if, and only if, exists more than one feasible solution, together with the suitable criteria that helps the decision maker to choose the best among these solutions. A proposed solution is characterized as a feasible one if it satisfies all the natural restrictions imposed (onto the problem) by the real system that the researcher studied. On the other hand, the adoption of the suitable criterion, especially when the results of a decision are

affected by random events, depends upon the decision maker's way of thinking (e.g. optimistic or conservative criterion etc). It frequently happens.

It is well known that the complexity of the problems of the everyday life led, from the beginning of the 1950's, to the development of a systematic methodology for d-m, based on Probability Theory, Statistics, Economics, Psychology, etc. and called Statistical Decision Theory (Berger, 1980). The d-m process involves 4 steps: analysis of the decision problem through understanding, simplifying and reformulating the problem (d1); collection and interpretation of all the necessary information (d2); determination of all the alternative feasible solutions (d3); and choice of the best solution under suitable criterion (d4). Verification of the chosen solution should not be missed when applied in practice. He also stated the first three steps are continuous and needs some time for the decision maker to transit between hierarchically neighboring steps. Flow diagram of the d-m process is represented below.

d1 <-> d2 <-> d3 ----> d4

In this study, occupational therapists were evidenced to apply the above analogy or its similar to perform repeatedly the virtual calculation of pros and cons in their mind of helping their

client in return to work which is named in this study as 'factor weighing' (see Table 11, p.125) and a list of factors (see Table 9, p.118) were identified from this study where therapists have assigned weighing formulas to these factors according to the importance, polarity and priority in the context of 'returning to work'.

It is also interesting to find from the participants in this study that they were in fact thinking in a more scientific and logical approach than what the researcher expects as humanistic or senses dominant. In fact, they were acting in consistent to the literature as to marginalize the benefits for the clients against each available option during each phase of decision making (Berger, 1980).

The hierarchical or staged nature of the process was viewed as breaking down the goals and options into smaller hierarchical steps to enable more accurate prediction reasoning tasks to be performed by the therapist and easier for the clients to visualize the pros and cons about the options before choosing. Interestingly, this is the most basic professional skill of occupational therapist in doing their activity analysis for the clients in carrying out assessment and training for daily living skills (Fidler, 1981).

This complicated thinking analogy of 'factor weighing', 'options generation' and 'consensus building' happening between the therapist and the client was another laborious but noteworthy part of predictive reasoning that needs more investigation and research into its logicality and mathematical rigour. This was certainly rarely explored in such paradigm in previous occupational therapy research, cross-disciplinary expertise may be sought to build up this mysterious area of knowledge base.

Individual professional competency accounts for judgment and decision

Internal Reference

As noted by Schon (1983) in the quotation, traditional literature acknowledges that professional practice requires therapists to transverse a range of problems.

> " The dilemma of 'rigour or relevance' arises more acutely in some areas of practice than in others. In the varied topography of professional practice, there is a high hard ground in which practitioners can make effective use of the research-based theory and technique. Moreover, there is the swampy lowland in which situations are confusing 'messes' incapable of technical solution. The difficulty is that the problems of the high hard ground,

> However great their technical interest, are often relatively unimportant to clients or to the larger society, whereas in the swamp, the problems of greatest human concern are found. (p. 42)

The results in this study were explicitly reflecting this phenomenon in actual practice. Therapists could be guided in their decisions in some cases by fairly straightforward scientific or technical information, but much of actual practice required a multitude of nuanced decisions and actions, without the straightforward professional guideposts one might wish for.

In this study, it was obviously interpreted from the therapists that he/she has his/her own developed framework of reference in interacting with clients and the environment. Therapists based on their 'Internal Reference, Knowledge and Sensitivity to Related Environmental Concerns' to find out the actual picture of the potential of clients; and further on to generate the best consented choice (Fig. 10). This was not new to occupational therapy literature in clinical reasoning. A broad array of terms are used to describe the intra-personal dimensions of practice including "values", "beliefs", "expectations", "inner horizon", "worldview", "pre-theoretical commitments", "ideological orientation", "personal paradigm" or "personal context". For example, though not studying professional reasoning

per se, Peloquin (1993) noted that therapists choose to be with patients in particular ways based on their beliefs about caring and competence; in a separate piece (1990) she noted that therapists interact with patients in ways that reflect a vision of the therapeutic relationship. Tornbohm (1991) put forward the idea that a therapist's personal paradigm regulates intervention and that this paradigm includes "assumptions about persons who are in need of occupational therapy" (p.452). Schell and Cervero (1993) proposed that a therapist's personal context is an important element of pragmatic reasoning. Yet, regardless of the terminology and the focus of the scholarship within which assumptions have been discussed, scholars seem to agree that occupational therapists carry a set of personal and professional assumptions and that a good deal of how therapists view, perceive, understand, and act toward their clients and their work stem from those assumptions. This is consistent with the researcher's findings that a 'Reasoning Framework' existed in every therapist and this affected the choice and practice of prediction strategies that follows in the process.

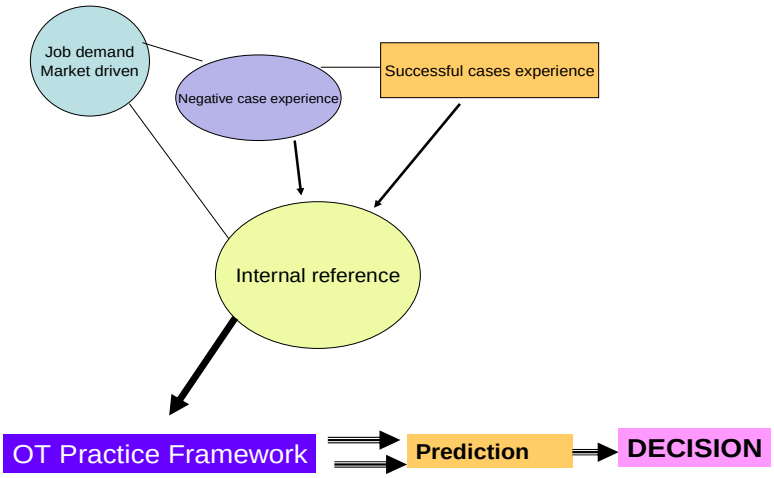


Fig. 10 Extrinsic factors of therapist internal reference

Specifically, how assumptions guide perception and action may be understood in light of the evolution of assumptions into "habits of expectation" (Mezirow, 1991). It provided a basis for judging and selecting and interpreting what an experience means in a habitual ways. Therefore, assumptions play an influential way in action by filtering and directing attention, guiding and constricting choices and interpreting the meaning of an act or experience (Mezirow, 2000). In occupational therapy practice, this means that assumptions can serve as one means by which therapists filter their attention, prioritize and select actions, and construe meaning about what the client needs. Tornbohm (1991) argued that, depending on the level of understanding therapists have about their own assumptions or paradigms could support, limit, or even contradict clinical actions. Similarly, in this study, the researcher highlighted the problem of this 'habits of

expectation' that doesn't explain instances when assumptions appear to limit or contradict clinical actions. Hence, a lot of examples of such phenomenon were discovered and commented by previous researchers that therapists were found exercising unbalanced interactions between themselves and the clients unconsciously, tried to maintain dominance of what were expected and implemented, disregarding the natural quests from clients. (Barris, 1987; Borell, Gustavson, Sandman & Kielhofner, 1994) In the practice of experienced therapists in this study, they could reflect this limitation and withheld their control according to their habitual expectations. Rather, they emerged on a "horizon of possibility" that was described by Mezirow (1991) as represented values regarding ends, norms or criteria for judgment. Hence, processes such as 'factor weighing', 'options generation' and 'consensus building' were interpreted and highlighted in the Staged Model that differentiated itself from traditional ones; and most importantly, depicted a real and updated picture of what a standard predictive reasoning process might be for future professional teaching or coaching.

Following this essence, therapists in this study were found to operate under an Open System that susceptible to external influences. Scholars highlight the essence of human experiences influences professional reasoning. Additionally from this study, it is identified that therapists not only reason from the inside outward to actions, but also take in new experiences or life

dilemmas that often alter the makeup of their deeply rooted assumptions. In this study, therapists expressed their experiences gained overtly or covertly from successful or failure cases influenced their perceptions of their clients. And the rapidly changing demand from external always informed about their choices (Fig.11).

Under the context of this study where the researcher is focusing on the vocational rehabilitation programme, specific tenants within therapists' internal reference are further identified. Kielhofner and Barrett (1998) once described in their study of how occupational therapists used goal setting in a work-focused programme that their choice of actions was deeply infused with culturally rooted ideas about the nature human experience in which "people progressed forward in time, calculate steps of actions, mark passages, and set objectives to get to somewhere in the future". They have reported the shortfall of this 'take-for-granted' cultural perspective in mental health practice. The therapists struggled to understand why goal setting and identifying steps to meet goals was not important for some clients. This unawareness towards own culturally derived assumptions might caused their approaches to be unsuccessful.

