

**Nurses' Perceptions Of Clinical
Decision-Making In Relation
To Patients In Pain**

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Abstract

Clinical decision-making (CDM) research has focused on diagnostic reasoning, CDM models, factors influencing CDM and the development of expertise. The research approaches used, including phenomenology, have not addressed the question of how CDM is perceived and approached by nurses. This study describes perceptions of CDM in relation to patients in pain using a phenomenographic methodology.

At semi-structured interviews, participants were asked to recall their responses to a situation involving a patient in pain. The responses fell into four categories: (1) the effect of the clinical environment; (2) the role of other health professionals; (3) the place of the patient; and (4) the role of experience. Examples of differences in perceptions that were likely to impact on the nurses' approach to CDM include: the ongoing effects of time and workload demands on CDM; nurses are initially dependent but were eventually able to make decisions autonomously; the patient who may be peripheral or central to CDM; and the nurses' move from the use of theoretical principles to experiential knowledge as reflection-on-practice is employed. Perceptions in all categories are strongly implicated in the nurses' sense of confidence and independence.

Implications for nursing practice and nursing education suggested by the findings relate to the number of areas in which graduates work in the first year of practice, the size of new graduate workloads, graduate transition programs, the place of reflection-on-practice and undergraduate (UG) program clinical experience patterns. Among issues for further research arising from the study are: replication of the study; detailed examination of the development of CDM in the first year of nursing practice and during UG

nursing education programs; the role of other health professionals in the development of CDM behaviour; the links between CDM and clinical knowledge development; and the type of clinical environments that foster confidence and independence. A conclusion of the study is that the way CDM is approached is influenced by the amount, quality, relevancy and recency of clinical experience. In this study, phenomenography was shown to be an appropriate approach to the description of nurses' perceptions of CDM in relation to patients in pain. In addition, nurses' changing perceptions over two years and the subsequent effect on CDM behaviour were described.

Background to the study

The nurse's role in health care has been described as assisting "individuals, sick or well, in the performance of activities contributing to health and its recovery, or to a peaceful death" (International Council of Nurses, 1973:3). Nurses work in a variety of specialty areas including acute care, outpatient clinics, rehabilitation, home health, and psychiatry. Assisting patients to regain or improve health requires the ability to solve problems in order to determine solutions appropriate to patient needs. An important aspect of problem solving is the nurse's ability to make judgements or decisions. Decisions are made in a dynamic context that includes physical resources and the personal resources of the nurse. Physical resources include the number of staff to manage the work volume. Personal resources include the nurse's knowledge, skills, understanding, values and social perspective.

Decision-making is an important aspect of the nursing role as it helps to describe how nurses assign meaning to patient problems and identify nursing activities that will ameliorate or minimise problems. Approaching decision-making in this manner is referred to as the process of nursing, which describes the method by which a nurse practises. The more experienced the nurse, the greater the understanding of nursing. Consequently, the amount of experience is likely to affect the quality of patient care.

The study presented in the thesis examines two aspects of clinical decision-making. Firstly, the nurse's perceptions of clinical decision-making are described. Secondly, variations in perceptions of clinical decision-making over two years are explored.

This chapter introduces the study. Clinical decision-making is described and
Perceptions of clinical decision-making

the research literature overviewed. An argument is presented for the need to use a different research approach in the examination of clinical decision-making. Finally, the purpose of the study is presented.

1.1 CLINICAL DECISION-MAKING

Various expressions are used to describe the process by which decisions are made in the delivery of patient care (Thompson, 1999). Expressions include diagnostic reasoning or judgement (Gordon, 1987; Tanner, Padrick, Westfall & Putzier, 1987; McFadden & Gunnnett, 1992; Carnevali & Thomas, 1993; Edwards, 1994; O'Neill, 1994), clinical reasoning (Jones, 1988), therapeutic or clinical judgement (Gordon, 1987; Brykczynski, 1989; Jacavone & Dostal, 1992; Carnevali & Thomas, 1993; Tanner, Benner, Chesla & Gordon, 1993), ethical judgement (Gordon, 1987), clinical problem solving (Cholowski & Chan, 1995) and clinical decision-making (Prescott, Dennis & Jacox, 1987; Sims & Fought, 1989; Harbison, 1991; Henry, 1991; Corcoran-Perry & Bungert, 1992; White, Nativio, Kobert & Engbert, 1992; Orme & Maggs, 1993; Tschikota, 1993; dela Cruz, 1994; Fisher & Fonteyn, 1995; Radwin, 1995; Tabak, Bar-Tal & Cohen-Mansfield, 1996).

