

CHAPTER 1

1. INTRODUCTION

Occupational therapy is one of a number of health professions concerned with health care. What makes the profession unique is its central focus on the therapeutic use of everyday activities in order to prevent, remediate or rehabilitate dysfunction by offering patients or clients the opportunity to reach their optimum level of functioning by participating in, adapting to and mastering their world (Duncan, 2011; Evans, 1987)

Since the profession's inception at the beginning of the 20th century it has been a fundamental belief that participation in occupation or activities had a curative effect on the body, mind and spirit (Molineux, 2004; Foster, 2002). From the 1900s to the 1950s the emphasis was mainly on the use of activity to restore function (Molineux, 2004; Clark, Wood, & Larson, 1998; Hagedorn R. , 1995). Between the 1950s and the 1980s this thinking changed under the influence of the reductionist model of science or mechanistic paradigm, "which was then adopted by all the life sciences in an attempt to become scientifically respectable" (Creek, 2008, p. 33). In terms of this paradigm the patient's ability to function depended on body systems which, if damaged or delayed, could be remediated or compensated for so that function could be restored. By adopting the reductionist approach occupational therapists of necessity had to develop a great depth of expertise in various fields of practice, and since the 1980s there has been a move as a result of this towards a holistic approach in the treatment of patients (Molineux, 2004; Foster, 2002).

At present the fundamental beliefs in occupational therapy are first of all, that treatment should be client-centred (Law & Mills, 1998) so that clients can take an active role in their treatment, i.e. "to do for themselves" (Mattingly & Fleming, 1994, p. 178), and secondly, that since occupation is central to humans, or to put it otherwise, that humans have an occupational nature (Taylor, 2001; Kielhofner, 1992), when they experience occupational dysfunction (Molineux, 2004; Kielhofner,

1992), occupation can be used as a therapeutic agent (Royeen C. B., 2003; Clark, Wood, & Larson, 1998; Kielhofner, 1992).

For such patients to reach their maximum desired level of occupational functioning the occupational therapist should engage patients from the outset to participate in meaningful occupation in order for the healing process to take effect (Molineux, 2004; Taylor, 2001; Clark, Wood, & Larson, 1998; Du Toit V. , 2009).

Since the needs of patients in terms of meaningful occupation are highly individual, the planning and implementation of creative intervention strategies require considerable knowledge and skill on the part of the therapist (Rogers & Holm, 1991; Du Toit V. , 2009). The occupational therapy process is therefore not choosing a predetermined procedure with meaningless or repetitive exercises, but is instead a circular, on-going, thinking and doing process which requires particular problem-solving skills in order to facilitate goal achievement (Royeen C. B., 2003; Rogers & Holm, 1991). The entire process known as *clinical reasoning* in occupational therapy is both complex and multifaceted (Mattingly & Fleming, 1994; Schell & Cervero, 1993; Rogers & Holm, 1991; Rogers J. C., 1983) and comprises scientific (Rogers J. C., 1983), interactive (Mattingly & Fleming, 1994; Schell & Cervero, 1993), narrative (Mattingly C. , 1991), pragmatic (Schell & Cervero, 1993), ethical (Rogers J. C., 1983) and conditional reasoning (Fleming, 1991) which can only be developed by means of higher education (Bonello, 2001).

At the University of Pretoria an Accredited Educational Programme for the education of occupational therapy students, registered at the South African Qualifications Authority (SAQA) with a National Qualification Level (NQF) 8 is followed. This programme extends over four academic years. The purpose of the qualification is to prepare students to become professional entry level occupational therapists.

The teaching approach changed in 2000 from what was mainly a teacher directed style to a student-directed, problem-based approach. Problem-based learning is characterised by developing the students' critical, innovative and practical thinking skills in order to enhance their clinical reasoning skills. In essence clinical reasoning could thus be said to be a problem-solving process (Azar, 2001; Hammel, et al., 1999).

At the University the curriculum is designed in such a way that there is a progression in the teaching and learning of clinical reasoning skills from the students' first to fourth years. During their first year students start to learn about the theoretical concepts of clinical reasoning. In their second year the emphasis is mainly on scientific reasoning which comprises both occupational diagnostic reasoning or assessment and basic procedural reasoning or intervention skills. From the third to the fourth year the application of clinical reasoning is extended with the emphasis on a wider variety of conditions and areas of functioning, thus taking more modes of reasoning such as ethical reasoning into account. The acquisition of competency in their clinical reasoning is however to a large extent developed during the students' fieldwork education under the supervision of a registered occupational therapist (Bonello, 2001).

Ever since its inception the fieldwork education of occupational therapy students at the University was designed to give each student under the guidance of a registered occupational therapist the necessary experience to plan and execute total treatment programmes for patients with a variety of conditions. In the final year students are required to complete five fieldwork blocks. Owing to the number of students and limited fieldwork placements they rotate between the various fields. To illustrate the rotation an example of what three particular students' fieldwork timetables could be like is presented in Table 1-1: Final year student fieldwork programme.

Table 1-1: Final year student fieldwork programme

Fieldwork	Fieldwork I	Fieldwork II	Fieldwork III	Fieldwork IV	Fieldwork V
Time of year	January – March	April - May	May - June	July - August	August - September
Duration	7 weeks	6 weeks	4 weeks	4 weeks	6 weeks
Student a	Physical	Community	Paediatrics	Vocational Rehabilitation	Psychiatry
Student b	Psychiatry	Physical	Paediatrics	Vocational Rehabilitation	Community
Student c	Community	Psychiatry	Vocational Rehabilitation	Paediatrics	Physical

There are a number of factors that could have an impact on the development of the students' clinical reasoning skills during their fieldwork education. Several authors maintain though that it is the interpersonal communication between supervisor and student which underpins successful fieldwork education (Chur-Hansen & McLean, 2006; Stormont, 2001; Hummell, 1997; Barr, 1987; Christie, Joyce, & Moeller, 1985b). Barr (1987) presents a strong argument for this when she says that "a good relationship between student and supervisor is surely the foundation of any learning process."

1.1 Identification of the problem

From the previous argument it is clear that clinical reasoning is one of the core professional behaviours to be mastered by occupational therapy students and that interpersonal communication between supervisor and student underpins the successful fieldwork education required for this.

Even though various studies on the supervision of occupational therapy students during their fieldwork education was internationally and nationally investigated (Bonello, 2001; Hummell, 1997; Kumbuzi, Chinhengo, & Kagseke, 2009) no published research could be found on how the supervisors' interpersonal communication patterns impact on the clinical reasoning ability of occupational therapy students.

In the South African context with its cross-cultural paradigms, diverse value systems and backgrounds fieldwork education of final year occupational therapy students often poses a challenge to those involved.

In view of this it seemed necessary to investigate how the interpersonal communication patterns of supervisors in the South African context enhance the ability of their occupational therapy students to apply clinical reasoning skills during their fieldwork education.

1.2 Research question

The primary question for this research study therefore solicited an exploration into the interpersonal communication patterns of supervisors and is formulated as follows:

What are the interpersonal communication factors (independent variables) in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning (dependent variable) during physical fieldwork education?

1.3 Purpose of the study

The purpose of the study will be to examine interpersonal communication factors in the supervisory relationship that play a role in enhancing occupational therapy students' clinical reasoning during physical fieldwork education.

1.4 Significance of the study

1.4.1 Development of students' professional behaviour

Professional behaviour in occupational therapy requires sound knowledge, skills and values which include, amongst others, empathy, dependability, professional presentation, verbal communication, initiative and clinical reasoning (Kasar & Muscari, 1999). The findings of the study may well suggest which interpersonal communication factors in the supervisory relationship might be beneficial in order to steep occupational therapy students in clinical reasoning, and in doing so enhance their professional behaviour.

1.4.2 Supervision

The findings are expected to acquaint supervisors on how to employ interpersonal communication strategies during physical fieldwork education with the intention of enhancing the occupational therapy students' ability to apply clinical reasoning skills. This information will direct the subject matter of the supervision workshop which is presented once a year at the Department of Occupational Therapy, School of Health Care Sciences, Faculty of Health Sciences of the University of Pretoria.

1.4.3 Health care

Everyone has the right to health care services according to Section 27 (1) (a) in the Bill of Rights in the Constitution of the Republic of South Africa (Government Gazette (No. 17678), 1996).

Every patient and client therefore has the right to receive quality occupational therapy where applicable (Clouder & Sellars, 2004). In order to ensure that the best care is provided, it is the obligation of the Occupational Therapy Department of the University of Pretoria to equip occupational therapy students with sound clinical reasoning skills. The findings of this study are therefore expected to enhance the training of such students in clinical reasoning.

1.4.4 Contribution to the scientific body of knowledge

The study will explore interpersonal communication factors in the training of occupational therapy students, an area that has not previously been investigated in depth, and the findings are therefore expected to have an impact on the fieldwork education of occupational therapy students at the University of Pretoria. It could also be of value on a national as well as international level for occupational therapy training institutions.

1.5 Dissemination of research results

Articles of peer review on the results obtained will be published in recognised occupational therapy journals, both in South Africa and abroad.

Results will also be presented at national and international conferences and workshops.

1.6 Delimitations

Student participants for the study were limited only to those from one university in South Africa where occupational therapy training is offered.

Supervisor participants were limited to those supervising these students in both public and private hospital settings in the physical field.

Only Caucasian students' findings and results were included in the data analyses, the reason being twofold: First of all, in the planning of the research study, there were only three African students which is not a representative sample on which to base meaningful findings and results. Secondly, because including another cultural group would bring in a variable that would be difficult to quantify in terms of its effect on the study. This hypothesis is in line with Teffo and Roux's notion that "In Western philosophy the starting-point for an account of personhood is usually epistemological and psychological. Knowledge is the possession of a particular individual ... how the individual sees him/herself from the inside", but "in African thinking the starting-point is social relations – selfhood is seen and accounted for from this relational perspective" (Teffo & Roux, 1998, p. 145).

The research study was conducted during each one of the three physical fieldwork education blocks as timetabled by the Department of Occupational Therapy only for the year 2007 (Table 1-1).

1.7 Assumptions

An assumption is an idea believed to be true without proving that it is so (Polit & Beck, 2010; Hofstee, 2009). The assumptions for this study are the following:

Clinical reasoning

Sound theoretical knowledge and the application of such theory in occupational therapy is a prerequisite for effective clinical reasoning.

Interpersonal communication

In any communication situation the source and the receiver are interdependent (Berlo, 1960). This assumption is also held by Vorster (2003, p. 101) who believes that individuals who interact with one another impact on each other “often without the individual involved registering this”.

1.8 Definition of key terms

Interpersonal communication

Interpersonal communication is defined by Vorster (2011, p. 113) as “the accurate conveying of a message from one individual (the sender) to another (the receiver) through verbal and non-verbal signals, the message being the information that is being conveyed from the sender to the receiver” and in addition asserts that interpersonal communication at all times “takes place within a particular context”.