However, in this study, the expert therapists were highly aware of the specificity of personality trait of clients with SMI. Apart from their p**ersonal beliefs & assumptions**

about human nature as described above, several other areas are interpreted from our therapists including traits of clients with SMI, basics or pre-requisite for a person to work and self efficacy in making prediction which were seldom mentioned in other similar studies. The therapists of this study were more scrutinize about the client's 'fitness for work' not only referenced to their own pre-conceptions but also testifying their perceptions and beliefs against real world situations and feedback continuously and made modifications. This resembles partly to Pragmatic Reasoning as described by Schell & Schell (2007) that therapists with more experience can see beyond client's condition, but rather on all the physical and social 'stuff' that surrounds the therapy encounter as well as the therapist's internal sense of what he or she is capable of and has the time and energy to complete. The additional concerns interpreted from this study participants on 'basics to return to work' and 'self efficacy in making prediction' is the good practices that enable rational orientation to the reality world and rational reflection of own power. (Fig. 12).

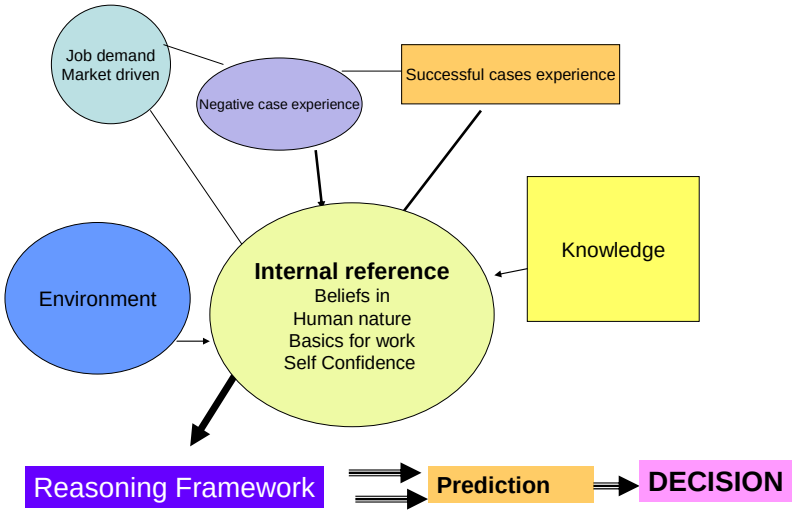


Figure 11 Open system of reasoning framework

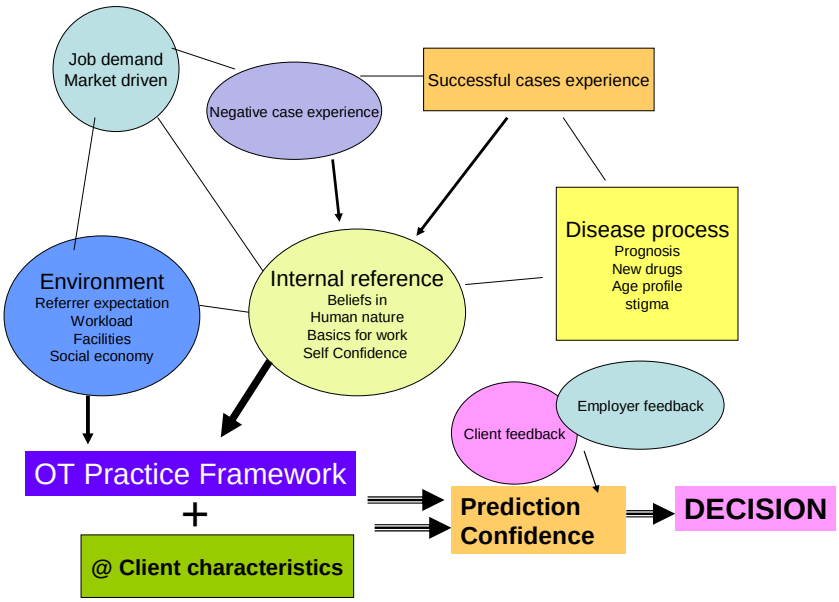


Figure 12 Flow diagram of decision making process

In contrary to previous empirical findings and studies, evidence suggests that the therapists' Reasoning Framework' were functioning as an open system for updating 'knowledge' and

fast changing 'environment'. Both in Ward's (2003) phenomenological study and in Mekkes' (2003) reported interviews with 3 expert therapists, a good deal of these therapists' professional reasoning was focused on their inner responses to clients, what Ward described as the therapist's inner horizons – 'those ideas and fantasies that form the sense of self' (p.630). Mekkes also revealed that each therapist held unique assumptions about the nature of human experiences and gave unique reasons for why and what they did with clients, even their interventions are similar. Sometimes assumptions about human may have held more weight than the scope, domain, theoretical foundations, and research base of the profession. In local practice, the researcher did find difference in assumptions among therapists and especially varied between novice and experienced therapists in the multiple case studies, where more experienced therapist tends to be too confident on their therapist-client interactions, overlooked the objective environment and allowance for exploring potential of clients. One of participants opined that this was the shortfall of existing practice and not worth endorsing in occupational therapy practice as echoed by Schell & Schell (2007) also.

Knowledge

It is difficult to find research in occupational therapy specifically framed to study the connections between therapists' assumptions about knowledge and clinical reasoning. From

Burke's (2001) study on the theoretical perspectives during pediatric evaluation, therapists' fundamental assumptions about what knowledge, or theoretical perspective, is most central to practice and is another important aspect of work. Burke identified that the core knowledge including medical/scientific view on disease process and models of occupational therapy practice influences clinical actions. However, the variation of these assumptions about how knowledge is obtained and generated; and its alignment to therapists' personal beliefs were not reported. This is being elaborated more in detail in this study that the inclusions of 'core knowledge' under the context of this research. As a trained professional to work with SMI clients, they owned a sound knowledge background in psychiatric illnesses, the disease process, prognosis as well as the relapse factors. In working as an expert in vocational rehabilitation, the core knowledge should encompass the job market, the changing demands and expectations from employers of different level of placement. They gained their knowledge from direct feedback from clients, the service users, the employers and family members. Their knowledge was being continuously updated from new innovations in psychiatric drugs to new service model for clients with SMI. All these were shown to be important for setting the scenarios for making 'predictions'.

Self-efficacy in prediction

The therapists' assumptions about the future of the client were expressed as "expectations" in Hasselkus and Dickie's (1994) study when exploring the satisfying and dissatisfying experiences of therapists. Mattingly (1991, 1994) also found that therapist's imagery of the future of the patients gave them a "basis for intervention tasks". In this study, the researcher confirmed the importance of knowledge on the disease process and prognosis of the clients and existence of expectations in therapists' mind to formulate a future image of the clients. Here, it is constructed and named as the "reasoning framework' for 'predictive reasoning'.

Expertise practice

This study shredded some light on existing Expert Theories. So far, the focus of discussion has been on the knowledge, beliefs and assumptions that make up the framework of practice, in fact, this open system of information processing developed in the therapists over a long period of years results in the emergence of expertise. Experts are believed to practice at a high level in terms of experience and knowledge in a given domain, integrating complex frames and procedures into larger and compiled procedures. According to Benner (1984), as professionals gain experience, they become increasingly able to rely on knowledge that is a result of years of experience, to use their expert knowledge to select important cues and from

the setting and be more reflective in interaction with clients. The therapists in this study demonstrated these characteristics and automaticity emerged in various situations that they described as 'I will use our professional judgment' or 'We therapist has an answer in our mind". They have well-developed frames, including an array of attribute-values, structural invariants and learned constraints that provide the structure for their knowledge base. In addition, they possessed significant sensory-based knowledge related to the profession as well as to the client specificity. The richness of the frames in declarative knowledge and the sensory memories derived from much experience results in what Benner (1984) called practice based on experience.

Carr and Shotwell (2008) define 'expertise' includes a rich, integrated knowledge base, qualitatively different strategies, automaticity in problem solving, and the ability to reflect on problem solving when necessary. The model that was constructed in this study could be taken as expert knowledge that improves expert's ability to encode and maintain as organized information in their working memory.

Firstly, the knowledge base was integrated in daily practices. In a clinical setting, the elaborated frames of an expert clinician provide the means of interpreting what may seem to be unrelated information as meaningful and interconnected. Expert knowledge in the same

way enables novice practitioners to better and more easily comprehend the domain of expertise (Schneider & Bjorklund, 1992). In this study, the expert therapists not only picked up the right cues but organized that information in their reasoning work to make predictions.

Secondly, emerging expertise is characterized by changes in strategies for problem solving. Toglia (1998) defines strategies as "organized approaches, routines, or tactics that operate to select and guide the processing of information" (p.8). The strategies that novices and experts develop are a function of improvements in the quality and quantity of their knowledge on a subject. A novice's strategic approach to problem solving is more exploratory, whereas the problem solving of an expert tends to focus on providing or disproving a single hypothesis that is created based on years of experience diagnosing problems (Hunt, 1989). When confronted with a wide variety of information about a client, therapists must select appropriate strategies for intervention. (Toglia, 1998) The types of strategies depend on the level of expertise of the therapist. The reasoning strategies that were employed by the therapists in this study were forward-looking, less time consuming and goal oriented which supported by the "forward reasoning strategy" of Schmidt & Bjork (1992) that occurs in experts. The therapists, as illustrated by the cognitive maps or decision trees, created a mental flowchart showing the possible paths and sub-goals needed to solve the therapy problems. This could only be done when someone with enough knowledge and sufficient experience to

know which paths would be most likely to result in correct outcome. They were testing a "best guess" hypothesis rather than exploring multiple potential. Hence, the findings of this study contributed to the expert knowledge in vocational rehabilitation in mental health services.