Diagnostic reasoning or judgement describes the process of recognising that clinical problems exist. The result is a statement about the problem and its probable cause: a diagnosis (Gordon, 1987; Carnevali & Thomas, 1993). Other terms synonymous with diagnostic reasoning include problem solving, decision-making, concept attainment, judgement (Gordon, 1987) and clinical reasoning (Jones, 1988).

Therapeutic or clinical judgement describes a process linking diagnostic reasoning and treatment (Gordon, 1987; Carnevali & Thomas, 1993). It involves selecting the most appropriate nursing activities to ameliorate the problems identified in diagnostic reasoning.

The phrase ethical judgement indicates a process by which moral actions are initiated (Gordon, 1987). Because moral actions potentially influence all aspects of nurses' work, it is a feature of diagnostic reasoning and therapeutic judgement.

Clinical problem solving (Cholowski & Chan, 1995) and clinical decision-making are expressions that encompass all aspects of the process of nursing. Therefore, clinical problem solving and clinical decision-making incorporate diagnostic reasoning/judgement, clinical reasoning, therapeutic or clinical judgement and ethical judgement. Clinical decision-making is the most widely accepted expression (Prescott, Dennis & Jacox, 1987; Sims & Fought, 1989; Harbison, 1991; Henry, 1991; Corcoran-Perry & Bungert, 1992; White, Nativio, Kobert & Engbert, 1992; Orme and Maggs, 1993; Tschikota, 1993; dela Cruz, 1994; Fisher & Fonteyn, 1995; Radwin, 1995; Tabak, Bar-Tal & Cohen-Mansfield, 1996; and Thompson, 1999).

Critical thinking is “the rational examination of ideas, inferences, assumptions, principles, arguments, conclusions, issues, statements, beliefs and actions” (Bandman & Bandman, 1994:5). The term is frequently referred to in the context of clinical decision-making (for example, Gordon, 1987; Iyer, Taptich & Bernocchi-Losey, 1994; Alfaro-LeFevre, 1998). Critical thinkers are rational, practical, committed and self-aware (Van Hooft, Gillam & Byrnes, 1995:6). Firstly, they are rational, as critical thinking requires sensible thought. Secondly, they are practical as well as theoretical, as critical thinking focuses on deciding what to do and therefore requires a practical commitment. The third and fourth aspects, committed and self-aware, are related. Critical thinking requires awareness of self-attitudes and a commitment to step outside one’s own frame of reference (Van Hooft et al, 1995). Critical thinkers are curious, insightful, open-

minded and proactive. Further, they demonstrate creativity in thinking (Alfaro-LeFevre, 1998).

In summary, the process that nurses use when making decisions or judgements is referred to by a number of expressions. The expressions include diagnostic reasoning or judgement, clinical reasoning, therapeutic or clinical judgement, clinical problem solving and clinical decision-making. These terms are used synonymously when referring to the various aspects of decision-making that occur within the process of nursing. The most commonly used terms, clinical problem solving and clinical decision-making are expressions that include diagnostic reasoning or judgement, clinical reasoning, and therapeutic or clinical judgement and ethical judgement. Clinical decision-making encompasses critical thinking, which enables the nurse to understand the problem or issue under consideration more deeply.

1.2 DEFINITION OF CLINICAL DECISION-MAKING

The expression employed in this thesis is clinical decision-making. It was selected as it is the most commonly used expression and encompasses the other terms. The definition of clinical decision-making developed for the study is broad in order to capture the complexity and variety of the nursing role within the process of nursing. The definition is:

Clinical decision-making refers to the process of making decisions. It requires critical thinking and critical reflection. The process of clinical decision-making encompasses the five phases of the nursing process: assess, diagnose, plan, implement and evaluate.

1.3 RESEARCH INTO CLINICAL DECISION-MAKING

Research into nurses' clinical decision-making has been undertaken since the early part of the twentieth century (Grier, 1984). The establishment of the nursing process as a framework for the delivery of nursing care and recognition of the nurse's diagnostic role stimulated research (for example,

Yura & Walsh, 1988; Carnevali & Thomas, 1993; Iyer et al, 1995). Initially, the research was quantitative and focused on the nurse's decisions in relation to standardised clinical scenarios or comparing experienced and non-experienced nurses' decisions.