Supervisory relationship

The supervisory relationship in fieldwork education is defined by Cohn as “a dynamic teaching-learning relationship” between students and fieldwork supervisors (Cohn, 1993, p. 17).

According to Loganbill, Hardy and Delworth (1982) the supervisory relationship is “an intensive, interpersonally focused one-on-one relationship in which one person is designated to facilitate the development of therapeutic competence in the other person”. Since the one-on-one relationship between the supervisor and the student is a critical component of fieldwork education the above definition by Loganbill, Hardy and Delworth (1982) will be employed in this study.

Occupational therapy

Various definitions of occupational therapy are available, some simplistic and others very complex, yet all contain the essence of the profession.

First of all, in trying to explain what occupational therapy is Creek (2002, p. 587) defined it as “the restoration or maintenance of optimal functional independence and life satisfaction through the analysis and use of selected occupations that enable the individual to develop the adapted skills required to support his life roles”. In this definition it is clear what the goal of occupational therapy is and the unique means by which results are achieved, viz. involving the client in occupations to maintain or restore independence.

Secondly, according to the World Federation of Occupational Therapists (2003, p. 1) occupational therapy is “a health discipline which is concerned with people who are physically and/or mentally impaired, disabled and/or handicapped, either temporarily or permanently. The professionally qualified occupational therapist involves the patients in activities designed to promote the restoration and maximum use of function with the aim of helping people to meet the demands of their working, social, personal and domestic environment, and to practice life in its fullest sense” (World Federation of Occupational Therapists, 2003)

And as a third example, according to the Occupational Therapy Association of South Africa (OTASA), “occupational therapists use scientifically chosen meaningful activities to assist diverse clients with a range of problems to maximise their functioning. This empowers them to be as independent as possible and to experience dignity and quality of life at work, at home and at play” (OTASA, 2003). Although concise, this definition encompasses a client-centred approach, the use of activities as a treatment modality and various modes of clinical reasoning, such as

scientific (scientifically chosen activities), narrative (client's quality of life at work, at home and at play"), interactive (meaningful activities) and ethical reasoning (which empowers clients to be as independent as possible and to experience dignity).

For the purpose of the study OTASA's definition has been selected since it implies and encompasses the science, art and ethics employed in occupational therapy to promote and/or restore the patient's maximum function so that he/she can live life in its fullest sense.

Clinical reasoning

A number of definitions of clinical reasoning are available and although they are phrased differently every one puts the emphasis on the reasoning process rather than the modes of clinical reasoning.

Royeen et al. (2001, p. 108) define clinical reasoning as "the reflective thought process that therapists undergo to integrate client evaluation information and to develop and implement intervention plans".

Schell (2003, p. 131) on the other hand defines clinical reasoning as "the process used by practitioners to plan, direct, perform and reflect on client care".

Unsworth also emphasises the process of clinical reasoning when she states that it is "the reflective thinking associated with engaging in a client-centred professional practice" (Unsworth, 2011, p. 211).

For the purpose of this study clinical reasoning will be defined as the reflective thinking process that guides the therapist in his/her scientific, narrative, interactive, pragmatic, ethical and conditional reasoning on patient care.

Physical fieldwork education

Fieldwork education can be defined as "an integral part of the professional development of future occupational therapists and an essential link between the academic world and practice" (Farber & Koenig, 2008).

Fieldwork education is also described as a shift of focus from classroom education to where it becomes the integration of theory into practice (Allison & Turpin, 2004).

For the purpose of this study the following working definition of physical fieldwork education will be employed:

Physical fieldwork education forms an integral part of the development of students' clinical reasoning, professional behaviours and competency under the supervision of registered occupational therapists.

1.9 Abbreviations and acronyms

ART 401	Occupational Therapy 401 (Arbeidsterapie 401)
EoT	End of Term
GST	General Systems Theory
HEQF	Higher Education Qualifications Framework
HPCSA	Health Professions Council of South Africa
IPA	Interpersonal Pattern Analysis
M-T	Mid-term
OT	Occupational therapy
OTASA	Occupational Therapy Association of South Africa
SAQA	South African Qualifications Authority
WFOT	World Federation of Occupational Therapy
WHR	Work Habits Report

1.10 Chapter overviews

Following on Chapter 1 (already covered), Chapter 2 will focus on the literature that are relevant to the study, viz. clinical reasoning, physical fieldwork education, interpersonal communication in the context of fieldwork education, and finally the assessment of clinical reasoning in the students' practical exam.

Chapter 3 will cover the research design of the study and will consist of two parts, viz. the research design and the method used. The research design will be described first to indicate how the research was planned, followed by the method used in the execution of the research.

In Chapter 4 the findings and results will be presented and discussed as follows:

- Demographic profile of the supervisors and students in the sample.
- Grades students obtained in their practical exam for their clinical reasoning skills.
- Comparison of students' grades in the practical exam with –
 - the Interpersonal Pattern Analysis (IPA) of the supervisors
 - how the students experienced the nature of their relationship with their supervisors
 - the supervisors' feedback style as acquired through focus groups and interviews
 - the grades students received from their supervisors for their clinical reasoning skills in the Work Habits Report (WHR)
 - comments that the students received from their supervisors in the WHR.
- Students' general academic performance.

- Triangulation for the typical profiles of supervisors with high, medium and low performing students.
- Identification of the most effective and least effective supervisory profile for the fieldwork education of students.

Chapter 5 will end with a summary of the findings, reflections on the findings, the significance of the study and the process followed in the execution of the study, the limitations of the study and recommendations for further research.

CHAPTER 2

2. LITERATURE REVIEW

2.1 Introduction

In order to provide an adequate background for the study, the literature review focuses on the following concepts which are central to the investigation:

Clinical reasoning in occupational therapy in terms of the:

- Concept
- Content
- Process
- Teaching strategies
- Therapists' level of clinical reasoning competency

Physical fieldwork education in occupational therapy in terms of the:

- Purpose
- Expected outcomes
- Development models
- Teaching approaches
- Assessment of and feedback to the student

Interpersonal communication in the context of fieldwork education in terms of the:

- General Systems Theory
- Humanistic Approach

- Interactional Pattern Analysis theory
- Fieldwork educator in the relationship
- Student in the relationship

Assessment of clinical reasoning skills in the practical exam.

2.2 Clinical reasoning

2.2.1 Introduction

Patients suffering from physical trauma or disease each face their own unique difficulties in a particular set of circumstances at a specific point in time (Addy, 2006; Mattingly & Fleming, 1994). Physical injury or acquired illness often results in occupational dysfunction which may interfere with a patient's ability to adapt to environmental demands leaving him or her dependent on others (Trombly Latham, 2008; Addy, 2006; Molineux, 2004; Cohn E. S., 2003).

Those seeking occupational therapy to ultimately improve their autonomy are in need of what Du Toit (2009) calls "original answers" emanating from sound clinical reasoning, which is fundamentally a challenging decision-making process (Kuipers & Grice, 2009; Dunbar, 2007; Rogers J. C., 2004; Neistadt & Crepeau, 1998; Robertson, 1996). Helping patients find ways and means to functional independence, i.e. all activities that they engage in during the day, depends to a large extent on a clinician's astuteness, knowledge, skills and experience during the problem-solving process (Kuipers & Grice, 2009; Liu, Chan, & Hui-Chan, 2000; Neistadt & Crepeau, 1998; Mattingly & Fleming, 1994).

There are two aspects to clinical reasoning – a content component (what therapists think about the patient's problems and how to intervene), and a thinking process connected with it (how therapists think about their patients) (Mattingly & Fleming, 1994).

In this section the concept "clinical reasoning in occupational therapy" will be examined first, followed by the content, then an overview of the thinking process connected with it, a description of how it is taught in the undergraduate programme, and finally the therapists' level of competency.

2.2.2 Clinical reasoning: The concept

Joan Rogers describes clinical reasoning as “the thought process that guides practice” in which therapists employ their clinical reasoning skills to first assess their patients’ health status, i.e. establish what are the patients’ impairments and what their strengths are, and following that (in collaboration with the patients themselves) deciding upon desirable intervention strategies (Law & Baptiste, 2002; Rogers J. C., 1983, p. 336). Based upon these decisions the quality of life of the patient can be significantly improved.

Mattingly and Fleming are of the opinion though that clinical reasoning is not merely “matching condition to therapy of choice” (scientific reasoning), but a complex practical reasoning process in which the individual needs of the patients, including their experience of their illness, are considered (Mattingly & Fleming, 1994, p. 13).

Neistadt, Wight & Mulligan (1998, p. 125) add that clinical reasoning is the thought process used by clinicians to “individualize treatment”.

Royeen et al. also define clinical reasoning in the same vein, but qualify “thought process” as a “reflective thought process” which therapists “undergo to integrate client evaluation information in order to develop and implement intervention plans” (Royeen, Mu, Barrett, & Luebben, 2001, p. 108).

Unsworth (2011) on the other hand maintains that when authors in general define clinical reasoning as “many modes of thinking that guide clinical practice” this concept is indistinct and much research would be required to explore and examine the phenomenon.

Although authors differ in their view of the concept it would seem that the notion of Rogers’ (1983), i.e. data collection about the patient’s problems and strengths, analysis and interpretation of such data, and the implementation of intervention strategies, still form the core components of the concept (Kuipers & Grice, 2009; Mendez & Neufeld, 2003).

2.2.3 Clinical reasoning: The content

Since the research on clinical reasoning in occupational therapy of Rogers and Masagatani (1982), various authors have described the way they thought about the content. Using different words they defined it as either “modes” (Unsworth, 2004; Ward, 2003; Rogers J. C., 1983), “forms” (Mattingly & Fleming, 1994), or “types” of clinical reasoning (Mendez & Neufeld, 2003; Neistadt, Wight, & Mulligan, 1998; Robertson, 1996; Strong, Gilbert, Cassidy, & Bennett, 1995; Fleming, 1991). Because these modes, types or forms of clinical reasoning were developed from two different paradigms, viz. positivistic – i.e. objective and reductionist in nature, and interpretive, which is more subjective because of the different purposes they serve in the reasoning process, the nature of each mode will have to be examined first. In this study the term “mode of clinical reasoning” will be used for both the assessment and the intervention strategies.

For the purpose of this study the following modes of clinical reasoning, described by pioneers and experts in the field and tabled by Schell and Schell (2008), will be used as a framework since these are universally employed in most of the literature and research on the subject:

- Scientific reasoning (including diagnostic and procedural reasoning)
- Interactive reasoning
- Conditional reasoning
- Narrative reasoning
- Pragmatic reasoning
- Ethical reasoning

2.2.3.1 Scientific clinical reasoning

The science of occupational therapy has a comprehensive and diversified knowledge base requiring practice skills for each condition or dysfunction. Therapists employ the scientific mode of reasoning when they apply “scientifically derived” theory

(Mattingly & Fleming, 1994, p. 317) or evidence-based practice (Tomlin & Borgetto, 2011) to assess and treat patients who suffer from physical dysfunction. This mode of reasoning, according to Radomski (2008) is particularly relevant in the physical field of occupational therapy because effective treatment strategies are based on a good understanding of anatomy, physiology, anatomical pathology and biomechanics. Therapists working in this field are often criticised however, because they rely mainly on the biomechanical frame of reference which employs a reductionist approach (McEneaney, McKenna, & Summerville, 2002) rather than considering the patient as a person who suffers from a specific condition.