To summarize, the Reasoning Framework presented in this study (see also Chapter 4, figure 5) is consistent with existing literature. Additional contributions to the knowledge base were evidenced that local expert therapists had wider perspectives covering besides assumptions on human nature, but also assumptions on their knowledge, on external environment, on work related issues and on clinical advancement for mental health practices. Besides they were more reflective in approaching their own beliefs and assumptions that enabled their confirmation of self efficacy in getting most out of the therapist-client interactions.

Significance of Predictive Reasoning

To understand the thinking that guide practice turns out to be a complicated business. (Schell & Schell, 2007,p.6). Like other human endeavor, it is the result of interplay between the person, the context in which the person is acting, and the specific therapy tasks that must be

accomplished. Although occupational therapy theories are designed to help the professionals to understand their clients, theories about clinical and professional reasoning are focused on the therapist and how that the therapist goes about doing therapy. Certainly, much of the current research is inadequate to completely comprehend the complexities of reasoning that occur in the real-life context of professional practice. Likewise, there is little information about how individual differences in therapists affect their reasoning.(Schell & Schell, 2007) Because of limitations like these, some findings of this study could be explained partly by existing theories in certain extent; but not the whole of it.

Table 23 Different aspects of reasoning in Occupational Therapy (Exceprt from Schell & Schell, 2007, Unit1, p. 7-8)

Aspect of Reasoning	**Description and Focus**	**Therapist approach**
Scientific reasoning	Reasoning involving the use of applied logical and scientific methods, such as hypothesis testing, pattern recognition, theory-based decision making and statistical evidence.	Evidenced based
Diagnostic reasoning	Investigative reasoning and analysis of cause or nature of conditions requiring occupational therapy interventions; can be considered one component of scientific reasoning	Evidenced based Truth and fault finding
Procedural reasoning	Reasoning in which therapist considers and uses intervention routines for identified conditions; may be science-based or may reflect the habits and culture of the intervention setting	Impersonal and diagnostically driven Protocol or programme based

Narrative reasoning	Reasoning process used to make sense of people's particular circumstances, prospectively imagine the effect of illness, disability, or occupational performance problems on their daily lives, and create a collaborative story that is enacted with clients and families through intervention.	Culture based Client centered Non-prescriptive
Pragmatic reasoning	Practical reasoning used to fit therapy possibilities into the current realities of service delivery, such as scheduling options, payment for services, equipment availability, therapists' skills, management directives, and the personal situation of the therapist.	Therapist centered Remote from clients' reality
Ethical reasoning	Reasoning directed to analyzing an ethical dilemma, generating alternative solutions, and determining actions to be taken; systematic approach to moral conflict.	Bargaining to solve conflicts
Interactive reasoning	Thinking directed toward building positive interpersonal relationships with clients, permitting collaborative problem identification and problem solving	Client centered Goal setting with clients Rapport building
Conditional reasoning	A blending of all forms of reasoning for the purposes of flexibly responding to changing conditions or predicting possible client futures	Expert practice Situational cognition and planning

In most of the recent literature on clinical reasoning in occupational therapy, aspects of reasoning usually includes scientific reasoning, diagnostic reasoning, procedural reasoning, narrative reasoning, pragmatic reasoning, ethical reasoning, interactive reasoning and conditional reasoning. (Table 23) Other than Conditional Reasoning as described, the remaining types of reasoning, which are mainly defined under specific scope or purposes, are

found to be incongruent in terms of the content and process to the predictive reasoning developed in this study. In fact, in this study, I had interpreted a form of reasoning in a much larger context where it was utilized by the therapists to make decisions and predictions. To make decisions and predictions is a common act and should be one of the major clinical tasks for the therapists that serve in patient services. It was opined that predictive reasoning in this study comprised various types of reasoning identified like 'scientific reasoning' in which the therapists made references to all available evidence collected before making decisions (q.21.1); 'diagnostic reasoning' in which clients were being screened and investigated to confirm their 'suitability' and 'readiness' to work (q. 22.1, 23.1, 24.1); 'procedural reasoning' in which the therapists utilized workshop routines to carry out observations and job trials for their clients (q.20.1, 35.2) ; 'narrative reasoning' in which the therapists spent days and weeks in talking and understanding the story of each client and also their backgrounds in order to generate a best choice (q.27.1, 29.2). Furthermore, 'pragmatic reasoning' and 'ethical reasoning' was evidenced when the therapists admitted the limitation of their therapy environment could not provide many real situations for clinical observations; and they would not forced the young clients to come back to therapy department when they find the tasks boring.(q.26.1, 30.2). Interactive reasoning was mostly reflected in the therapists when they involved themselves in ongoing negotiations with clients on their goals and wishes, their consent for vocational rehabilitation and choice of job, etc (q.36.2, 39.2, 40.2, 42.2). At this

point, it is obvious that the model of predictive reasoning generated in this study can be viewed as a higher level of concept in clinical reasoning that covers part of the focuses of mostly other types of reasoning.

Actually, the nature of predictive reasoning addressed in this study is more a synthesis of interactive and conditional reasoning as defined in Table 12, that addresses the interpersonal processes are required to move therapists' reasoning to effective action in each therapy encounter. As Alda (2005) noted once "real listening is a willingness to let other person to change you (p.160). The expert therapists in this study revealed their communication with their clients were interactive in light of how the clients' health and performance might unfold over their lives. This required the construction of trajectories to guide the overall therapy process as well as to predict different possible outcomes. These mental roadmaps or cognitive maps were based on the therapists' combined understanding of the client's health condition, anticipated changes, and life story, along with resources supports and limitation. Fleming (1991) calls this conditional reasoning when he is describing practitioners blend different aspects of clinical reasoning to interact effectively with their clients, and they must flexibly modify interventions in response to changing conditions. Few researchers demonstrated this process for example, in planning their treatment interventions in a hierarchy level of difficulties and therefore brought several sets of supplies to a treatment

session, the other practitioner would brought a longer splint providing possible conditional alternations in length if necessary.(Creighton, Dijkers, Bennett & Brown, 1995). In this study, the therapists had demonstrated a form of reasoning that encompasses the futuristic view under conditional reasoning as well as grasping the details essential in client's needs through interaction reasoning. As Crabtree (1998) uses the metaphor of a camera to explain how conditional reasoning can really work:

> Therapists position themselves where they can gain a panoramic view. From this point, they zoom in on the details that will help them to understand what they see. They may zoom in a different point and see different things, such as problems, stories and people. In contrast, they can also grasp the immensity of the landscape. It is more than just using a wide-angle lens, it includes the details as well. Both kinds of view serve a purpose: the details to guide the daily practice and the wider picture to grasp the meaning of the endeavor (p.122)

To summarize, the findings of this study, the Staged Model of Predictive Reasoning has demonstrated the actualization of this metaphor in real clinical context, and applied in a wider and more complex context than previous studies, which the therapists in this study perceived themselves as effective in their expert professional practices.

Chapter 8

CONCLUSION

Implications for Occupational Therapy Practice

This study generated a model, which provides understanding of the process of how occupational therapist predicts and provides intervention for the clients with SMI in vocational rehabilitation. This increased understanding is of great value in identifying appropriate clinical behaviours and skills in day-to-day clinical practice.

The findings of this study confirmed the consecutive Staged Model of decision making and Cyclical Predictive Reasoning process was important in daily clinical process. Furthermore, the research alerted that therapist's beliefs and assumptions affect the process that may exert good or bad influences in the prediction and intervention approaches. And the therapists, to function at an expert level, should be open for updating knowledge and advancement as Well as be self reflective from others' experiences.

The model generated is of value in supporting the acquisition of competence in novice therapists and to qualify the therapeutic process of vocational rehabilitation programme. Unlike existing theories of clinical reasoning in occupational therapists (Mattingly & Fleming, 1994) that only describes the inclusions of thinking in varies types of clinical reasoning identified, or unlike the theory of Rogers and Holm (1997) that presented the four tasks involved in reasoning work, the researcher has added to these theories the details of applications of the reasoning tasks by therapists in making their prediction and decision in individual casework level. Moreover, their thinking strategies in weighing and prioritizing for goal attainment in respect to each client's specificity were firstly being explored and presented the first time in this thesis. The bivalent practice of expert therapists, that is scientific in thinking and humanistic in interacting, was being acknowledged and advocated in this research for novice practitioners and educators to follow.

Professional Education

Another important implication is that once the features of predictive reasoning are better understood, appropriate educational programmes and pedagogical strategies may be developed to furnish novice therapists with the necessary 'theoretical' knowledge of predictive reasoning, as well as to advance their reasoning skills. For instance, the identified theory revealed that client consent and choices are important for the process of vocational

rehabilitation. Educators should inspire students or fresh graduates with this fact in designing the pedagogical method to teach clinical reasoning. Emphasis needs to be placed upon the use of observational skills and behaviour analytical skills, standard assessment technique and questioning methods, so as to strengthen students' competence in engaging themselves in various types of attending behaviours and perceiving strategies. In addition, there is a need for educators to select appropriate instructional and assessment strategies to shape students' mental performances in the proof of predictive reasoning work. Therapists and educators should also need to acknowledge the impact of those socio-psychological structural factors that were found to be exerting influences in practice of vocational rehabilitation for clients with SMI. Teaching methods should be employed to highlight the impact of these variables, so that any possible negative effects on the predictive reasoning can be minimized.