Between 1900 and 1982, research into the clinical decision-making of nurses focused on the collection, organisation, use and storage of nursing data (Grier, 1984). Since then, diagnostic reasoning processes (Corcoran, 1986a,b; Corcoran, Narayan & Moreland, 1988; Gordon, 1980; Holden & Klinger, 1988; Tanner et al, 1987), decision-making models (Baumann & Deber, 1989; Rhodes, 1985; Westfall, Tanner, Putzier & Padrick, 1986) and factors influencing decision-making behaviours (Baumann & Bourbonnais, 1982; Corcoran, 1986; del Bueno, 1983; Holden & Klinger, 1988) have been the primary focus.

The number of studies employing qualitative approaches increased after the 1980s. Benner's (1984) study describing the process of skill acquisition in nursing was a turning point in the exploration of clinical decision-making. The research employed an interpretative approach and was the first extensive study of clinical practice using qualitative methodology. Subsequently, research approaches have been more varied. Studies of clinical decision-making now include approaches that facilitate examining clinical decision-making in natural settings (for example, Brykczynski, 1989; Fisher & Fonteyn, 1995; Jacavone & Dostal, 1992; Hamers, Abu-Saad, Halfens & Schumacher, 1994).

Although the research approaches employed have expanded to include a variety of methods, decision-making models, and diagnostic reasoning processes and factors influencing decision-making behaviours remain a focus of the research. Experienced nurses continue to be the focus, as does the appropriateness or the accuracy of clinical decision-making. Cognitive

psychology also appears to have concentrated on the elaboration of expert decision-making (for example, Glaser & Chi, 1988).

In cognitive psychology, the research appears to have focused on the development of expertise. The studies have been undertaken with typists, judges and computer programmers (Glaser & Chi, 1988). The findings indicate that novice and experts differ fundamentally in their approach to decision-making (Glaser & Chi, 1988). This finding is duplicated in the nursing literature (Benner, 1984; Benner & Tanner, 1987; Benner, Tanner & Chesla, 1992; Fisher & Fonteyn, 1995).

The cognitive psychology literature appears to provide a clearer indication of the characteristics of experts than the nursing literature. Though nursing authors have attempted to describe expert clinical decision-making (for example, Benner & Tanner, 1987; Fisher & Fonteyn, 1995) they have failed to make explicit the characteristics of expert decision-making, described in the cognitive psychology literature. The reasons for this failure are unclear. In examining experience and expertise, there has been a failure to explore in depth novice clinical decision-making. The focus has been experts rather than novices. This is not the case in cognitive psychology where there appears to have been a deeper exploration of the decision-making of novices (Glaser & Chi, 1988).

Expert-novice differences are also identified in the decision-making of physicians (Voytovich, Rippey & Suffredini, 1985; Hobus, Schmidt, Boushuizen & Patels, 1987; Elstein, Shulman & Sprafka, 1990). More recently, medical decision-making literature has focused on the role of schemata (Norman, Brooks, Allan & Rostenthal, 1990; Papa, Shores & Meyer, 1990; Papa & Elieson, 1993). The use of schemata has also been acknowledged in the cognitive psychology literature in explaining the differences between novice and expert decision-making (Glaser & Chi,

1988). Schemata are abstract representations, which are developed from experience and assist in the understanding and interpretation of reality (Howard, 1987). Only one nursing author has been found to mention the place of schemata in clinical decision-making (Cholowski & Chan, 1995).

The most common approach in the qualitative examination of the clinical decision-making of nurses appears to be phenomenology. The philosophy of phenomenology argues that people shape their own world and that the world, in turn, shapes people (Young Brockopp & Tolsma, 1995; Marton & Booth, 1997). As no two people's experience of a situation is the same, the perceptions or meanings assigned to situations will vary (Marton & Booth, 1997).

To perceive is to gain knowledge through the senses – hearing, seeing, smelling, touching and tasting. The act of perception is more than the sum of its parts. It is an act that gives meaning to the data that is gathered via the five senses. Inability to differentiate differences and similarities in a situation is likely to affect understanding, which will impinge on learning (Scharfstein, 1989). Therefore, the act of perception is an act of learning involving assigning meaning to what is seen and heard and sensed. Scharfstein (1989) believes that the act of perception enables a person to remove irrelevancies and to classify what is seen or perceived in order to understand and to act upon what is learnt. Therefore, how people perceive the world will not only shape who they are but will influence subsequent behaviour. Therefore, perceptions shape understanding and future actions (Marton, 1981b; Marton & Booth, 1997).