Scientific reasoning comprises both occupational diagnostic reasoning (Rogers & Holm, 1991) and procedural reasoning (Fleming, 1991). Each will be discussed next.

i. Diagnostic clinical reasoning

Occupational diagnosis was first described by Rogers and Masagatani (Rogers J. C., 2004; Rogers & Masagatani, 1982). They undertook a qualitative research pilot study on the diagnostic clinical reasoning of 14 clinicians' ability to identify patients' problems in "an acute physical setting" and included the formulation of intervention plans to remediate or alleviate such problems. From their study it was found that clinicians' problem statements were to a large extent influenced by the medical diagnosis of the patient. The findings also indicated that clinicians themselves used only a few cues to identify problems and that they were reluctant to articulate their own ideas.

In her Eleanor Clarke Slagle lecture Rogers (Rogers J. C., 1983) explored clinical reasoning further from an ethics, science and art point of view and elaborated on the steps involved in occupational diagnosis, viz. pre-assessment image, cue acquisition, both hypotheses generation and evaluation, cue interpretation and occupational diagnosis.

During the late 1980s Rogers and Holm published a format therapists could use to assess the occupational status of patients. Using a top-down approach they formulated four structural components in the occupational therapists' diagnostic reasoning process (Rogers & Holm, 1991). These four processes have been described in more detail by Rogers (2004) and will be expounded on next.

➤ **Descriptive component**

During this assessment the therapist identifies any problems a patient might have to perform various tasks and roles in their lives in order to function independently. These tasks and roles range from activities of daily living to work related ones.

➤ **Explanatory component**

After assessment of the patient's functional ability, the next step is deliberating upon the probable cause of the functional problems. For example, a problem in getting dressed might be caused by a limited range of motion, and by a social role dysfunction, low self-esteem and anxiety.

➤ **Cue component**

Cues might be the symptoms and or signs that augment the therapist's understanding of the patient's problems. Symptoms are the subjective information provided by the patient, e.g. "I find it difficult to work on the computer because once I start to work I feel pins and needles in my hand and my shoulder is painful". Signs on the other hand are the objective data collected by the therapist by means of various assessment tools such as testing the patient's range of motion.

➤ **Pathological component**

This component specifies the pathology which underlies the medical condition. In the above-mentioned case the medical pathology is a neck injury causing the pain (Rogers J. C., 2004).

These processes, although described separately, do not necessarily follow a specific sequence but often happen concurrently. Nevertheless it is important to assess a patient's problems by determining how the dysfunction impacts on such patient's performance, what their strengths are and how motivated they are to participate in occupation so that intervention strategies can be decided upon. Diagnostic reasoning however, does not stop once it has started but is an on-going assessment process that directs intervention continuously to ensure change and improvement. Constant appraisal of data reveals which data is necessary to grade treatment appropriately.

ii. Procedural clinical reasoning

Fleming coined the term *procedural reasoning* which refers to therapists' thought processes when they think about a specific injury or condition and decide on which principles, techniques and/or procedures they should employ to treat the patient to become more functional (Fleming, 1991). This mode of reasoning could, according to Fleming, be compared to that of the medical model in the sense that occupational therapists think about the patients' dysfunction first and then decide upon the intervention strategies which could be employed to remediate the problem afterwards (Fleming, 1991; Ward, 2003). Although the medical model and evidence-based practice are of utmost importance in order to render quality service, no treatment procedure on its own could provide for a successful outcome (McEneaney, McKenna, & Summerville, 2002; Mattingly & Fleming, 1994).

2.2.3.2 Interactive reasoning

With *interactive reasoning* (Mattingly & Fleming, 1994) the approach of the therapist is client-centred with the intention of understanding the patient as a person and how he/she perceives his/her world (Hagedorn R. , 1995). In order to do so the therapist focuses on the core therapeutic skills of empathy, unconditional positive regard and congruence (Du Toit, Grobler, & Schenk, 1998). Furthermore therapists collaborate with patients, if appropriate, about their own treatment, thus fostering a feeling of control (Goodman, Hurst, & Locke, 2009). In this respect Du Toit (2009, p. 17) maintains that the clinician cannot apply treatment procedures to or do anything for the patient, but is obliged to "wait for the patient in his totality to do with her". The Nigerian Association of Occupational Therapy (World Federation of Occupational Therapists, 2003, p. 27) believes in this regard that the therapist should work with the client "towards promoting freedom from dependence on others and to attract respect and not pity".

The client-centred approach described by Fleming (1991) seems to be based on Carl Rogers' series of 19 propositions of human behaviour and his person-centred approach (Rogers C. R., 1951). Central to this approach is the notion that the therapist tries to understand how the patient or client sees him/herself. Rogers

(1951, p. 30) states in this regard that “the therapist must lay aside his preoccupation with diagnosis and his diagnostic shrewdness ... must give up the temptation subtly to guide the individual ... and must concentrate on one purpose only; that of providing deep understanding and acceptance of the attitudes consciously held at this moment by the client...”. Mattingly and Fleming (1994) also maintain that improvement occurs within the scope of an interpersonal relationship.

2.2.3.3 Conditional reasoning

Conditional reasoning is another mode of clinical reasoning described by Fleming. According to her the therapist uses conditional reasoning when she/he “moves beyond specific concerns about the person and the physical problems and places them in broader social and temporal contexts” so that meaningful experiences can be created for the client (Mattingly & Fleming, 1994, p. 133). She is also of the opinion that conditional reasoning requires a deep understanding of the patient in his/her totality and places the focus on continuous adaptation of intervention strategies (Mendez & Neufeld, 2003). Since conditional reasoning requires deep levels of insight it is the more experienced therapists who will employ this kind of reasoning (Unsworth, 2011; Liu, Chan, & Hui-Chan, 2000).

2.2.3.4 Narrative reasoning

In addition to the above modes of reasoning, Mattingly (1991) also proposed a fourth one she calls *narrative reasoning*. According to her this reasoning mode should enable therapists to think about the patients’ life stories. These “life stories” should then reflect the patients’ occupational roles and activities (Neistadt, 1996; Mattingly & Fleming, 1994). Mattingly (1991) concludes that *narrative reasoning* or storytelling and story creation forms the cornerstone of clinical reasoning in occupational therapy and maintains that *narrative*, rather than *scientific reasoning*, forms the basis of clinical reasoning, thus enabling therapists to think about the patients’ life stories as it is in the here-and-now as well as helping them to visualise how the client’s life might be in the future. It is upon these life stories that therapists’ practical reasoning

should ultimately be based (Strong, Gilbert, Cassidy, & Bennett, 1995; Mattingly & Fleming, 1994).

2.2.3.5 Pragmatic reasoning

Schell and Cervero added *pragmatic reasoning* as another mode of reasoning to Mattingly and Fleming's framework of clinical reasoning in occupational therapy (Schell & Cervero, 1993). According to these authors pragmatic reasoning consists of both the practice and the personal aspect of therapy. As indicated by them it only makes sense to include contextual factors that facilitate or enhance treatment as part of the clinical reasoning process. These factors from a practice point of view include hospital policy, available funding, equipment, space, treatment protocols, time schedules (Schell B. A., 2003) and the therapists' personal abilities such as their repertoire of therapeutic and interpersonal communication skills and their value systems (Schell & Cervero, 1993).

Unsworth (2004) on the other hand questions the inclusion of pragmatic reasoning as a separate mode of clinical reasoning in occupational therapy, based on the findings of her research on 13 occupational therapists' clinical reasoning applied to 13 patients from three physical rehabilitation centres. Data were collected from a focused ethnographic framework. The findings indicated that pragmatic reasoning was related to the practice context only.

2.2.3.6 Ethical reasoning

Ethical reasoning is described by Rogers (1983, p. 344) as "the search for an understanding of the patient's life rather than to make an evaluation of it". The therapist should therefore ask what ought to be done.

Through ethical reasoning the therapist proposes interventions in relation to the ethical principles of practice, as well as in terms of any medico-legal considerations (Turner, Foster, & Johnson, 2002). These ethical principles or deontology (Runes,

2001) is the systematic exposition of the moral code that describes the therapist's responsibilities and the fundamental principles of right and wrong action (axiology).

In South Africa ethical reasoning in occupational therapy is based on the Code of Ethics as laid down by OTASA (2003). The Code of Ethics consists of four principles which are in essence the following:

- Beneficence, i.e. the therapist must show concern for the well-being of clients and ensure quality of service at all times.
- Autonomy, i.e. respect for the clients' rights to make decisions and to choose freely and the therapist's right to act autonomously based on acquired knowledge and experience.
- Veracity, i.e. the therapist should act with integrity by telling the truth, giving accurate statements and keeping his/her promises.
- Justice, i.e. the therapist will not discriminate against clients and will ensure that all clients are entitled to appropriate, affordable and accessible services.

The Code of Ethics thus provides a set of principles (deontology) which are based on values (axiology) to provide guidelines for practice and for maintaining high standards of professional behaviours.

In her Eleanor Clark Slagle lecture, Rogers J.C. (1983) asserts that "the clinical reasoning process terminates in an ethical decision, rather than a scientific one, and the ethical nature of the goal of clinical reasoning projects itself over the entire sequence".

The various modes of clinical reasoning mentioned are set out in Table 2-1: List of clinical reasoning modes in occupational therapy

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Table 2-1: List of clinical reasoning modes in occupational therapy

<p>Scientific reasoning (Rogers J. C., 1983)</p> <ul style="list-style-type: none"> ➤ Occupational diagnostic reasoning (Rogers & Masagatani, 1982) ➤ Procedural reasoning (Fleming, 1991)
<p>Narrative reasoning (Mattingly C. , 1991)</p>
<p>Pragmatic reasoning (Schell & Cervero, 1993)</p> <ul style="list-style-type: none"> ➤ Practical context (Schell & Cervero 1993) ➤ Personal context (Schell & Cervero 1993)
<p>Ethical reasoning (Rogers J. C., 1983)</p>
<p>Interactive reasoning (Fleming, 1991)</p>
<p>Conditional reasoning (Fleming, 1991)</p>

2.2.4 Clinical reasoning: The process

To reason clinically different thinking processes are employed (Unsworth, 2004).

Rogers J. C. (1983) maintains that students should be taught the process of clinical reasoning by employing deductive, inductive, dialectic and ethical thinking skills.

Deductive thinking skills are drawn on predominantly when employing occupational therapy diagnostic reasoning (Rogers J. C., 1983) scientific reasoning (Rogers J. C., 1983; Rogers & Masagatani, 1982); procedural reasoning (Fleming, 1991) as well as pragmatic reasoning (Schell & Cervero, 1993). The therapist recalls information from memory, generates a series of hypotheses and applies them to a particular case.