Incorporating research findings into educational and pedagogical practices is not without difficulties. However, the generated theory offers insights and guidelines for standardization of professional education and practice, and further research needs.

Expert Building

Expertise building is a concept where it is not based on concept and knowledge within professional boundaries, but to extend application of these in merging with wider scope that therapist experienced in coping with market driven needs. Changed beliefs and concept of the employment world has been becoming the directives of expertise development. It is the expertise building that has market value and position in the group. From the theory generated and displayed in this study, time-ordered matrix is a model to describe the various inputs which the therapist could offer to 'enable' the client to engage in their path to recovery. Hereby, evidence based approach using 'the values and beliefs' of the client were integrated with the scientific evidence base from therapists. Importantly, the therapist gains confidence through their success at predictive reasoning, whilst the client gains emotional confidence in their ability to undertake goal-oriented activities without fear of exacerbation or under-performance. A definition of expertise should encompass the ability to perform accurate predictive reasoning.

Standardized assessment

To enrich the supporting data and understanding of the client during the different stages of decision making was a well versed need in this study. The model generated could be further consolidated to provide a hint for therapists to choose and develop appropriate tools for each stage of work, e.g. to utilize a valid questionnaire to screen for 'motivation for work' and 'insight to disease' in screening for 'suitability for VR'; or to add on cognitive tests to verify the client's learning potential, social response, flexibility thinking or memory. These may serve more structured reasoning pathway for novice therapists to make predictions and decisions.

The documentation tools developed in this study, namely the Work Readiness Checklist, the Time-ordered Matrix and the Priority Factor Lists for 'Suitability for VR', 'Readiness for Work', and 'Failure Factor for Job Sustaining' may be worthwhile to be further researched in their content validity and reliability. Unlike isolated ability assessment or observation checklist, they are useful to provide more structured reasoning pathway for novice therapists to follow in individual case management. Anyway, there are no similar tools, available or utilized in local practice as reported from our local survey (see Ch. 3, Study 1).

Analysis of changing market demand

As reviewed, the clients with SMI are increasingly joining the competitive employment market for reasons of clients' self-expectation, changed environment of economy, societal expectation as Well as positive evidence informing the benefits in vocational rehabilitation programme for clients with SMI internationally and locally. Is our existing system of screening and assessment for potential clients in vocational rehabilitation programme match with the demand of the competitive employment markets? Occupational Therapists who are bridging their clients from healthcare institutions into normal world are encouraged to widen their practicing framework and perspective to include the current market and its trends.

In the nowadays world employment market, selection of employee has becoming a professional science work. Vast input from professions of applied psychology and human resources management start to develop measurement system to imitate the professional judgment in selection of appropriate employee to fit in different levels and nature of jobs in the organization. In 1970, the ASSESS Expert System started to computerize the incorporation of the judgments of a group of experienced psychologists, aiming to helping the new psychologists quickly learn complex scale interrelationships and become good "judges" of personality information. The System was then found satisfying market needs from employers' side. They started to research for shorter battery as well as developed professional norms and job specific templates that made it an open system for public

accessible service. They produced integrated personal profile-level of interpretations. That is, instead of evaluating a single ability or personality scale score, they consider results on several different measures. Together with the personal demographic information, these 'interactions" or "profile segments" drive the judgment of 'fit' to the corresponding professional norms or job specific demands in their databank. Hence these three major data groups, personal demographics, personality and ability form the trunk of attributes are considered essential in job matching process in current employment market (Bigby, Havis & Asso, 2003)

Other measures, like Work Personality Index Select (WPI) is also a work oriented personality inventory that assesses the personal characteristics and tendencies that influence an individual's job performance. They believe that by measuring personality traits that are related to work, it can help to match the right person to the right job. They showed that there are identifiable behaviours that predict work success and also clarifies the type of position and work environment in which a person will best function. They assessed 17 personality traits that directly relate to work performance: ambition, teamwork, initiative, concern for others, flexibility, outgoing, energy, democratic, leadership, innovation, persistence, analytical thinking, attention to detail, self-control rule following, dependability and stress tolerance.

Similarly, Maria Black (2000) in her development of Work Personality Questionnaire, also highlighted effective performance at work depends on a range of factors. Many people with high intelligence and technical skills under-perform or fail at the job because of some aspect of their personal style. Intelligence and technical skills are important but so are personality and emotional intelligence. She measures, in addition to personality and team role preferences, seven aspects of emotional intelligence – innovation, self-awareness, intuition, emotions, motivation, empathy and social skills. Altogether these form the personal competencies at work.

The first Chinese norm referenced work personality measurement was developed for local market, the Chinese Personality at Work (CPW) Questionnaire (Hui, et.al, 2000). It is a completed revised questionnaire for the objective assessment of personality characteristics in a work setting for use among Chinese. It is norm referenced to several thousands of Chinese in Mainland, Taiwan and Hong Kong with separate norms for different job types. Personality characteristics linkable to most core competencies required at work are assessed. It consists of 225 items, summarized by 15 personality characteristics: drive for personal achievement, deference to authority, planning and orderliness, attention seeking, autonomy, need for affiliation, introspectiveness,

dependent support-seeking, dominance, non-abrasiveness and modesty, nurturance, innovativeness and change orientation, tenacity, client centered service orientation, overall managerial readiness.

The trend of personality characteristics linkable to most core competencies required at work established. In order to advance the power of predictive reasoning of occupational therapists, the concept and framework of professionals in commercial sectors are worthwhile for exploration and incorporation. This approach of benchmarking abilities of clients with SMI to norm-references or demands in the usual job types is the missing knowledge in existing practice. Further research in this area would enable the therapists to achieve a more promising job matching process.

Implications for Occupational Therapy Research

In this research, it has highlighted the special nature of occupational therapy practice that they are on the one side delivering human oriented services, while on the other hand being bounded by scientific and medical rules of efficacy. Thereby, the professionals were

evidenced in this study practicing a bivalent model of practice – scientific in thinking and humanistic in interacting.

It has long been a great problem for the healthcare professionals to inform the public on their forms and efficacy of practice through scientific rigour. The research methodology employed in this research is an innovative design that response to both positivist and interpretivist paradigm, to create a new opportunity for occupational therapist or even other healthcare professionals to start to reflect on choosing the best suitable research methodology for reporting their real practices.

Limitations

Several limitations of this study also bear mention. First, the major part of this study was a qualitative study and used a relatively small sample size. Because they were all Chinese respondents, it cannot be presumed that the findings can be generalized to other therapist-client relationship. Furthermore, the proposed process and model of practice were

based on the results found in a small sample. Quantitative research specially designed to test the proposed processes and the model is required to verify the validity.

Second, this study focused on therapists work on clients with severe mental illness, not on individual clients themselves. The diagnostic and co-morbidity issue may affect the specificity of the sample. Because the cost involved in increased specificity in the sample selection can be very high, it is a matter of balance in the time & budget constraint of this research. More categorization and selection criteria can be considered in future research.

Third, because the focus of this study is on therapist-client interactions, other related personnel were not included, for example, family members, employers, training coach, etc. However, they were noted to be of probable influence on the decision process of therapists and response of the clients. Future research will be needed to incorporate this aspect.

Lastly, due to small sample size, it is not possible to address issues that arose from the other factors, for example, gender and cultural differences of the therapists.

Conclusion

The particular features of the sequential stages of the generated model have been examined in the light of relevant literature, applicability and power of explanation in common practices. Contributions to professional education, expert building, standardization and enhancement of existing practice are elaborated. The analysis of the findings of this study has confirmed that the generated staged model of predictive reasoning, offers an innovative conceptualization of predictive reasoning in occupational therapist in mental health practices that goes beyond the existing normative models of clinical reasoning in paramedical professions.

Appendix 1 Survey Form

Dear professionals & colleagues,

This is a survey to some professionals working in several major organizations involved in vocational rehabilitation for severe mental illness in Hong Kong in the past years. The information to be gathered will be focus on the nature, routines and outcome in general as related to vocational rehabilitation in your practice. No personal identifier is required in completion of this questionnaire except in voluntary basis.

You are encouraged to understand the details of this study and voluntarily consent to participate. You can withdraw from this study at any time without giving reasons, and my withdrawal will not lead to any punishment or prejudice against you. You are assured that your personal information will not be disclosed to people who are not related to this study and your name or photograph will not appear on any publications resulted from this study.

You can contact the chief investigator, Ms Serena Ng SW at telephone 31296832 for any questions about this study. If you have complaints related to the investigator, you can contact Mrs. Alice Lee, Secretary of Research Ethics Committee, KCC/KE clusters, Rm 712, Block S, Queen Elizabeth Hospital at 29586623.

This survey and its results serve as partial fulfillment of the Doctoral Degree of the author. The data here collected will be destroyed in its original form after use. Thank you.
Author contacts : Serena Ng (94506186) / ngserena@netvigator.com

00___

19 Questions :

How many years have you been working full time in Mental Health service?

No. of years : _____ Occupation : _____

Which type of Mental Health service organization that you spent the most years working in?