The research has not explored how clinical decision-making is perceived by nurses and consequently how decision-making may be influenced. The research to date has not explored how the various experiences of nurses' have shaped clinical decision-making. However, it has been acknowledged

that nurse's work within their own clinical world, which is the result of individual experiences (Benner, Tanner & Chesla, 1992). Aspects of nursing experience that have been explored are primarily related to the importance of experience in the development of clinical decision-making ability (Benner, 1984; Brykczynski, 1989; Hamers et al, 1994). The results of such studies indicate that experience and knowledge play an important role in clinical decision-making ability. Nevertheless, the studies have not identified how various experiences may result in different perceptions and how these different perceptions influence subsequent clinical decision-making. Consequently, lack of understanding of perceptions of clinical decision-making is a significant deficit in understanding.

The study of perceptions of clinical decision-making is likely to promote a better understanding of how various experiences and the resulting perceptions of that experience shape clinical decision-making behaviours. Further, as perceptions reflect the understanding developed from experience, it will provide insight into how experience affects the development of expert decision-making behaviour. Although experts have been the focus of many studies, there remains little understanding of why some nurses become experts and others do not. Consequently, there is no understanding of what effects the various perceptions of clinical decision-making have on the development of decision-making behaviour.

1.4 THE PURPOSE OF THE STUDY

The purpose of the study is to examine registered nurses' perceptions of clinical decision-making. The focus of the study is registered nurses in the first two years of practice. A longitudinal design was selected, in order to describe how nurses' perceptions of clinical decision-making might vary over time. The specific objectives of the study can be found at the end of Chapter III.

A research approach that facilitates the study of perceptions is phenomenography. Phenomenography, which shares the same philosophical underpinnings as phenomenology, assists in the description of an individual's understanding of, and relationship to, a phenomenon (Marton, 1986; Marton & Booth, 1997). The approach assumes that people vary in assigning meaning to a phenomenon, and that the meaning people ascribe to a phenomenon governs subsequent behaviour. Description of the phenomenon is achieved through collecting individual perceptions of a phenomenon and then describing variations. The analysis results in descriptions of similarities and differences in relation to how a phenomenon is perceived by individuals (Dahlgren & Fallsberg, 1991; Marton & Booth, 1997).

In this study, the phenomenon examined is clinical decision-making. It was anticipated that most nurses would experience a number of clinical areas in the first year of practice. In order to overcome the acknowledged effects of movement between different nursing practice areas of knowledge development and clinical decision-making ability (Benner, 1984) all participant interviews focused on one clinical topic that of patients in pain. This was selected as the nature of clinical decision-making and the learning that occurs will vary depending on the context in which a nurse works. For example, if a nurse changes her/his area of practice, it is likely that clinical decision-making abilities will be affected.

Pain was selected, as the focus of discussions as it appeared broad enough to hold meaning in all areas of practice. Consequently, patients in pain provided a context in which to explore perceptions of clinical decision-making. Therefore, participants would be describing perceptions of the same phenomenon – clinical decision-making in relation to patients in pain, rather than perceptions of pain and pain management.

As experience affects clinical decision-making, the following study is viewed within the understanding of the role of the graduate nurse commencing practice. The Australian Nursing Council Incorporated (ANCI) competency standards identify 14 competencies of the nurse when commencing practice (ANCI, 2000). In summary, the competencies indicate that the nurse when commencing practice can be expected to assess, plan, implement and evaluate the nursing requirements of patients within their care. Such nursing activities will be undertaken within an ethical framework. In addition, the nurse will protect the patient's rights and act within the law. Furthermore, the nurse will take responsibility for her/his own actions but will work in collaboration with other members of the health care team (ANCI, 2000). Consequently, the nurses within this study would be expected to:

- Analyse and interpret patient data in order to achieve a comprehensive health assessment.
- Establish priorities of care and identify expected outcomes.
- Implement planned care.
- Evaluate a patient's progress and revise planned nursing care as required.
- Work within legal requirements and an ethical framework.