The first study of clinical reasoning which focused on the thinking process, and was used by occupational therapists while doing assessments, was conducted by Rogers

and Masagatani in 1982. They found that the thinking processes of therapists could be systematically recorded from the moment they “receive a referral and read words such as stroke, hemiplegia, or depression” (Rogers J. C., 2004, p. 19). Reading these words would bring back memories of stored knowledge as well as previous experience of similar cases so that their thinking became “automatic but mindful” (Rogers J. C., 2004, p. 20). This thinking process is fundamentally deductive in nature.

In the field of psychology Sternberg (2002, p. 386) refers to this process as memory thinking and asserts that memory is the foundation of the thinking process since a person “cannot think critically (or any other way) about what they know if they do not know anything”.

However, not all cues and symptoms expected by the therapist from her/his frame of reference will be manifested in every patient. Since each patient is a unique human being symptoms might differ. The therapist will therefore need to employ inductive thinking skills to draw conclusions about observations and findings that were made.

A third thinking skill employed by therapists in the selection of treatment interventions is described by Rogers (1983, p. 344) as *dialectic thinking*. For her “the therapist argues one treatment option against another without recourse to new clinical data”.

Finally to her ethical reasoning is ultimately imperative in the problem solving process and the therapist’s thinking should therefore revolve around the question about “what ought to be done?”

Another study on the process of clinical reasoning was conducted by Fleming and Mattingly between 1986 and 1990. They participated in a research project on clinical reasoning funded by the American Occupational Therapy Association and the American Occupational Therapy Foundation (Mattingly & Fleming, 1994). In this project they studied the whole therapeutic process from the moment of assessment to that of discharge, and for them the thinking process of clinical reasoning was in essence a problem-solving process.

Following on Rogers’ (1983) and Mattingly and Flemings’ (1994) publications on the clinical reasoning process in occupational therapy, empirical research on this subject

were conducted by numerous authors (Strong, Gilbert, Cassidy, & Bennett, 1995; Roberts, 1996; Hagedorn R. , 1996).

Many conceptual models of problem solving have been proposed in the past. These models usually give a sequence of steps that should be followed when solving problems. However, for clinical reasoning to be effective (once the problem has been defined) there should be interaction between processes such as ‘memory thinking’ (recalling of knowledge stored in memory and past experience), ‘creative thinking’ (idea generation), ‘critical thinking’ (evaluation of ideas) and ‘practical thinking’ (the right action in a given case) (Mattingly & Fleming, 1994; Sternberg R. J., 1999). Since clinical reasoning is essentially a problem-solving process it will be examined next.

When confronted with a patient suffering from a specific physical condition the therapists’ natural inclination would be to solve the problem with standardised treatment intervention strategies. Various evidence based treatment methods have been developed over the years and are used to good effect in the field (Tomlin & Borgetto, 2011).

Uncomplicated problems can often be solved by an analogue approach or convergent thinking which is based on a logical mode of thought with proponents that have a single correct answer (Ochse, 1990; Weisberg, 1993; Sternberg R. J., 1999). Save for ill-defined problems where the means of solving it is not immediately apparent a more structured algorithmic approach with a set of rules could be followed.

In contrast to and because of the complex nature of clinical reasoning divergent thinking is essential for creative problem solving (Guilford, 1975) or to reorganise existing knowledge (Ochse, 1990). Furthermore Guilford (1975) believes that people who employ divergent thinking are sensitive to problems, i.e. they have the ability to recognise problems, and are fluent, innovative and flexible in their thinking. In the same vein Csikszentmihalyi stated that “new is meaningful only in reference to the old’ (Csikszentmihalyi, 1996, p. 314). For therapists to do creative problem solving in the clinical reasoning thinking process, they need to rearrange and combine existing knowledge and information about occupational therapy intervention in a novel way.

For the purpose of the study the stages of problem solving, which is well explained in literature, each will be described briefly.

Stages of problem solving

i. Problem spotting, finding or definition

Identification and formulation of a problem or problem spotting is the most difficult part in the solving problem process and crucial in creative problem solving (Sternberg R. J., 1999; Robertson, 1996). In the case of occupational therapy once a patient's problems and strengths are identified from his/her assessment the intervention strategies seem to be much more exact. Rogers (1983, p. 340) states in this regard that "The output is the conclusions summarised in the occupational therapy assessment. The conversion of intake data to output conclusions is a critical feature of clinical reasoning".

ii. Preparation

This stage of the process contains elements of conceptual exploration with the combining and recombining of ideas.

iii. Incubation

In a case where the combining and recombining of ideas do not lead to an immediate solution, there could well be a stage of incubation where unconscious thinking is going on while the person is consciously engaged in some activity unrelated to the problem.

iv. Illumination

The incubation period comes unexpectedly to an end with a sudden insight or illumination. This can lead to productive and goal directed thinking.

v. Verification and evaluation

In the last stage the alternative solutions are evaluated, and the most effective chosen and tested against the aims and the implementation or action planned.

Once a possible solution is found, therapists should reflect on the process or think about their thinking (meta-cognition). Parham postulated in this regard that therapists

should enhance their clinical reasoning by becoming ‘reflective therapists’ (Parham, 1987).

Fondiller *et al.* (1990, p. 42) are of the opinion that therapists’ clinical reasoning is to a large extent influenced by their values, hence “the clinician comes to practice with a value system that guides the initial decisions and judgments”. Judged from these notions it would seem that the process of clinical reasoning is multifaceted and complex.

2.2.5 Clinical reasoning: Teaching strategies

There are two aspects to the teaching of clinical reasoning in occupational therapy - the theory of clinical reasoning and the application of the theory. For students to learn clinical reasoning effectively it should be taught throughout the curriculum by means of different teaching methods (Neistadt, Wight, & Mulligan, 1998).

These skills are taught and learned in stages during the students’ first to fourth years of study at the University of Pretoria. During their first year students learn mostly about the theoretical concepts. In their second year the emphasis is mainly on scientific reasoning which comprises both occupational diagnostic reasoning or assessment and basic procedural reasoning skills or scientific intervention strategies. In the third year the application of clinical reasoning is extended with emphasis on a wider variety of conditions and areas of functioning; thus taking more modes of reasoning into account. The acquisition of this competency however, is to a large extent developed in the students’ fourth year during their fieldwork education under the supervision of a registered occupational therapist (Bonello, 2001).

As indicated previously the occupational therapy process is not a memorised linear procedure but a complex and challenging on-going thinking process. Teaching clinical reasoning poses a challenge to both faculty and fieldwork educators. To develop and elucidate these skills a variety of teaching strategies are employed, e.g. paper and video cases (VanLeit, 1995), narratives or storytelling (Mattingly & Fleming, 1994) and the classroom as clinic (Neistadt, 1987) before students begin with their fieldwork education (Cohn E. S., 1989).

Each will be described briefly.

2.2.5.1 Paper cases

Undergraduate occupational therapy students initially learn about clinical reasoning by doing pencil and paper case exercises in the classroom. Paper cases emphasise the medical condition fostering predominantly scientific reasoning, occupational diagnostic reasoning and procedural reasoning (Fleming, 1991). Teaching clinical reasoning by means of paper case studies, while employing a problem-based learning approach in a small group, has the advantage that it could stimulate interaction, intellectual curiosity and discussion amongst students if facilitated effectively (VanLeit, 1995).

2.2.5.2 Video cases

Another teaching method described by Van Leit (1995), the videotape case study, offers according to her, the students the opportunity to both visualise and understand by means of the video the patient's narrative from his/her perspective. Videos have also the advantage that students can look at them repeatedly to get a clear understanding of the complexity of the case under study.

2.2.5.3 Narratives or story telling

Mattingly (1991) believes that by storytelling the patient's situation or experience of his/her dysfunction can be better understood. For her "chart talk" or medical information about the patient focus merely on the disease and hence constitutes a reductionist approach (Mendez & Neufeld, 2003). Faculty sharing patients' narratives (respecting their patients' anonymity) could foster clinical reasoning by articulating their own thinking processes during the course of treatment.

2.2.5.4 The classroom as clinic

Another teaching strategy would be to facilitate students' clinical reasoning skills by inviting physically disabled guest lecturers to role model as patients in the classroom (Neistadt, 1987). These guest lecturers are known to faculty responsible for teaching that specific module or course.

Students spend approximately two hours with the guest lecturer who would address them either as a group of 30 students or in small groups of five to 10 students. The students are expected to interact with the client in order to evaluate his/her problems and strengths. Apart from assessing the client's problems and strengths (deductive reasoning) students are expected to induce specific problems the client might have. Following the interview with the guest lecturer the students are expected to do the following;

- Submit a list of the client's problems as well as the goal and plan of treatment.
- Submit a log about their experiences and feelings of the session with the guest lecturer.
- Participate in a discussion group sharing their experiences and feelings about the session and to clarify uncertainties about the case.

In her research study on the classroom as clinic for teaching clinical reasoning Neistadt (1987) found that this method fosters a deeper understanding of clinical reasoning. She included 78 students in her study and the results from the pre- and post-testing of the students' ability to accurately analyse pre-assessment data and to formulate appropriate treatment programmes improved significantly as a result.

2.2.5.5 Fieldwork education

Fieldwork education requires a shift of focus from classroom education to where it becomes the integration of theory into practice (Allison & Turpin, 2004). For students to acquire the necessary competencies and skills to develop their professional

identity they should be afforded with adequate opportunities in fieldwork experience (Tompson & Ryan, 1996).

During their fieldwork education students are taught *in situ* on how to offer authentic occupational therapy by means of effective clinical reasoning (Cohn E. S., 2003; VanLeit, 1995).

The relevancy of fieldwork education is graphically illustrated in Figure 2-1: The Cone of Learning as revised by Bruce Hyland from work originally done by Edgar Dale (1969). The cone is based on the premise that we “tend to remember our level of involvement”.