Hospital / Day Hospital

Day centres

Sheltered workshops

Half way house

University / School

Clinics (private)

Hostel

VTC centers

Others : _____

Do you have a pre-set procedures / system in screening your clients for vocational rehabilitation in the present service / organization?

Yes

No

Others : _____

How do you rate the accuracy of your existing screening system in predicting the outcome of your clients in vocational rehabilitation?

1 2 3

Not accurate

How do you feel the use of standardized assessment tools in screening your clients for vocational rehabilitation?

Convenient & reliable

Inconvenient & reliable

Convenient & unreliable

Inconvenient & unreliable

How frequent do you use standardized assessment tools in screening your clients for vocational rehabilitation?

Frequent use

Seldom use

Not use (skip question no. 6)

Not available (skip question no. 6)

Others : _____

What are the usual standardized assessment tools used in screening your clients for vocational rehabilitation?

Mini-Mental State Examination (MMSE) (Folstein, M, Folstein, S. & McHugh ,1975)

Cognistat Neurobehavioural Cognition Status Exam (NCSE) (Chinese version)

DRS (Dementia Rating Scale)

Severe Impairment Battery (SIB)

Bay Rea Functional Performance Evaluation (BaFPE) 2nd ed.

Neuropsychological Impairment Scale (NIS)

Rivermead Perceptual Assessment. Battery

Stroop Test (Van Zomeren et al., 1998)

PSS CogRehab version 95

Comprehensive Trail-making test (CTMT)

Wisconsin Card Sorting Test (WCST)

Lafayette instrument—cognitive Assessment., non-verbal

Chessington OT Neurological Assessment Battery

Valpar 5,7,8,9, 10,1,4, 11,19

Social and occupational functional assessment scale (SOFAS)

Career thoughts inventory (CTI)

Work Adjustment Inventory (WAI)

Functional Needs Assessment programme for chronic psychiatric patients

Parenting stress index- 3rd ed.

Other : _____

What are the usual non-standardized assessment tools used in screening your clients for vocational rehabilitation?

_____

_____

_____

What are the factors, in priority, you considered in screening your clients for PROVIDING or NOT PROVIDING vocational rehabilitation?

(Put priority number of 1 to 5 against the factors selected, you can choose more than 1 factor under each priority number.

You can fwell in suitable descriptor against the factor selected to further clarify)

_____Willingness to attend therapy

_____Age

_____ Male / Female

_____Years of onset

_____Diagnosis of: _____

_____Educational level of: _____

_____Vocational training

_____Mood

_____Speech

_____Perception towards work

_____Insight

_____Work history

_____Work plan

_____Motivation to work

_____Work habits

_____Specific skills

_____Physical tolerance

_____Cognitive functioning

_____Family relationship

_____Financial situation

_____Other medical illnesses

_____Social support

Others : _____

What are the factors, in priority, in screening your clients that you DEFINITELY NOT PROVIDING vocational rehabilitation?

(Put priority number of 1 to 5 against the factors selected, you can choose more than 1 factor under each priority number.

Choose the options within each factor selected.

You are encouraged to fill in suitable descriptor against the factor selected to further clarify)

_____Unwilling to attend therapy

_____Middle to old Age

_____ Male / Female

_____Long / Short years of onset

_____Diagnosis of : _____

_____Educational level of : _____

_____No / Good Previous Vocational training

_____Poor / Fluent Speech

_____Negative / Positive Perception towards work

_____Little / No /Normal Insight

_____No / invalid / Valid Work history

_____No / invalid / Valid Work plan

_____Low / No/ High Motivation to work

_____Poor / Good Work habits

_____No / Valid Specific skills

_____Low / Normal Physical tolerance

_____Deficit / Normal Cognitive functioning

_____Poor / Good Family relationship

_____Poor / Good Financial situation

_____With / Without Other medical illnesses

_____Poor / No / Good Social support

Others: _____

How often do you perform formal cognitive assessment in screening your clients for vocational rehabilitation?

Must perform

Frequently perform

Sometimes perform

Seldom perform

Never perform (Skip question no. 11)

What are the cognitive areas you frequently assess in screening your clients for vocational rehabilitation?

General Orientation

Attention

Language comprehension

Language expression

Naming

Construction

Memory

Calculation

General reasoning

Judgment

Practical intelligence

Visual Spatial perception

Others : _____

What are the cognitive areas you considered most important in screening your clients for vocational rehabilitation?

(Put priority number of 1 to 5 against the factors selected, you can choose more than 1 factor under each priority number.

____ General Orientation

____ Attention

____Language comprehension

____Language expression

____Naming

____Construction

____Memory

____Calculation

____General reasoning

____Judgment

____Practical intelligence

____Visual Spatial perception

Others : _____

Do you think 'Learning Potential' (defined as the ability to attain and utilize cognitive skills) affects your clients' outcome in vocational rehabilitation?

Yes, in what way _____

No

Do you think 'Learning Potential' (defined as the ability to attain and utilize cognitive skills) relates to the above areas in screening your clients for vocational rehabilitation?

Yes, in what way _____

No

What are the other areas not listed in question no. 12 that you think should be included in the profile of 'Learning Potential' and be used in screening your clients for vocational rehabilitation?

_____

_____

_____

Do you think categorizing your clients from screening of 'Learning Potential' facilitate the vocational rehabilitation process in your service/ organization?

Yes

No

Do you think categorizing your clients from screening of 'Learning Potential' improve the outcome of vocational rehabilitation in your service / organization?

Yes

No

Do you think categorizing your clients from screening of 'Learning Potential' improve the compliance of your clients in your service?

Yes

No

Other _____

Are you willing to be interviewed in group / individual (around 1 hour) for further elaboration of the survey results and other comments related to this topic? YES / NO

My name _____contact telephone no. _____

My email address _____convenient interview time _____

The principle questions for interviewing are :

How do you determine the 'Learning Potential' of the client during the process of recruitment into vocational rehabilitation?

How do you differentiate good learners from bad learners?

How would you adapt your training to suit their needs?

How do you expect outcome of learners with different potential?

What constitutes learning potential among the clients?

Author contacts : Serena Ng / ngserena@netvigator.com

THANK YOU

Appendix 2
Interview Question sets

Interview source

Voluntary self-nominated from reply in survey.

Display methods :

1. Predictive reasoning pattern - priority list of concerns (table) and major workflow components (decision tree)
2. Mind maps of reasoning of individual cases.

The interviewing questions are:

1. What are the existing criteria and standards of recruiting an individual with severe mental illness in different levels of ladder in vocational rehabilitation?
    - i. What are the reasoning framework behind these criteria and standards?
    - ii. What other factors they considered as crucial to the success of the clients?
2. What is the workflow or system for screening and assessment process?
    - i. What are the tools being utilized for screening purpose?
    - ii. What other assessment format and content used for screening purpose?
    - iii. How do they assess the cognitive skills and applications of skills for screening purpose?
3. What are the criteria of success in vocational rehabilitation?
4. How do the successful clients perform differently from unsuccessful client?
    - i. What are the work tasks that they experienced that failed the general clients?
    - ii. What are the reasons that cause the failure?
    - iii. What are the cognitive skills or other skills that cause the failure?
5. How do they identify further training for under-performers?
6. What are the criteria of rejecting the clients to receive vocational rehabilitation?

Sub-questions are :

1 What are the existing criteria and standards of recruiting an individual with severe mental illness into different levels of vocational rehabilitation?

- 1.1 What are the framework of reasoning behind these criteria and standards?
- 1.2 Which criteria or standards you considered relevant to reflect the potential of learning in the rehabilitation programme?
- 1.3 What other factors they considered as crucial to the success of the clients?
- 1.4 How these factors, positive or negatives, are being assessable in existing process?

2 What are the criteria of success in vocational rehabilitation?

2.1 How does 'success' in vocational rehabilitation' relates to ' learning potential' of clients?

3 How do the successful clients perform differently from unsuccessful client?

3.1 What are the work tasks that they experienced that failed the general clients?

3.2 What are the reasons that cause the failure?

3.3 What are the cognitive skills or other skills that cause the failure?

3.4 How do you improve the working abilities of the under-performers?

4 What are the criteria of rejecting the clients to receive vocational rehabilitation?

5 What is the workflow or system for screening and assessment process?

5.1 What are the tools being utilized for screening purpose?

5.2 What other assessment format and content used for screening purpose?

5.3 How do you assess the cognitive skills and applications of skills for screening purpose?

This semi-guided interview format allows flexibility in sequencing and wording of interview questions and allowed for additional phrasing to clarify specific participant responses. All interviews are tape recorded and transcribed. Follow up interviews, telephone calls, letters, or e-mails will be used as needed to gather more data, test emerging hypothesis, and seek negative cases examples.

REFERENCES

Alda, A. (2005). *Never have your dog stuffed and other things I've learned.* New York: Random House.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders. (4th ed.)* Washington: Author.

Ashworth, P. & Chung, M.C. (2006). *Phenomenology and psychological science: Historical and philosophical perspectives*. NY: Springer.

Atocha, JF., Patel, VL. & Patel, YC. (1993) Hypothesis generation and the coordination of theory and evidence in novice diagnostic reasoning. *Medical Decision Making. 13:196-211.*

Barnitt, R. & Partridge, C. (1997). Ethical reasoning in physical therapy and occupational therapy. *Physiotherapy Research International*, 2, 178-194.