1.5 OUTLINE OF THE THESIS

The thesis details the study of nurses' perceptions of clinical decision-making in the first two years of practice. Chapters 2 and 3 review the literature on clinical decision-making. The review covers what is currently understood about clinical decision-making models in nursing practice, the factors influencing clinical decision-making behaviours and clinical decision-making in pain management. Chapter 3 reviews the limitations of current clinical decision-making research and clinical decision-making in pain management. Another research approach to that described in the

literature, phenomenography, is explained in Chapter 4. The discussion attempts to demonstrate its appropriateness for examining clinical decision-making. In Chapter 5 the research process is described including description of the design, participants, data collection methods, interview schedule, data analysis and validation methods. The results of the analysis, perceptions of clinical decision-making are described, including how these vary over time, in Chapter 6. Finally, in Chapter 7 the study results, the study's limitations, and implications for nursing, recommendations for further research and the study conclusions are discussed.

Chapter II

Clinical decision-making in nursing

Studies investigating the clinical decision-making behaviours of nurses have been undertaken since the early part of the twentieth century (Grier, 1984). The research has identified clinical decision-making models and the factors influencing clinical decision-making. The purpose of the following chapter is to review what is currently understood about clinical decision-making. In Chapter 3, the current research approaches are discussed in relation to how they have limited understanding of clinical decision-making in nursing.

The clinical decision-making models discussed in this chapter are the Nursing Process, Hypothetico-Deductive Reasoning and Knowledge-Driven Decision-Making. The factors identified as influencing decision-making behaviours are reviewed. The factors include knowledge, both theoretical and clinical, experience, encompassing work demands, the nurse's clinical world, the work context, resources and collegial relationships. Expertise and its relationship to clinical decision-making models are also discussed. Finally, clinical decision-making in relation to pain assessment and pain management is explored.

2.1 MODELS OF CLINICAL DECISION-MAKING

A clinical decision-making model describes how nurses approach decision-making and thus explains how decision-making occurs. The Nursing Process was selected because it forms the core of many definitions of nursing practice. Hypothetico-Deductive Reasoning was chosen, as it is the focus of many studies examining the clinical reasoning of nurses and

physicians. Finally, the Knowledge-Driven Model was selected, as it has only recently been part of the discussions of clinical decision-making and provides input from the cognitive sciences.

2.1.1 The Nursing Process

The *Nursing Process* was acknowledged by earlier writers as a decision-making model (Yura & Walsh, 1988). Its use as a model is not evident in writing that is more recent. The *Nursing Process* is primarily a framework that reflects how nurses approach professional practice (Iyer, Taptich & Bernocchi-Losey, 1995) rather than describing how nurses approach decision-making. Yura and Walsh, the originators of the expression, the nursing process, refer to it as a:

...designated series of actions intended to fulfil the purpose of nursing - to maintain the client's optimal wellness (Yura & Walsh, 1988:3).

Therefore, the *Nursing Process* has a broad focus as it describes the general activities of nurses. It does not elaborate on how decisions are made. The decisions nurses make while using the framework of the *Nursing Process* may reflect Hypothetic-Deductive Reasoning and Knowledge-Driven Decision-Making models.

2.1.2 Hypothetico-Deductive Reasoning Model

Hypothetico-Deductive Reasoning falls within a systematic-positivist perspective of clinical decision-making (Thompson, 1999), also referred to as a rationalist perspective (Tanner, 1987). This view of clinical decision-making assumes that:

1. *Action is the result of rational and logical thought.*
2. *The strategies of clinical decision-making are generalisable to all situations.*
3. *A clinical situation can be broken down into its essential elements.*
4. *It is possible to explain and formalise the knowledge used in clinical decision-making.*

5. *Explaining the thinking processes of and knowledge used in clinical decision-making will improve the quality of decisions (Tanner, 1987:23).*

Hypothetico-Deductive Reasoning is the model most frequently referred to in the nursing literature (Thiele, Baldwin, Sloan & Strandquist, 1986; Westfall, Tanner, Putzier & Padrick, 1986; Tanner, Padrick, Westfall & Putzier, 1987; Bandman & Bandman, 1988; Holden & Klinger, 1988; Jones, 1988; McFadden & Gunnett, 1992; Carnevali & Thomas, 1993; van Hooft, Gillam & Byrnes, 1995). The model indicates that decision-making commences with the generation of a hypothesis. A hypothesis is a proposal of what might be the patient's problem (van Hooft et al, 1995; Alfaro-LeFevre, 1998). The tentative hypothesis is then validated. Validation requires collecting data in order to prove or disprove the hypothesis. Following validation, the hypothesis is then re-stated, is linked to the clinical data and may then be called a nursing diagnosis (Bandman & Bandman, 1988; Jones, 1988; Carnevali & Thomas, 1993).