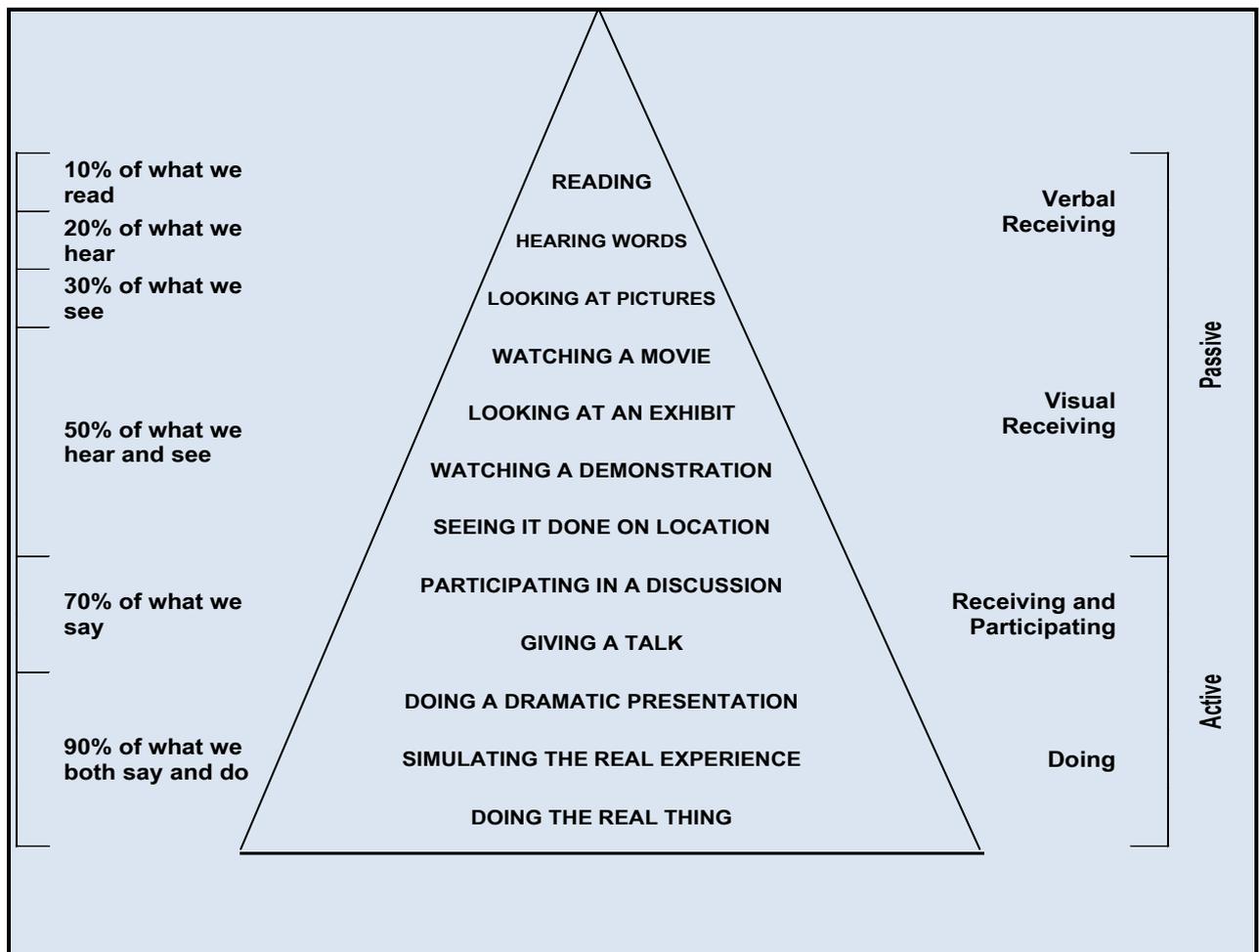


Figure 2-1: The Cone of Learning

Fieldwork education should therefore be of prime importance in teaching clinical reasoning skills as there seems to be general agreement that experiential learning or

students' active participation in learning activities (Bradly-Klug & Shapiro, 2003) has a positive impact on their memory retention and memory thinking (Sternberg R. J., 2002).

2.2.6 Therapists' level of clinical reasoning competency

The transition process from classroom to fieldwork is experienced by both students and supervisors, especially novice supervisors, as quite challenging.

As observed in research studies it seems that novice therapists employ mainly procedural reasoning skills. In a study conducted by Liu, Chan and Hui-Chan (2000) on 12 occupational therapists, six from the junior group and six from the senior group working with in-patient rehabilitation stroke patients, it was found that 60% of the junior therapists use procedural reasoning to think about patients in terms of their disease, procedures, techniques and activities in order to maximise the functioning of those patients.

Fleming (1991) likewise found that novice therapists tend to generate fewer hypotheses and tend to view the patient only in terms of his/her medical condition and relying on recognised methods of treatment. The findings of Kuipers and Grice (2009) of 21 occupational therapists (13 novice and eight experts) indicated that novice therapists rely more on external system aids or grids to support their clinical reasoning. According to Rogers the novice clinician relies on set therapeutic principles to retrieve out of memory (Rogers J. C., 1983). Robertson in addition stated that the novice may not recognise the salient features of a problem due to inexperience. For her the novice therapist perceives the patients' problems as straightforward for which straightforward methods are appropriate (Robertson, 1996, p. 181). Dutton is of the opinion that a novice therapist is "characterised by the rigid application of rules and principles learned in school" (Dutton, 1995, p. 8).

Various studies found that expert clinicians used mostly conditional reasoning. According to Lui, Chan and Hui-Chan (2000) expert therapists (73.3%) used mostly conditional reasoning in occupational therapy.

Robertson in her research study with the aim of identifying educational strategies that could be employed to assist students in developing their clinical reasoning skills found that clinicians have a better integrated understanding of patients' problems than students and that clinicians will therefore be more client-centred than students (Robertson, 1996). The data was collected by means of an interview (with predetermined questions from 67 subjects) of 14 second-year students, 31 final year students and 22 clinicians.

Expert therapists seem to be able to adapt their approach and intervention strategies according to the patient's needs rather than focusing on preconceived treatment plans (Neistadt, 1987). They tend to make use of both propositional reasoning (hypothesis testing) and heuristic reasoning in trying to identify the cause of the patient's problems or to generate ideas for the selection of therapeutic activities (Fleming, 1991). Fleming maintains that expert clinicians view their patients more holistically by taking various factors into account, and gives the following example "this is a person who has to face a lot of problems and I have to figure out the best way for me to help this patient figure out what he or she wants to work on and how". (Fleming, 1991, p. 991).

"The expert creates memory structures by classifying data according to how they are applied in practice" (Rogers J. C., 1983, p. 353) thus it can be assumed that experienced clinicians have a schemata stored in long-term memory.

In conclusion it can be stated that the time taken for the problem solving process differs noticeably between novice and expert therapist.

2.3 Physical fieldwork education

2.3.1 Introduction

Fieldwork education requires a shift of focus away from classroom education to where it becomes the integration of theory into practice (Allison & Turpin, 2004). It therefore forms an integral part of the development of the students' professional competency and clinical reasoning in the physical field of occupational therapy.

For students to acquire the necessary competencies and skills, they should be afforded with adequate opportunities for fieldwork experience (James & Prigg, 2004).

The supervision of occupational students during their physical fieldwork education at the University of Pretoria takes place either in a hospital for the treatment of acute cases or in a rehabilitation setting. Students are educated to treat patients suffering from physical dysfunctions, such as spinal cord injuries, upper and lower limb injuries, rheumatoid arthritis, osteo-arthritis, burns as well as neurologic conditions such as traumatic brain injuries (TBI), cerebral vascular incidences (CVI), Guillain-Barré syndrome and multiple sclerosis and HIV/AIDS.

A remedial or a rehabilitation programme or both are employed by occupational therapists in the physical field (where students are educated) and will of necessity implement clinical reasoning to guide assessment and intervention.

Within these settings or contexts both the supervisor and the student communicate with each other and since effective communication is dependent on the creation of an adequate context for such communication according to Vorster (2011, pp. 86-87), the context and what is being communicated "determine the meaning of all communication" ultimately.

To turn to fieldwork education in occupational therapy the next step would be to examine its purpose.

2.3.2 The purpose of fieldwork education

In the occupational therapy undergraduate programme the purpose is to train competent and reflective entry level therapists (Fortune, Farnworth, & McKinstry, 2006) who are able to adapt to and master challenges in their field of practice (Richard, 2008; Kirke, Layton, & Sim, 2007; Fidler, 1996). As a result the development of competency requires higher education in both the theory and the application of such theory in the clinical field (Kasar & Muscari, 1999). Facilitation of a student's professional development is therefore not limited to the theoretical realm, but involves various teaching platforms of which one is supervised fieldwork education (Bonello, 2001; Neistadt, 1996; Cohn, 1989) in order to gain the necessary expertise.

Other health professionals likewise value a supervised fieldwork experience (Neville & French, 1991). Wagner, Keane, McLeod and Bishop (2008, p. 11) in discussing the need for clinical supervision postulate that "clinical supervision is intended to, and does have benefits in quality and safety of care, together with individual practitioner and organisational benefits". Yalom, for example, states that supervision "is a *sine qua non* in the education of the ... therapist" (Yalom, 2005, p. 548) and added that the complexity and uniqueness of each therapy situation requires a creative approach that consists of theoretical knowledge, practical skills as well as the supervisors' attitudes and values. As a result the clinical supervisor should not impose externally contrived instructions about clinical reasoning but instead should facilitate a deeper understanding of the entire process during the student's fieldwork. In the same vein Shank and Weis believe that clinical experience is more essential to professional value development than the classroom, and professional identity clearly solidified in the clinic setting (Shank & Weis, 2001). This notion is not new as it was already put forward by Plato who postulated that "the 'eye of the soul' is not, as some 'professors of education' seem to think, a blind eye into which knowledge can be put; its power of vision can neither be originally produced by education, nor entirely destroyed by the want of it; it can only be 'turned to the light' for which it has an intrinsic capacity" (Nettleship, 1935, p. 7).

Since Plato's theory of education in his *Republic* several authors deliberated upon effective teaching methods and in attempting this constructed a plethora of strategies.

At the University of Pretoria the purpose of physical fieldwork education is to integrate students' theoretical knowledge and practical skills in different clinical settings. As stated in the ART 401 Study Guide (Graham, 2007) the purpose is to promote -

- clinical reasoning
- planning and preparing for occupational therapy assessment and intervention strategies
- implementing occupational therapy assessment and intervention strategies
- developing of professional behaviour.

Physical fieldwork education is a graded process from the students' second to their fourth or final year of study. The assessment of final year students' during their practical exam in the physical field will be discussed in 2.5.

In conclusion, the central purpose of physical fieldwork education is to focus on the occupational therapy students' clinical learning experiences. This entails the development of the students' professional knowledge, skills, attitudes and values expressed in professional behaviours during their fieldwork education (Björklund & Svensson, 2006; Kasar & Muscari, 1999; Fidler, 1996).

2.3.3 Expected outcomes of physical fieldwork education

The World Federation of Occupational Therapists' (WFOT) minimum standards for the education of occupational therapists were revised and approved in 2002.

This requires from students to practice at least 1000 hours to meet the minimum standards for education and states that “graduates from an occupational therapy educational program are expected to have substantial knowledge, skill and attitudes within the following five areas:

- The person-occupation-environment relationship and the relationship of occupation to health and welfare;
- Therapeutic and professional relationships;
- An occupational therapy process;
- Professional reasoning and behaviour; and
- The context of professional practice.” WFOT (2002).

The Professional Board for Occupational Therapy, Medical Orthotics / Prosthetics and Arts Therapy of the Health Professions Council of South Africa (HPCSA) likewise requires of occupational therapy students to do 1,000 fieldwork hours.