Barris, R. (1987). Clinical reasoning in psychosocial occupational therapy: The evaluation process. *Occupational Therapy Journal of Research*, 7, 147-162.

Benner, P. E. (1984). *From novice to expert: Excellence and power in clinical nursing practice.* Menlo Park. CA: Addison – Wesley.

Benner P, Tanner C. Clinical judgment: how expert nurses use intuition. *Am J Nurs.*1987; 87:23–31

Benner P, Tanner C, Chelsa C. *Expertise in Nursing Practice: Caring, Clinical Judgment, and Ethics.* New York, NY: Springer Publishing Co;1996

Benner P, Tanner C, Chelsa C. From beginner to expert: gaining a differentiated clinical world in critical care nursing. *Advances in Nursing Science.*1992; 14:13–28

Berger, J.O.,(1980). *Statistical Decision Theory: Foundations, concepts and methods.* Springer-Verlag, NY.

Bordage, G. & Lemieux, M. (1986) Some cognitive characteristics of students with and without diagnostic reasoning difficulties. Proceeding of the twenty-fifth Annual Conference on Research in Medical Education of the American Association of Medical College, New

Orleans, 185-190.

Bigby, Havis & Associates, Inc., and David G., Bigby. (2003). ASSESS Expert System. *ASSESS V.2 Technical Manual.*

Black, M. (2000). *Performance Assessment Network (pan) (1.0) – The WPQ Emotional Intelligence Questionaire v3 Report.* The Test Agency.

Blumensteil, A. (1973). A sociology if good times. In G. Psathas (Eds.) *Phenomenological sociology: Issues and applications*. New York: Wiley.

Bolton B, Roessler R. (1986). The work personality profile: factor scales, reliability, validity, and norms. *Vocat Eval Work Adj Bull;* 19:143-9.

Borell, L., Gustavsson, A., Sandman, P. & Kielhofner, G. (1994). Occupational programming in a day hospital for patients with dementia. *Occupational Therapy Journal of Research, 14(4). 219-238.*

Burke, J.P. (2001). How therapists' conceptual perspectives influence early intervention evaluations. *Scandinavian Journal of Occupational Therapy*, 8. 49-61.

Cameron KA, Ballantyne S, Kulbitsky A, Margolis-Gal M, Caugherty T, Ludwig F. (2005). Utilization of evidence-based practice by registered occupational therapists. *Occup Ther Int.;12(3):123-36*

Carey, W. B. (1999). (in commentaries) Problems in diagnosing attention and activity. *Pediatrics, 103*(3), 664-667

Carr, M. & Shotwell, M. (2008). Information processing theory and professional reasoning. Ch. 3. In B.A. Schell & J. W. Schell (Eds.), *Clinical reasoning in occupational therapy*. Philadelphia: Lippincott Williams & Wilkins.

Chan, C.S. (1998). *The Chinese version Work Personality Profile on assessing employability of psychiatric day patients in Hong Kong.* Hong Kong Department of Rehabilitation Science. The Hong Kong Polytechnic University.

Chapman, E., & Smith, J.A. (2002). Interpretative phenomenological analysis and the new genetics. *Journal of Health Psychology.* 7(2), 125-130.

Chapparo, C., & Ranka, J. (1997). Towards a model of occupational performance: Model development. In C. Chapparo & J. Ranka (Eds). Occupational Performance Model (Australia): Monograph 1(pp. 24-45).

Cohen, M.Z. (1987). A historical overview of the phenomenological movement. *Images*, 19(1), 31-34.

Colaizzi, P.F. (1978). Psychological research as the phenomenologist views it. In R. Valle & M. King (Eds.), *Existential phenomenological alternative for psychology* (pp. 48-71). New York: Oxford University Press.

Crabtree, M. (1998). Images of reasoning: A literature review. *Australian Occupational Therapy Journa*l, 45, 113-123.

Creighton, C., Dijkers,M., Bennett, N. & Brown, K. (1995). Reasoning and the art of therapy for spinal cord injury. *American Journal of Occupational Therapy*, 49, 311-317.

Crepeau, E.B. (1991). Achieving intersubjective understanding: Examples from an occupational therapy treatment session. *American Journal of Occupational Therapy,* 44, 1016-1024.

Cubie, S.H., & Kaplan, K. (1982). A case analysis method for the model of human occupation. *American Journal of Occupational Therapy,* 36, 645-656.

Dahl, C.M., & Boss, P. (2005). The use of phenomenology gor family therapy research. In D.H. Sprenkle & F.P. Piercy (Eds.) *Research methods in family therapy*. New York: The Guildford Press.

Davidman, M. (2006). The will to work: what people struggle to achieve. http://www.solhaam.org/willwork.html.

Denzin, M.K. (1995). Symbolic interaction. In J.A. Smith, R. Harre, & L.V. Langenhove (Eds.), *Rethinking psychology*. London: Sage Publications.

Dewey, J. (1934). *Art as experience*. New York: Minton, Balch & Co.

Diers, D. (1979). Lessons in Leadership. *Images* , 11 p. 103.

Doublilet, P. & McNeil, B., (1988). Clinical decision making. In J. Dowie & A. Elstein (eds.) *Professional Judgment: A reader in clinical decision* (pp. 225-276). Cambridge: Cambridge University Press.

Dowie, J., & Elstein, A. (1988). *Professional judgment: A reader in clinical decision-making.* Cambridge: Cambridge University Press.

Duncker, K. (1945). On problem solving (Entire issue). *Psychological Monograph.* 58(5).

Eisenhardt, K.M. & Graebner, M.E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, vol. 50, no. 1, 25-32.

Elstein, A.S., Shulman, L.S. , & Sprafka, S.A. (1978). *Medical Problem solving: An analysis of clinical reasoning. Massachusetts*: Harvard University Press.

Embrey, D.G., Guthrie, M.R., White, O.R. & Dietz, J. (1996). Clinical decision making by experienced and inexperienced pediatric physical therapists for children with diplegic cerebral palsy. *Physical Therapy,* 76, 20-33.

Ericsson, K.A. & Simon, H.A. (1993). *Protocol analysis-verbal reports as data* (rev. ed) Cambridge M.A.: MIT Press.

Fade, S. (2004). Using interpretative phenomenological analysis for public health nutrition and dietetic research: A practical guide. *Proceedings of the Nutrition Society*, 63, 647-653.

Feltovich PJ, Barrows HS. Issues of generality in medical problem solving. In: Schmidt HG, Devolder ML, eds. *Tutorials in Problem-Based Learning.* Assen/Maastricht, the Netherlands: Van Gorcum;1984 :128–141

Fidler, G.S. (1981). From crafts to competence. *American Journal of Occupational Therapy, 35(9), 567-573.*

Fleming, M.H. (1991). The therapist with the three-track mind. *American Journal of Occupational Therapy, 45, 1007-1014.*

Fleming, M.H. (1993). Aspects of clinical reasoning in occupational therapy. In: Hopkins HL, Smith HD. *Willard and Spackman's Occupational Therapy*. Philadelphia: Lippincott, 867-881.

Fleming, M.H. (1994). Conditional reasoning. Creating meaningful experiences. In C. Mattingly & M.H. Fleming (Eds.), *Clinical reasoning: Forms of inquiry in a therapeutic practice.* Philadelphia: F.A. Davis.

Fong, K. (1999). *Validation of Neuro-cognitive State Examination in Chinese*. Hong Kong: Hong Kong Polytechnic University.

Fonteyn, M.E. & Cooper, L.F. 1994 The written nursing process: is it still useful to nursing education? *Journal of Advanced Nursing, 19*, pp315-319.

Gibson, D., Velde, B., Hoff, T., Kvashay, D., Manross, P.L., Moreau, V. (2000). Clinical reasoning of a novice versus an experienced occupational therapist: A qualitative study. *Occupational Therapy In Health Care*, 12, 15-31.

Gilbert , C.G. (2005). Unbundling the structure of inertia: Resource versus routine rigidity. *Academy of Management Journal,* 48: 741-763.

Giorgi, A. (1985). *Phenomenology and psychological research.* Pittsburg, P.A.: Duquesne University Press.

Glaser BG., Strauss AL. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Chicago; Aldine.

Glesne, C., & Peshkin, A. (1992). *Becoming qualitative researchers*. Thousand Oaks, CA:Sage.

Gordon, M. (1980). Predictive strategies in diagnostic tasks. *Nursing Research*, 29(1), 39-45.

Greenhalgh, T., and Hurwitz. B. (1998), 'Why Study Narrative?', in T. Greenhalgh and B. Hurwitz (eds.), *Narrative Based Medicine: Dialogue and Discourse in Clinical Practice*, London: BMJ Books, 1998.

Greeno, D.M. (1989). The situativity of knowing, learning and research. *American Psychologist, 53, 5-26*.

Greenspan, S. I., & Weider, S. (1998). *The child with special needs.* Reading, MA: Perseus Books.

Greenwood, J. & King, M. (1995). Some surprising similarities in the clinical reasoning of 'expert' and 'novice' orthopedic nurses: Report of a study using verbal protocols and protocol analysis. *Journal of Advanced Nursing,* 22, 907-913.