Research examining the *Hypothetico-Deductive Reasoning Model*, indicates that the background experience of the decision-maker influences reasoning (Corcoran, 1986a; Westfall et al, 1986; Tanner et al, 1987; Holden & Klinger, 1988; van Hooft et al, 1995). The more extensive the nurse's experience, the greater the nurse's ability to recognise and give meaning to clinical events and therefore formulate hypotheses. It has been suggested, therefore, that the model is intuition based (Jones, 1988). Intuition has been defined as understanding based on experience (Benner, 1984), which is acknowledged by other health professionals as being clinical judgement.

A study examining the activation of diagnostic hypotheses and other inferences derived from clinical data, found no significant difference in the number of hypotheses generated from cues (signs and symptoms) between nursing students and nurses (Westfall et al, 1986). The nurses, however, did identify hypotheses that were more complex. This finding was the result

of asking the subjects to respond to patient case simulations. The subjects were read a change-of-shift report and shown videotape of a patient simulation. The subjects were asked to respond to the situation. Further clinical data could be obtained from the researchers from information obtained in a casebook developed as part of the simulation. Clinical data were similar to what would be available in the clinical setting.

In a subsequent report of the same study, Westfall and colleagues presented the cognitive strategies employed by the same junior and senior nursing students and staff nurses. Particular reference was made to how experience and knowledge affect hypothesis generation (Tanner et al, 1987). The study indicated that with increased levels of knowledge and experience there was a tendency for more systematic data collection and greater diagnostic accuracy.

Both these studies (Westfall et al, 1986; Tanner et al, 1987) are reported to support the findings of similar studies examining physicians and medical students in relation to hypotheses activation. No explanation is provided as to why there appears to be little difference between nursing students and registered nurses, given that the level of knowledge is, or should be, different. It is possible that in trying to simulate clinical situations, the nurses were at a disadvantage. The nurse may be less familiar with or less used to responding to simulations. Therefore, it could be that experience of that data collection strategy might have given the students an advantage.

The strategy most frequent employed in decision-making is hypothesis driven. The hypotheses arise from the signs and symptoms, or clinical cues, with which the patient presents (Tanner et al, 1987). The finding is supported in other research where nurses used a process of data acquisition that was stimulated by hypotheses. The hypotheses were most commonly based on signs and symptoms (White, Nativio, Kobert & Engbert, 1992). In this study

of the content and process of clinical decision-making, the experience range of the nurses was between six months and 20 years. All the subjects were asked to respond to a computer simulation that was based on an actual patient. The simulation interacted with videotape providing patient responses and physical examination and laboratory findings. The data for analysis consisted of the printed computer logs of each nurse. No time constraints were applied.

Though the simulation was apparently based on an actual case study, the use of computer simulations may have influenced responses. For example, lack of experience of computer simulations and the loss of environmental factors, such as time pressures and staff shortages may have influenced the results.

In a study examining the effects of nursing education and experience on problem solving, the subjects were required to solve two computer-presented problems (infant crying) (Holden & Klinger, 1988). The subjects were expected to acquire clinical data from the simulation in order to evaluate given hypotheses. The researchers found that nursing students were more likely to employ a strategy of successive information acquisition. That is, they gathered information piecemeal before coming to a hypothesis. In the process, they gathered irrelevant data. The nurses and students with personal experience of the situation, however, were more selective in data collection. They were more likely to come to an accurate diagnosis from the original hypothesis (Holden & Klinger, 1988).

The study concluded that practical experience plays an important role in determining valid diagnoses (Holder & Klinger, 1988). The differences noted between students at the beginning and those at the end of the course were attributed to the cognitive changes associated with clinical experience. No indication was given as to the amount of education in paediatrics and, in

particular, about infant crying to which the subjects may have been exposed. Therefore, the differences acquainted to practical experience may also be attributed, in part, to education programs.

In a study examining how expert and novice nurses' approach planning patient care, nurses were asked to develop and write a drug administration plan in relation to a written patient case (Corcoran, 1986a). They were instructed to think aloud. Data for analysis consisted of an audiotape and the drug administration plan. No time constraints were applied. The experienced nurses were found to examine problems from a broad perspective and were thus able to consider multiple causes of the problem. Inexperienced nurses, however, were limited in their problem solving approaches, adopting a narrow focus (Corcoran, 1986a).