In order to qualify for the registration with the South African Qualification Authority (SAQA) there are 11 Exit Level Outcomes as stated by the HPCSA. One of these Exit Level Outcomes is the following:

“Learning Outcome: [The student must] Demonstrate competence in adapting the occupational therapy process for individuals, groups and communities using clinical reasoning and critical thinking in order to deliver services to persons of all ages who are at risk of or are occupationally dysfunctional” HPCSA (2006).

At the University of Pretoria the Occupational Therapy 401 (ART 401) module details the above-mentioned professional behaviours in the following manner (Graham, 2007):

“On completion of the ART 401 the student must be able to -

- carry out effective assessment and treatment in the physical field
- apply effective management strategies

- maintain professional relationships”.

This module addresses the following critical cross-field outcomes (Graham, 2007) -

- “Identify and solve problems using critical and creative thinking: planning and executing appropriate treatment programmes for a variety of patients.
- Work effectively in a team using critical and creative thinking: professional interacting with clinical team in OT departments as well as multidisciplinary teams involved with assigned clients; contribute according to OT role in teams.
- Organise and manage oneself and one’s activities: gather, evaluate and integrate learning material to develop an overview of treatment in the physical field; personal time management in the clinical field.
- Communicate effectively: professional communication with patients and team members; oral and written referrals and reports.
- Demonstrate the world as a set of interrelated systems: planning and implementation of appropriate, holistic, sustainable treatment programmes; contribute to comprehensive rehabilitation programmes in the fieldwork setting.
- Be culturally and aesthetically sensitive across a range of social contexts: Plan and implement age, gender and culture appropriate treatment delivered in a culturally sensitive manner; communicate with team members in a culturally sensitive manner.”

In accordance with the ART 401 study guide students must complete at least one six week period of physical fieldwork in a clinical setting for patients with physical dysfunction as timetabled by the University of Pretoria’s Department of Occupational Therapy.

Students’ clinical reasoning skills are assessed during the Mid-Term (M-T) and End of Term (EoT). The marking rubric (see Appendix C) gives a clear guide as to how grades should be allocated to students’ performances.

2.3.4 Development models in fieldwork education

Professional behaviours mature through a natural developmental process that requires careful nurturing on the part of educators, student clinical supervisors and clinicians themselves (Richard, 2008). A number of development models were proposed by Health Care Professionals to monitor and evaluate students' progress during their fieldwork education. Underlying these models is the premise that any growth process tends to follow a relatively predictable pattern.

In the field of psychology Hogan proposed a Development Model which depicts six stages of development for a student or supervisee (Hogan, 1964):

- Novice stage
- Transition to intermediate stage
- Intermediate stage
- Transition to advanced stage
- Advanced stage
- Professional stage

Dunbar-Krige and Fritz (2006) suggest a development model in four stages:

- The novice
- The apprentice
- The journey person
- The master craftsman

In occupational therapy Slater and Cohn (1991) presented a model describing therapists moving from novice to expert therapists. They used clinical reasoning modes to indicate the various stages as the following:

- Novice
- Advanced beginner

- Competent
- Proficient
- Expert

These models all chart the general development of the individual rather than addressing the student's transition in terms of occupational functioning.

Loganbill, Hardy and Delworth (1982), in the field of counselling psychology, put a very comprehensive model of counsellor development forward consisting of three stages:

- Stagnation
- Confusion
- Integration

They also identify eight supervisory issues that can be present during each stage which resulted in it being a complex model to implement. It is important to note however, that they describe these stages as cyclical and not necessarily linear (Bernard & Goodyear, 2004).

Schkade in 1991 presented a model, the Occupational Adaptation Model of Professional Development (OAMPD), based on the occupational adaptation frame of reference as described by Schultz and Schkade in 1992. This model viewed student transition in the context of occupational functioning and included psychosocial, cognitive and sensorimotor components (Garrett & Schkade, 1995, p. 120). The OAMPD proposes that students have three classes of adaptive behaviours available for use:

- Primitive or hyper-stabilised
- Transitional or hyper-mobilised
- Mature, exhibiting a blend of both stability and mobility

The general behaviour that could be expected in each of the above stages are described by Garrett and Schkade (1995) as follows:

- “When the student perceives task demands as too difficult or too unfamiliar, **primitive behaviours** emerge as the student attempts to stabilise an ego threatened by the perception of impending failure. The student may demonstrate frozen posture, attempts to avoid or escape, denial of requisite knowledge, and other indications of anxiety-induced immobility, may emerge”.

From this description it would seem that students who experience clinical reasoning as too difficult or unfamiliar may attempt to avoid the reasoning process leaving them immobilised.

- If the student manages to move on, she “may then exhibit **transitional behaviours** that involve high levels of sensorimotor activity that appear to be random. Transitional behaviours stem from the perception of activity as goal. They reflect the student’s awareness that some sort of action is expected. But without clear goal direction, a student may attend to irrelevant stimuli and fail to attend to relevant stimuli. These behaviours show little evidence of goal direction or purpose”.

The students who become hypermobilised may divulge several ideas which appear to be random however, and even though they try their utmost to perform, the outcomes are desultory and their clinical reasoning ineffective.

- “As the student begins to understand relationships between theory, goal, and activity, the immobilising anxiety about failure and the random activity focussed on preventing failure come under the student’s control. The **mature behaviours** are characterised by a blending of stability, which is over-expressed in primitive behaviours, and mobility, which is over-expressed in transitional behaviours. Thus, the movement, thought, and interpersonal activity that the student demonstrates become more modulated and goal directed”.

The students who exhibit mature behaviours are mobilised and able to adapt successfully to challenges, show insight and can justify their actions based on sound understanding of clinical reasoning (Taylor, 2001).

Examples of specific student behaviours characterising each stage will be given in the section on interpersonal communication in the context of fieldwork education.

The validity of this model for student's development was tested and it was found to facilitate an understanding of students' development during their transition from classroom to practice setting (Garrett & Schkade, 1995).

For the purpose of this study the focus will be on the model proposed by Garrett and Schkade which are in line with the process of graded guidance advocated by the University of Pretoria.

2.3.5 Teaching approaches in fieldwork education

The importance of the supervisor's role as a teacher in facilitating understanding of clinical reasoning and the effect it has on the students' motivation cannot be over-emphasised, neither can the support in terms of the supervisor's words of encouragement and the degree to which the students experience success in their own eyes as well in those of the supervisor.

The way supervisors teach students is often a reflection of their own style of learning (Sternberg R. J., 2002). Those who prefer a didactic style would predominantly present and expect material to be learned (memory thinking). They may also prefer students to implement pre-defined treatment procedures. This teaching style allows only limited interaction between student and supervisor.

Then there are supervisors who expect students to be autonomous and creative, who are often open to new ideas and who enter into dialogue with their students.

There are also supervisors who may have a tendency to present material in evaluative terms, preferring their students to be critical and to reflect on their own work (Sternberg R. J., 2002).

Teaching and learning styles that differ so markedly must of necessity have different impacts, especially on the student's ability to master clinical reasoning. A further complicating factor is that in many instances, supervisors in occupational therapy have little or no formal education on how to handle the intensive interpersonally

focused one-on-one relationship with students in order to facilitate their competencies in the field, and may therefore experience supervision as an uncomfortable and difficult task (Sweeney, Webley, & Treacher, 2001; Devito, 1988).

Supervisors have at their disposal a variety of ways of teaching students. In this process the message the supervisor wants to communicate consists of both content and the way in which the content is conveyed, which Watzlawick refer to as the relationship aspect (Watzlawick, Bavelas, & Jackson, 1967).

Information should be presented in a way that the student can grasp and should be concurrent with his/her stage or level of development (Loganbill, Hardy, & Delworth, 1982).

The process (the how) of transmitting the information has a vast impact on the student. Rogers (1951) argued that if clients learn best by a client-centred approach the same should apply to the education of students. Allowing time for students to express their thoughts and feelings necessitates supervisors having to forfeit something else. Teaching and addressing students' needs is therefore time consuming, requiring supervisors to set aside something else they wanted to do in that time. However in doing so, the supervisors convey to students that they are important and that their professional development does matter.

The supervisor should facilitate the learning process by modelling appropriate behaviour and creating an environment conducive to learning so that optimal learning can take place.

Although supervisors are requested to facilitate reflective thinking, some didactic instruction proves to be useful in particular where complex material is taught.

Didactic instruction can be useful when a student has to perform a specific procedure on specific cases, then some form of instruction is usually necessary, as in the case of splinting. Furthermore much of what supervisors are teaching is done to assist students to function within new parameters of experience. Students must often be able to learn complex material which if it is presented in a structured logical manner could enhance their understanding of it.

Before the acquisition of clinical reasoning skills the student must be familiar with the nature thereof, i.e. what it entails. It is therefore the task of the supervisor to equip the student with the necessary knowledge and skills. Barr (1987) is of the opinion that supervisors must be made aware that they should teach students in four main stages. This is set out below in terms of responsibility for both supervisor and student:

STAGE 1

i. Discussion of plan

The supervisor should first explain to the student what she (the supervisor) planned for a patient. At this stage the supervisor should articulate her own clinical reasoning process.

ii. Demonstration

Following this initial explanation the supervisor should demonstrate the patient's treatment to the student. With a hands-on demonstration the student has the opportunity to observe (Kirke, Layton, & Sim, 2007) and to form a cognitive image of how an assessment or intervention procedure is performed. According to Bandura (Hjelle & Ziegler, 1981) this coded information could serve as a guide for a student to assess or treat a patient on subsequent occasions.

iii. Evaluation and reflection

On completion of the demonstration the supervisor should, away from the patient, evaluate the outcome of the assessment or intervention procedure. Evaluation of and reflection on outcomes is of prime importance as it directs future aims and objectives set for the patient. Supervisors who reflect on their practice "nurture their clinical reasoning skills ..." (Unsworth, 2011, p. 218) and hence enhance their level of competency.

iv. Modification of treatment

Upon reflection the supervisor should apply clinical reasoning skills, and more specifically conditional reasoning, in order to direct the patient's future treatment.

STAGE 2

i. Discussion of plan

Both the supervisor and student plan a patient's assessment or treatment session by means of clinical reasoning. A problem-based approach is followed so that the student's memory, creative, critical and practical reasoning skills can be enhanced. This would also give the student the opportunity "to learn, not just to be told" (Kirke, Layton, & Sim, 2007, p. S17).

ii. Practical application of plan

Following on the planning the supervisor should let the student practice the assessment or procedure while still observing it. This would provide the student with a safety net because the supervisor will be able to intervene should it be necessary.

iii. Evaluation and reflection

At this stage the supervisor should facilitate the student's clinical reasoning in evaluation of and reflection on his/her practice.

iv. Modification of treatment

Upon reflection the supervisor should foster the student's clinical reasoning skills and more specifically conditional reasoning in order to direct the patient's treatment.