Guba, E.G. & Lincoln, Y.S. (1981). *Effective evaluation: Improving the effectiveness of evaluation results through responsive and naturalistic approaches*. San Francisco: Jossey-Bass.

Hagedorn R. (1997). *Foundations for Practice in Occupational Therapy.* 2nd ed. N.Y.: Churchill Livingstone, p.52.

Hagedorn, R. (1996). Clinical decision making in familiar cases: A model of the process and implications for practice. *British Journal of Occupational Therapy, 59, 217-222.*

Hasselkus,B.R. & Dickie, V.A. (1994). Doing occupational therapy: Dimensions of satisfaction and dissatisfaction. *American Journal of Occupational Therapy*, 48(2), 145-154.

Higgs, J., & Jones, MA. (2000). Clinical reasoning in the health professions. In. Higgs, J. Jones, MA. Eds. *Clinical reasoning in the health professions. 2nd ed.* Boston, Mass: Butterworth-Heinemann: 3-14.

Higgs, J., & Titchen, A. (Eds.) (2001) *Practice Knowledge and Expertise.* Oxford: Butterworth-Heinemann.

Higgs, J., Hunt, A., (1999). Rethinking the beginning practitioner: introducing the "International Professional". In: Higgs, J., Edwards, H. eds. *Educating beginning practitioners.* Melbourne Victoria, Australia: Butterworth-Heinemann: 10-18.

Higgs, J., & Jones, M. (1995) Clinical Reasoning. In: Higgs, J., Jones, M., Eds. Clinical Reasoning in the Health Professions. Oxford: Butterworth-Heinemann Ltd.

Hobus, P.P.M., Schmidt, H.G., Boshuizen, H.P.A., & Patels, V.L. (1987). *Contextual factors in the activation of first diagnostic hypotheses: expert-novices differences.* Medical Education, **21**, 471-476.

Hooper, B. (1997). The relationship between pretheoretical assumptions and clinical reasoning. *American Journal of Occupational Therapy*, 51(5), 328-338.

Hui, C.H., Gan, Y., & Cheng, K., (2000). *The Chinese Personality at Work Questionnaire: Development, validation and significance.* Acta Psychologica Sinica, 32, 443-452. (in Chinese).

Hunt, E. (1989). Cognitive science: Definition, status, and questions. *Annual Review of Psychology*, 40, 603-629.

Jensen GM, Shepard KF, Gwyer J, Hack LM. Attribute dimensions that distinguish master and novice physical therapy clinicians in orthopedic settings. *Phys Ther.*1992; 72:711–722.

Jenks, JM. (1993). The pattern of personal knowing in nurse clinical decision making. *Journal of Nurse Education*, 32(9), 399-405.

Jensen, GM. & Gwyer, J. Hack, LM., & Shepard, KF. (1999). *Expertise in Physical Therapy Practice*. Boston, Mass: Butterworth-Heinemann.

Jensen, GM. Shepard, KF., Gwyer, J. & Hack, LM. (1992) Attribute dimensions that distinguish master and novice physical therapy clinicians in orthopaedic settings. *Physical Therapy. 72:711-22.*

Jones, M & Rivett, D. (2003). *Clinical Reasoning for Manual Therapists*. Butterworth - Heinemann Ltd.

Jones JA. Clinical reasoning in nursing. *J Adv Nurs.*1988; 13:185–192

Jones MA. Clinical reasoning in manual therapy. *Phys Ther.*1992; 72:875–884

Kielhofner, G. & Barrett, L. (1998). Meaning and misunderstanding in occupational forms: A study of therapeutic goal setting. *American Journal of Occupational Therapy*, 52(5), 345-353.

Kielhofner, G. (2005). *Conceptual foundations of occupational therapy* (3rd ed.) Philadelphia: F.A. Davis.

Kinderman, P. and Lobban, F. (2000) Evolving formulations: Sharing complex information with clients. *Behavioural and Cognitive Psychotherapy, 28(3),* 307-310

Krause, M. (2006). Instructional design for clinical reasoning and the development of self actualisation. http://www.acay.com.au/-mkrause/InstructionDesign.htm

Landeen, J., Pawlick, J., Woodside, H., Kirkpatrick, H. & Byrne, C. (2000). Hope, quality of life, and symptom severity in individuals with Schizophrenia. Psychiatric Rehabilitation. J. 23(4), 364-369.

Law, C. (1999). *Brief Introduction of Chinese Work Personality Profile*. Hong Kong: Hong Kong Polytechnic University.

Lincoln, Y.S. & Guba, E.G. (1999). Establishing trustworthiness. In A. Bryman & R.G. Burgess (Eds.). *Qualitative research* (p. 397-444). London: Sage.

Maduli, A.C.. (2003). Theory Building – A process of increasing abstraction. http://geocities.com/sacristan.speaks/Theory Building.2.ppt.

Mann, SKF., Ip, YC., & Tsang, HWH. (1999). *Workshop Behaviour Checklist – revised 99 manual.* Hong Kong Occupational Therapy Association.

Martin, G., Bergen, H.A., Roger, L., & Allison, S. (2004). Depression in young adolescents: Investigations using 2 and 3 factor versions of the parental bonding instrument. *The Journal of Nervous and Mental Disease.* 192(10), 650-657.

Mattingly, C. & Fleming, M.H. (1994). Clinical reasoning – forms of inquiry in a therapeutic practice. Philadelphia: F.A. Davis.

Mattingly, C. (1991). What is clinical reasoning? *American Journal of Occupational Therapy, 45, 979-986.*

Maxwell, J.A. (1992). *Understanding and validity in qualitative research.* Harvard Educational Reviews, 62(3), 279-300.

McCutcheon, HHI., & Pincombe, J. (2000). Intuition: An important tool in the practice of nursing. *Journal of Advanced Nursing.* 35(3), 342-348

McFadden, EA & Gunnett, AE. (1992). A study of diagnostic reasoning in pediatric nurses. *Pediatric Nursing.* 18(5), 517-538

Mekkes, M. (2003). *The influence of occupational therapist's worldview on professional reasoning: A Qualitative study.* Unpublished, Grand Valley. State University, Grand Rapids, MI.

Merleau-Ponty, M. (1962). *Phenomenology of perception* (C. Smith, Trans.) New York: Humanities Press.

Merriam SB. (1998). *Qualitative Research and Case Study Applications in Education,* 2nd edition. San Francisco, Calif: Jossey-Bass Inc. Publishers.

Mezirow, J. (1991). *Transformation dimensions of adult learning.* San Francisco: Jossey-Bass.

Mezirow, J. (2000). *Learning as transformation: critical perspectives on a theory in progress*. San Francisco: Jossey-Bass.

Miles, M.B.& Huberman, A.M. (1994). *Qualitative data analysis* (2nd. Ed.) Thousand Oaks, CA: Sage.
Miles, M.B. (1990). Mew methods for qualitative data collection and analysis: Vignettes and pre-structured cases. *Qualitative Studies in Education, 3(1), 37-51*.

Mohr, L.B. (1982). *Explaining organizational behaviour*. San Francisco, CA: Jossey-Bass.

Morse, J.M. & Field, P.A. (1995). *Qualitative research methods for health professionals* (2nd.ed.) Thousand Oaks, CA: Sage.

Mundt, Christoph & Backenstrass, Matthias. (2005). Psychotherapy and classification: Psychological, psychodynamic, and cognitive aspects. *Psychopathology, 38(4),* 219

Munhall, P. (1989). Philosophical ponderings on qualitative research. *Nursing Science Quarterly*, 2(1), 20-28.

Newell, A. & Simon, H.A. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice Hall.

Offredy, M. (1998). The application of decision making concepts by nurse practitioners in general practice. *Journal of Advanced Nursing*. 28(5), 988-1000

Omery, A. (1983). Phenomenology: A method for nursing research. *Advances in Nursing Science, 5(2), 49-63*.

Patel VL, Arocha JF. Methods in the study of clinical reasoning. In: Higgs J, Jones MA, eds. *Clinical Reasoning in the Health Professions*. 2nd ed. Boston, Mass: Butterworth-Heinemann;2000 :78–91

Patel VL, Groen GJ. Knowledge-based solution strategies in medical reasoning. *Cognitive Science*.1986; 10:91–116
Patel, V. L., Kaufman, D. R., & Arocha, J. F. (2000). Conceptual change in the biomedical and health sciences domain. In R. Glaser (Ed.), Advances in Instructional Psychology, Vol. 5: Educational design and cognitive science (pp. 329-392). Hillsdale, NJ: Lawrence Erlbaum

Associates.

Payton OD. Clinical reasoning process in physical therapy. *Phys Ther.*1985; 65:924–928.[

Pelland, M.J. (1987). A conceptual model for the instruction and supervision of treatment planning. *American Journal of Occupational Therapy*, 41, 351-359.

Peloquinn, S.M. (1990). The patient-therapist relationship in occupational therapy: Understanding visions and images. *American Journal of Occupational Therapy,* 44 (1), 13-21.

Peloquinn, S.M. (1993). The depersonalization of patients: A profile gleaned from narratives. *American Journal of Occupational Therapy*, 49, 830-837.

Ragan, C.C. (1987). *The comparative method: Moving beyond qualitative and quantitative strategy.* Berkeley: University of California Press.