STAGE 3

i. Planning

The student should plan assessment and treatment based on his/her clinical reasoning skills under the supervision of the fieldwork educator.

ii. Practical application of plan

Following on the planning the supervisor should allow the student to practice the assessment or procedure while still observing it. This would once more provide the student with a safety net because the supervisor will be able to intervene should it be necessary.

iii. Evaluation, reflection and feedback

The student should now evaluate and reflect on his/her performance independently. At this stage it is important that students receive immediate, accurate and constructive feedback so that they can know how to change (Watzlawick, Bavelas, & Jackson, 1967; Gravett & Geysler, 2004).

iv. Modification of treatment

Upon reflection the supervisor should foster the student's clinical reasoning skills and more specifically conditional reasoning in order to direct the patient's treatment.

STAGE 4

i. Discussion of plan

The student should plan assessment and treatment based on his/her clinical reasoning skills independently.

ii. Practical application of plan

Following on the planning the student should implement the assessment or procedure he/she planned independently.

iii. Evaluation and reflection

At this point the student should be able to evaluate and reflect independently on his/her own assessment, plan of treatment and the implementation of the plan.

iv. Modification of treatment

Here also the student should be able to modify his/her treatment independently.

In conclusion, facilitating independent and effective clinical reasoning among students requires progress sequentially through the various stages of their fieldwork education – a process that demands careful nurturing on the part of clinical supervisors.

2.3.6 Assessment of and feedback to the student in fieldwork education

The development of the students' professional expertise is to a large extent dependent on the feedback given to them by the supervisor. Bernard and Goodyear (2004, p. 30) state in this regard that "giving feedback is a central activity of clinical supervision and the core of evaluation". Should no feedback be given the student is left to his/her own devices resulting in learning, if any, taking place through trial and error (Watzlawick, Bavelas, & Jackson, 1967).

Feedback could be either confirmatory and/or corrective in nature. Through confirmatory feedback the supervisor informs the students if they are still on course and through corrective feedback, if they have wandered off the track and what they need to do to get back. Bernard and Goodyear (2004, p. 5) believe that "unless practice is accompanied by the systematic feedback and reflection that supervision provides, supervisees may gain no more than the illusion that they are developing professional expertise".

Feedback is a common phenomenon and various disciplines often share the same principles. For the purpose of this study, general guidelines for giving feedback while supervising students have been compiled and will be set out next.

- Feedback should be given timely (Gravett & Geysler, 2004). The supervisor should be able to read the situation, i.e. the student's readiness to make use of feedback. Giving an opinion if the student is not ready is likely to arouse denial as well as resistance or resentment towards the supervisor (Brammer, 1973).
- Feedback should not be a personal attack but instead describe a student's specific behaviour before the supervisor gives his/her feeling about it (Chur-Hansen & McLean, 2006). "Often it is difficult to determine when feedback is a projection of your own personal prejudices and problems" (Brammer, 1973, p. 98). The supervisor should therefore present feedback in an objective and constructive way avoiding any statements that question the overall self-esteem of the student (Gravett & Geysler, 2004; Buchanan, Moore, & Van Niekerk, 1998).
- Feedback should balance the good and the not so good (Chur-Hansen & McLean, 2006). It "should be honest but also motivating" (Gravett & Geysler, 2004, p. 109).
- Feedback should be given bit by bit so that the student can have time to assimilate the complete feedback (Egan, 2002). Too many comments all at once may overwhelm him/her and create confusion and possible resentment. "Feedback given in [a] cumulative manner serves more as a ventilation of hostility for the giver, and less as a helpful gesture" (Brammer, 1973, p. 99). "Feedback should be realistic around issues that the learner can grasp and act upon" (Gravett & Geysler, 2004, p. 109).
- Feedback should be detailed and descriptive (Gravett & Geysler, 2004). Students should be engaged in dialogue and should be encouraged to comment on feedback (Egan, 2002; Sweeney, Webley, & Treacher, 2001a).

During their fieldwork education students of the University of Pretoria receive feedback on their professional behaviours (including their clinical reasoning ability) from their supervisors during both the mid-term and end of term. Using a formalised Work Habits Report (Appendix B) as well as a marking rubric (Appendix C), supervisors are expected to give formative and summative feedback to each student.

i. Formative assessment

Formative assessment and feedback has as its focus improving the students' learning process rather than to pass or to fail them. Its purpose is to assist students on a regular basis to identify their strengths and areas that need to be developed in order to become a competent therapist.

Most students value competent supervisors who display clinical competency and who articulate their clinical reasoning thought processes.

Competent supervisors undertake the following tasks:

- Align expectations – students would be more inclined to learn when they have the expectancy that the fieldwork education will equip them to become competent therapists (Morse, 1998).
- Shape norms as a model-setting participant by being a model of effective professional behaviours, including clinical reasoning (demonstration of assessment and treatment).
- Give feedback on students' performance by appreciating their strengths (confirmative feedback) as well as their problem areas (corrective feedback) thus helping them to learn from him/her.

Various literature studies are available on how to give occupational therapy students feedback during their fieldwork education (Chur-Hansen & McLean, 2006). In the context of this study the guidelines as set out below are deemed relevant:

- Feedback should be given soon after completion of the task.
- A positive-negative-positive approach to feedback should be used, i.e. start with one of the student's strengths, identify the aspects which need to be worked on and close with a motivational statement.

- Give advice on how to improve.
- Offer help to overcome obstacles.
- Request and respond to feedback from the student about the feedback that was given (Sweeney, Webley, & Treacher, 2001a).

ii. Summative assessment

With summative assessment students' performances are judged by the allocation of grades to indicate their level of competency. Every institution has its own measuring scale to assess students' competency. At the University of Pretoria a marking rubric (Appendix C) is used to assess the students' performance. Students are assessed on their level in terms of the following:

- Theoretical knowledge
- Skill
- Insight
- Interaction (client-centeredness)

2.4 Interpersonal communication in the context of fieldwork education

2.4.1 Introduction

Various authors deliberated on the importance of the supervisory relationship in fieldwork education. As early as 1967 Truax and Carkhuff stated that the supervisor should actively shape the student's behaviour as far as effective practices in a free and open relationship are concerned (Truax & Carkhuff, 1967). Morse believed that the supervisor's role was to bring growth to supervisees in areas beyond the training of clinical skills, viz. to instil hope, to inspire and to nurture (Morse, 1998). Rogers made a strong case for therapy to be equated with education and that the aim of the therapist, which is to release the patient's capacity to deal constructively with his life

situation, can be applied equally to the supervisor / student situation (Rogers C. R., 1951). In 2004 Bernard and Goodyear stated a positive and productive relationship is critical for successful supervision (Bernard & Goodyear, 2004).

In a physiotherapy related research study on *Clinical supervision as an interaction between the clinical educator and the student* (Laitinen-Väänänen, Talvitie, & Luukka, 2007, p. 102) it was found that “The dominant role of the clinical educator in constructing and leading the learning session – limit students’ opportunities to enhance their critical thinking, reflective practice and self-directedness”.

In view of these statements it would seem that the nature of the supervisory relationship is a major determinant in the success of fieldwork education.

Since interaction is an integral part of the teaching process and effective learning relies heavily on the dialogue between those involved because “relationship processes permeate all of supervision” (Bernard & Goodyear, 2004, p. 136), interpersonal communication will have to be examined from a theoretical framework first.

In the interaction between supervisor and student, the behaviour of the supervisor impacts on the student and the response elicited from the student will impact in turn on the supervisor with relatively constant patterns of interaction between them coming into being (Vorster, 2003). The supervisor and student ... “can be seen as comprising an interactional system, characterised, *mutatis mutandis*, by many of the properties of general systems” (Watzlawick, Bavelas, & Jackson, 1967). Vorster, in a summary of the General Systems Theory (GST) within the context of psychotherapy, states that the emphasis here is on the inter-psychic, or the relationship between individuals, rather than the intra-psychic or inside of the individual (Vorster, 2011). For the purpose of this study the GST will now be examined only briefly as an exhaustive purview is beyond the scope of this thesis.

2.4.2 The General Systems Theory

Fundamental but interrelated concepts underlying the General Systems Theory (GST) and how they apply in the supervisory environment include among others the following (Vorster, 2011):

- Definition of a system – The elements standing in interaction with each other in this case include as objects the supervisor and student, attributes comprising the supervisors' care about her patients and her general ability, and the students' willingness to learn and respect for the supervisor, and how they communicate with each other.
- Circular causality – The individuals and events should be viewed in the context of mutual interaction and influencing, or how each element interacts and influences the other. The supervisor, by demonstrating and correcting the student's behaviour in the treatment of clients cause changes in that behaviour that in turn would modify her behaviour towards the student.
- Feedback – Feedback from the participants could be perceived as positive if it promotes both stability and change in the system. Negative feedback on the other hand has the result that the status quo and stability is being maintained. It should be noted that positive or negative in this sense do not refer to the tone or manner in which feedback is delivered but to whether it initiates change or not. In the supervisor/student relationship positive feedback from the supervisor would thus play a beneficial role in the development of the student.
- Morphostasis and morphogenesis – Morphostasis is a system's tendency towards stability and dynamic equilibrium; in morphogenesis the system adapts through enhancing behaviour that allows for growth, creativity, innovation and change without threatening its stability. These two should be in balance for a well-functioning system by allowing for appropriate and in-context change while maintaining stability. If the student is confronted with a laissez-faire approach and being left to her own devices, the outcome could be chaotic and the relationship classified as dysfunctional. If, at the other extreme, she is strictly controlled and not allowed to show any initiative there

will be stability without any growth and the system can again be described as dysfunctional. However, if she is allowed to grow and develop within clear boundaries the relationship in the system can be construed as morphogenic.

- Open and closed systems – The supervisor and student function in a fairly open system as there are normally a number of supervisors and students at any given hospital while faculty also gives input to the process at regular intervals.
- Equifinality and equipotentiality – Equifinality is described as the tendency towards a characteristic final state while equipotentiality occurs when the same cause produces different results. As the supervisor and student tend to develop habitual ways of communicating with each other these can be seen as creating redundant patterns of interaction that can be perpetuated and as such result in the characteristic end state referred to by the term equifinality.
- Rules, boundaries and supra-systems – Both supervisor and student work as part of other, larger systems. The supervisor works in the context of the specific hospital and the student is subjected to the culture and learning of the university environment. Both are also subjected to clear rules within the boundaries of the specific sub-system although these boundaries are relatively permeable.
- Communication – Communication between supervisor and student is both verbal and non-verbal and neither cannot not behave or communicate. However, there are a number of factors that will determine the efficiency with which the supervisor as sender gets her message across, such as tone of voice, volume, tempo of speech, clarity of expression as well as non-verbal or body language. It is important also to understand that behaviour, especially in respect of the supervisor in the context of the study, represents the personal truth of the sender.
- Process – The patterns in the relationship between supervisor and student developing over time can be seen as part of a process rather than a structural element.

- Context – It is important for both supervisor and student to see each other's behaviour in the right context or a significant gap could occur in their communication. Criticism from the supervisor could easily be construed by the student as being directed at her as a person rather than an honest attempt to optimise her treatment of a client. In respect of the study it is also important to understand the supervisor's behaviour in context
- Defining the relationship – By its very nature, the relationship between supervisor and student cannot, and should not be parallel or equal (Bernard & Goodyear, 2004) as it is not a relationship among equals. If the relationship tends to be parallel, the learning potential for the student will be jeopardised. It rather tends to be a complementary relationship where both supervisor and student agree on the relative difference in status between them (Haley, 1990). The supervisor facilitates solving of problems by the student, she guides and the student practices. It is a collaborative and productive relationship with constructive interaction "... one teaches and the other learns" (Haley, 1990, p. 11). The relationship could also be symmetrical however. If so the relationship would be competitive with both supervisor and student manoeuvring for control.

The GST, as its name implies, provides a model for understanding how seemingly unrelated events, both in the physical and psychology fields, can be seen as interrelated parts of a larger whole (Vorster, 2011). However, this is not sufficient to view the behaviour of the supervisors and students in totality without the integration of a psychotherapy perspective. The humanistic approach is therefore considered a suitable approach.

2.4.3 The Humanistic Approach

The humanistic approach, which developed after the psychoanalytic and behavioural approaches, places the emphasis on the human as a whole. In this approach people are seen as inherently having the ability as well as the tendency to self-actualise unless there are obstacles in the environment that prevent them from doing so. The student's ability will thus advance during practical training if the environment is

conducive to learning. How this environment is influenced or determined through the behaviour of the supervisor is intrinsically the subject of this study.

Although the humanistic approach can broadly be seen as encompassing Existential, Gestalt and Person-Centred Therapy, the focus of the study will be on the latter which was pioneered by Carl Rogers. He recommended that the therapist (or supervisor in this case) should have certain attitudes that are characteristics of person-centred therapy and elaborated further that the therapeutic climate as a critical variable to effect change could be improved by the incorporation of specific conditions in therapy (Rogers C. R., 1951). Vorster summarises the following specific conditions identified by Rogers that would facilitate a client's growth and actualisation:

- Congruency – the degree in which the therapist is genuine and transparent to the client.
- Unconditional Positive Regard and Acceptance – the extent in which the therapist accepts without conditions or judgement the client's feelings, attitudes and behaviour.
- Accurate Empathetic Understanding – the degree in which the therapist can sensitively and actively listen to the client and being able to sense accurately the feelings and personal meanings that the client is experiencing and communicating this understanding to the client (Vorster, 2011).

2.4.4 Interactional Pattern Analysis Theory and Interpersonal Variables

The interrelated concepts underlying the GST and the fundamental conditions expounded in Rogers' Client-Centred approach as well as other variables deemed clinically relevant were included in Interactional Pattern Analysis theory (Vorster, 2011).

The 16 interpersonal variables of the Interactional Pattern Analysis theory (Vorster, 2011) were empirically investigated (Van den Berg, 2008) and found to be valid and reliable. Each will now be discussed in the context of the study:

i. Context

The context within which the communication between supervisors and students takes place would generally be the same for all participants in the study, i.e. treating patients suffering from physical dysfunction in a hospital setting.

ii. Definition of the Relationship

As described above under the GST, the relationship between supervisor and student is expected to be predominantly defined as complementary and in practice it would manifest as follows:

- The supervisor leads and the student follows.
- The supervisor teaches (demonstrates, observes student's practice, gives feedback) and the student learns from him/her.
- The supervisor offers criticism and the student accepts it.
- The supervisor gives advice and the student follows it.

In some instances the student will refuse to accept the definition as complementary and in doing so manoeuvre towards a symmetrical relationship, which places the relationship in question (Haley, 1990).

It is also possible that the relationship being defined as parallel or as equals (Vorster, 2011).

iii. Clarity of self-presentation

In the context of the study this would refer to the ability of the supervisor to set clear expectations and to give unambiguous feedback on the student's performance.

iv. Emotional distance

This refers to the emotional distance prevalent between supervisor and student, especially as exercised by the supervisor and experienced by the student.

v. Congruence

Congruence could be whether the verbal and non-verbal communication of the supervisor complements each other, and could also refer to consistency in her behaviour towards the student.

vi. Empathy

Empathy is the principle route to understanding a student and enabling him/her to feel understood. Supervisors who show empathy make an active effort to put themselves in the student's internal frame of reference without losing their own objectivity (Rogers C. R., 1951).

vii. Unconditional positive regard

When supervisors offer unconditional positive regard it means that they have a concern for the student's welfare and have "respect for his/her individuality and worth as a person" (Brammer, 1973, p. 33). Students would therefore be accepted in a non-judgmental way.

viii. Potential for eliciting hostility/acceptance

Outright hostility from the supervisor is likely to elicit feelings of rejection in the student generating a poor self-image and lowered levels of confidence, while a friendly, caring attitude signifying acceptance would lead to a sense of self-worth and confidence and thus growth (Vorster, 2011).

ix. Confirmation

The ability of the supervisor to confirm the student as an individual in her own right and not make her feel inadequate or worthless.

x. Expression of needs

This refers to the supervisor's ability to express herself clearly when teaching the student.

If the student does not really understand what is expected of her, any attempt by the supervisor to correct her could easily be construed as undue criticism resulting in

defensiveness and self-justification. A blaming or accusatory style exhibited by the supervisor will have the same end result.

xi. Linear/Circular approach

In a linear approach the supervisor would tend to see her communication with the student as a non-sided phenomenon and not as an interactive or circular process, possibly believing that the student does not really have something of value to contribute. In a circular approach however, the supervisor will be aware of the impact his/her behaviour has on the student.

xii. Rigidity/Flexibility

The supervisor is expected to exhibit appropriate flexibility in dealing with a student. However, it should be borne in mind that the supervisor is also acting in the context of treating real clients where the consequences of a mishap by the student could be serious.

xiii. Meta-Communication

If the participants are able to communicate about communication there is a good chance of maintaining a harmonious relationship.

xiv. Problem solving skills

The competent supervisor is expected to have more than just adequate problem solving skills as this forms an intrinsic part of her ability to do clinical reasoning, which is important for the experiential learning of the student.

xv. Control

In any interchange between two people they must deal with two aspects, viz. what kind of behaviour is to take place between them and how that behaviour is to be qualified (Haley, 1990). In the context of the supervisory relationship the supervisor positions him/herself within the relationship with the student. When either the student or supervisor punctuates him/herself as a victim of control in the relationship he/she shows a lack of goal directed behaviour (Vorster, 2003).

xvi. Traumatic incident(s)

“A once-off experience may so impact on a (student) that this individual, who may have been coping quite adequately in managing her life up to this point, may become totally incapacitated” (Vorster, 2003, p. 94).

Although students are often exposed to traumatic situations during their fieldwork education such as treating patients who have severe burns, who are paralysed, suffer from HIV/AIDS and even deaths of patients, all of which are generally experienced as traumatic by most students, the impact does not generally leave them incapacitated, since supervisors and faculty debrief students on a regular basis.

2.4.5 The fieldwork educator (supervisor) in the relationship

Research on supervisors’ experience of fieldwork education as well as how they are perceived by students are well documented in literature. Some of these findings will be set out below.

In the eighties Christie, Joyce and Moeller (1985b) conducted a study on occupational therapy students and their supervisors in America and found that supervisors who were competent, flexible, and enthusiastic and who adapted their styles to meet each student’s needs were regarded as effective. Twelve years after their study Hummell (1997) conducted a similar study at one Australian university. The findings in respect of the supervisors’ interpersonal communication skills were consistent with those of Christie et al.’s (1985b), and in addition indicated that effective supervisors showed empathy and were supportive of students who felt anxious about their fieldwork.

Supervisors’ experience of the supervisory process however, showed that “supervisors do not find supervision a comfortable task in which to engage”. (Sweeney, Webley, & Treacher, 2001a, p. 338). Demands placed upon them require, among others, sensitivity to students’ needs, teaching of clinical reasoning skills, providing students the opportunity for reflection on their endeavours, giving constructive feedback as well as taking a stand on matters of principle.

Research conducted by other health professionals had similar findings. In a literature review which compared both clinical supervisor and student perceptions on helpful and hindering clinical instructor's characteristics in allied health care settings, Levy et al. found that students valued supervisors who enhanced their learning, had good communication skills, provided constructive feedback and helped them to develop self-confidence (Levy, et al., 2009). Stormont, who studied the significance of interpersonal relationships in practicum supervision of clinical dieticians who did their graduate diploma in nutrition and dietetics, employed an orientation qualitative analysis based on the Myers-Briggs Type Indicator (Stormont, 2001). Their findings indicated that students perceive an effective supervisor as tolerant, authoritative, helpful, friendly and understanding.

These studies however do not indicate how the supervisors' interpersonal communication skills have a bearing on students' learning outcomes (Hummell, 1997) such as the students' ability to apply clinical reasoning skills during their fieldwork education.

What comes to mind therefore is **how the supervisors' interpersonal communication really affects a students' ability to learn clinical reasoning skills during fieldwork education.**

Although interpersonal communication in the supervision of occupational therapy students was internationally investigated (Hummell, 1997; Laitinen-Väänänen, Talvitie, & Luukka, 2007) no published research in respect of this aspect could be found in the South African context.

2.4.6 The student in the relationship

A number of authors reporting on students' interpersonal communication in the supervisory relationship mentioned various factors that could have an influence on the student. One such factor could be their stage of development during their fieldwork education (Garrett & Schkade, 1995).

Differing behaviours like the following (Bernard & Goodyear, 2004) could manifest:

- The student needs to protect him/herself

- The student wants to avoid the situation
- The student feels anxious
- The student needs to feel competent
- The student's transference towards the supervisor

2.5 Assessment of clinical reasoning skills in the practical exam

2.5.1 The purpose

The purpose of the examination of clinical reasoning during a student's practical exam is to assess her/his ability to do scientific, narrative, pragmatic, interactive and ethical reasoning. Since conditional reasoning requires deep insight and experience; (Roberts, 1996) this mode of reasoning is not examined to the full. The grades students receive should indicate whether they assimilated the necessary theory and application of knowledge to qualify as occupational therapists.

In addition the exam situation assesses the students' ability to function under pressure and to solve problems in a short space of time.

2.5.2 The role of the examiner

It is the examiners' responsibility to determine whether students have obtained the necessary insight and skills to employ clinical reasoning to a satisfactory level.

Grades are allocated according to the same marking scheme or rubric (Appendix C) that is used during the students' fieldwork education.

2.6 Conclusion

In reviewing the literature on the development of the occupational therapy profession it was found that it advanced from fairly reductionist principles to a holistic view with emphasis on clinical reasoning, occupation and a client-centred approach.

Various platforms, from classroom to fieldwork, are employed to teach students to become competent in clinical reasoning. Fieldwork education, under the supervision of a qualified occupational therapist, plays a vital role in furthering a student's ability to reason clinically and for this a sound supervisory relationship is required.

Consequently the supervisor's interpersonal strategies in dealing with students will have to be examined in order to empower them in their task of education.