Reed, KL., Sanderson SR. (1999). *Clinical reasoning, In: Concepts of occupational therapy.* Ch. 21 pp. 306-309. 4th ed. Lippincott Williams& Wilkins. USA.

Rennie DL., Philips JR., Quartaro GK. (1988). Grounded theory: A promising approach to conceptualization in psychology? *Canadian Psychology,* 29, 139-150.

Rice, P.L. & Ezzy, D. (1999). *Qualitative research methods.* Oxford: Oxford University Press.

Rogers, J.C. & Holm, M.B. (1997). Diagnostic reasoning: The process of problem identification. In C.H. Christiansen & C.M. Baum (Eds.). *Occupational therapy: Enabling functions and Well being.* (2nd ed., pp 137-156). Thorofare, NJ: Slack.

Rogers, J.C., & Holm, M.B. (1991). Occupational therapy diagnostic reasoning: A component of clinical reasoning. *American Journal of Occupational Therapy, 45, 1045-1053.*

Rogers, J.C., & Masagatani, G. (1982). Clinical reasoning of occupational therapy during the initial assessment of physically disabled patients. *Occupational Therapy Journal of Research, 2, 195-219.*

Rose,P., Beeby, J., & Parker, D. (1995). Academic rigour in the lived experience of researchers using phenomenological methods in nursing. *Journal of Advanced Nursing,* 21, 1123-1129.

Ruthman ID (1994) How Psychiatric disability expresses itself as a barrier to employment. *Psychosocial Rehabilitation Journal,* 17, 15-35.

Ryan, S. (1998). Influences that shape our reasoning. In J. Creek (Ed.) *Occupational therapy: New perspectives*. London: Whurr.

Sackett DL, Rosenberg WMC, Gray JAM, Haynes RB, Richardson WS (1996). Evidence-based medicine: what it is and what it isn't. *BMJ* 1996;312:71-2.

Schell, B.A. & Cervero, R.M. (1993). Clinical reasoning in occupational therapy: An integrative review. *American Journal of Occupational Therapy*, 47, 605-610.

Schell, B.A. & Schell, J.W. (2007). *Professional reasoning as the basis of practice. Clinical and professional reasoning in occupational therapy*. Ch. 1. (pp. 1-11). Wolters Kluwer: Lippincott. W&W.

Schell, B.A., & Cervero, R.M. (1993). Clinical reasoning in occupational therapy: An integrative review. *American Journal of Occupational Therapy, 47, 605-610*.

Schmidt, R.A., & Bjork, R.A. (1992). New conceptualizations of practice. Common principles in three paradigms suggest new concepts for training. *Psychological Science,* 3, 207-217.

Schneider, W. & D.F. Bjorklund (1992). Expertise, aptitude, and strategic remembering. *Child Development,* 63, 461-473.

Schon, D.A. (1983). *The reflective practitioner: How professionals think in action*. New York: BasicBooks.

Schon, D.A. (1988). *Educating the reflective practitioner*. San Francisco: Jossey-Base Publishers.

Siu, AMH., Yau, MKS., & Lam, PCW. (2007). Situational assessment as a predictor of employment outcome in people with chronic psychiatric illness. *Hong Kong Medical Journal; 13 (Suppl 1):S32-5*.

Slade, E., & Salkever, D. (2001). Symptom effects on employment in a structural model of mental illness and treatment; an analysis of patients with schizophrenia. *Journal of Mental Health Policy Economics, 4*, 25-34

Smith, J.A. (1995). Semi-structure interviewing and qualitative analysis. In J.A. Smith, R. Harre & L.V. Langenhove (Eds.) *Rethinking methods in psychology*. London: Sage Publications.

Smith, J.A., Jarman, M., & Osborn, M. (1999). Doing interpretative phenomenological analysis. In M. Murray & K. Chamberlain (Eds.). *Qualitative health psychology: Theories and methods* (p. 218-240). London: Sage.

Smith,J.A., Flowers, P. & Osborn, M. (1997). Interpretative phenomenological analysis and the psychology of health and illness. In L. Yardley (Ed.), *Material disclosures of health and mental illness*. London: Routledge.

Spiegelberg, H., (1975). *Doing phenomenology*. Dordrecht, The Netherlands: Martinus Nijhoff.

Stewards, A.J., & Shields, S.A. (2001). Gatekeepers and change agents. In D.L. Tolman & M. Brydon-Miller, (Eds.) From subjects to subjectivities. (pp. 304-318). New York: New York University Press.

Streubert, H.J. (1991). *Phenomenological research as a theoretic initiative in community health nursing*. Public Health Nursing,8(2), 119-123.

Strong,J., Gwebert, J., Cassidy, S. & Bennett, S. (1995). Expert clinicians' and students' views on clinical reasoning in occupational therapy. *British Journal of Occupational Therapy,* 58, 119-123.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches*. Thousands Oaks, CA: Sage.

Tesch, R. (1990). *Qualitative research analysis: Types of software*. New York: Falmer Press.

Thomas-Edding D. Clinical problem solving in physical therapy and its implications for curriculum development. In: *Proceedings of the Tenth International Congress of the World Confederation for Physical Therapy; May 17–22, 1987; Sydney, Australia*. London, United Kingdom: World Confederation for Physical Therapy;1987 :100–104.

Toglia, J.P. (1998). A dynamic interactional model to cognitive rehabilitation. In N. Katz, (Eds.), *Cognitive and occupation in rehabilitation: Cognitive models for intervention in occupational therapy* (pp. 5-50). Bethesda, MD: American Occupational Therapy Association.

Tornebohm, H. (1991). What is worth knowing in occupational therapy? *American Journal of Occupational Therapy,* 45, 451-454.

Tsang, H. & Ip, YC. (1997). *Revising and updating the Workshop Behaviour Checklist for used by occupational therapists in the psychiatric settings. (ref. 512001*). Hong Kong: Health Services Research Committee.

Unsworth, C.A. & Schell, B.A. (2006). Clinical reasoning: Development of a theory-in-use. *Proceedings of the 14th International Congress of the World Federation of Occupational Therapists.* Sydney, 24-28th July. Sydney Convention Centre

Unsworth, C.A. & Schell, B.A. (2008). Theory and practice: New directions for research. In Ch. 16. (Eds.) *Clinical and Professional Reasoning in Occupational Therapy.* Lippincott Williams & Wilkins.

Unsworth, C.A. (2001). Clinical reasoning of novice and expert occupational therapists. *Scandinavian Journal of Occupational Therapy*, 8, 163-173

Unsworth, C.A. (2004). Clinical reasoning: How do worldwide, pragmatic reasoning and client centeredness fit? *British Journal of Occupational Therapy,* 67, 10-19.

Unsworth, C.A. (2005). Using head-mounted video camera to confirm and expand knowledge of clinical reasoning in occupational therapy. *American Journal of Occupational Therapy,* 59, 31-40.

Unsworth, C.A. (2008). Review of Methodologies for Researching Clinical Reasoning. In Schell, B.A.B. & Schell, J.W. (Eds.) *Clinical Professional Reasoning in Occupational Therapy.* Ch. 15, p. 371-400, Lippincott, Williams & Wilkins.

van Kaam, A. (1984). *Existential foundation of psychology*: New York: Doubleday.

van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy.* Albany, NY: State University of New York.

Velozo CA (1993) Work evaluations: critique of the state of the art of functional assessment of work. *American Journal of Occupational Therapy*, 47(3), 203-209.

Voskoglou, M.G. (1994). An application of Markov Chain in the process of modeling. *Int. J.*

Math. Educ. Sci. Technol., 25, 475-480.

Ward, J.D. (2003). The nature of professional reasoning with groups: A phenomenological study of an occupational therapist in community mental health. *American Journal of Occupational Therapy*, 57(6), 625-634.

Wertz, F.J. (2005). Phenomenological research methods for counselling psychology. *Journal of Counselling Psychology*. 52(2), 167-177.

Whiteford, G. (2005) Knowledge, power, evidence: A critical analysis of key issues in evidence based practice. In G. Whiteford & V. Wright St-Clair (Eds.), *Occupation & Practice in Context* (pp. 34-50). Sydney: Elservier.

Waghorn, G. & Lloyd, C. (2005). The employment of people with mental illness. *Australian e-Journal for the Advancement of Mental Health*, 4(2), Supplement.

Willig, C. (2001). *Introducing qualitative research in psychology: Adventures in theory and method.* Buckingham: Open University Press.

Widiger, Thomas & Trull, Timothy. (2007). Plate tectonics in the classification of personality disorder: shifting to a dimensional model. *American Psychologist, 62(2),* 71-83.

Williamson, G.G., Anzalone, M.E. & Hanft, B.E. (2000). ICDL clinical practice guideline, Part III, Ch. 8 p. 155-211. http://www.icdl.com.

Work Assessment Report Working Group. Hong Kong: Occupational Therapy Coordinating Committee (2003). *Guidelines on psychiatric work assessment report in occupational therapy*. Hospital Authority. HKSAR.

Yarley , L. (1997). *Material disclosures of health and illness.* New York. Routledge Publication.

Yin, R.K. (1994). *Case study research: Design and methods* (2nd ed.) Newbury Park, CA: Sage.

Young, M.E. & Quinn, E. (1992). *Theories and principles of occupational therapy*. London: Churchill Livingstone.