Expert was defined as a nurse in a position of leadership with a minimum of 18 months hospice experience. Novice was defined as less than six months hospice experience (Corcoran, 1986a). The clear definitions of what constituted expert and novice make it easier to generalise the results of the study. Nevertheless, the fact that no time constraint was applied raises questions in relation to the external validity of the findings. Furthermore, the action of talking aloud may have affected the nurses thinking and reasoning.

Knowledge and experience appear to be essential requirements if the *Hypothetico-Deductive Reasoning* model is to be employed effectively. The more knowledge and experience, the more complex the hypotheses are likely to be (Corcoran, 1986a; Westfall et al, 1986; Tanner et al, 1987). The more complex the hypotheses, the greater are the accuracy of the problems (diagnoses) identified (Tanner et al, 1987; Holden & Klinger, 1988).

Though the *Hypothetico-Deductive Reasoning* model is employed widely in

clinical practice, it can be presumed that only experienced nurses are able to use it effectively. Nurses with little practical experience will not have the previous experiences to draw upon when hypothesising. Therefore, the efficacy of the model is dependent on the experience and the ability of the person to interpret the patient's signs and symptoms. If hypothesis generation is affected in any way, for example by irrelevant signs and symptoms, an inaccurate conclusion may be reached. Furthermore, the intuitive base to the model, that is generating hypotheses based on previous experience and understanding, is suggested to result in inconsistent decision-making due to a failure to use all available data (Jones, 1988).

Discussions in the literature provide no indication of the amount of experience and the type of knowledge that facilitates *Hypothetico-Deductive Reasoning*. Further, there is no indication of the type of experience that facilitates *Hypothetico-Deductive Reasoning*. Nurses do develop personal and unique experiential knowledge bases. This personal knowledge shapes their clinical world, which, in turn, influences clinical decision-making (Benner, Tanner & Chesla, 1992). The clinical world of the nurse is discussed further in Section 2.3.1.

2.1.3 Knowledge-Driven Decision-Making Model

A number of studies have attempted to explain and differentiate the clinical decision-making of novice and expert nurses (for example, Benner, 1984; O'Neill, 1994). Nevertheless, it would appear that the differences between expert and novice approaches to clinical decision-making are not explained easily. Based on the results of decision-making research, Cholowski and Chan (1995) concluded that experts are more efficient and accurate, arriving at different solutions to those produced by novices. The difference is due to how efficiently a nurse responds to the cues presented (Cholowski & Chan, 1995). The reason nurses respond differently, however, are not clearly explained by the *Hypothetico-Deductive Reasoning* model. Cholowski

and Chan (1995) suggest a *Knowledge-Driven Decision-Making* model as explaining the difference between experts and novices.

The *Knowledge-Driven Decision-Making* model is based on the assumption that people try to understand new information based on what they already know (Glaser, 1984; Smith, 1992; Cholowski & Chan, 1995). The model indicates that knowledge is stored in structures that are accessible to the problem solver. The stored knowledge is formed into structured networks or schemata (Cholowski & Chan, 1995).

Schemata are abstract representations which are developed from experience and which are used in all aspects of thinking and reasoning (Howard, 1987). The representations assist in understanding the world or the reality in which people exist. Schemata consist of an organised body of knowledge in an image that is meaningful to an individual (Howard, 1987). The image reflects meaningful patterns. Pattern recognition has been identified as an important feature of expert decision-making (Benner, 1984; Benner & Tanner, 1987; Norman, Brooks, Allan & Rosenthal, 1990; Papa, Shores & Meyer, 1990; Schmidt, Norman & Boshuizer, 1990; Deber & Baumann, 1992; Corcoran-Perry & Bungert, 1992; Papa & Elieson, 1993; Fisher & Fonteyn, 1995).

Schemata are composed of many elements that are referred to as 'variables' or 'slots' (Howard, 1987). The schemata are enlarged by experience. Each contribution expands the meaning that the schemata produce. The use of schemata has been identified as an essential component of decision-making (Glaser, 1984; Howard, 1987; Glaser & Chi, 1988; Cholowski & Chan, 1995).

The more experienced the individual the more detailed the schemata. The knowledge encompassed within schemata has been referred to as domain-

specific (Chi, Glaser & Rees, 1982; Glaser, 1984; Cholowski and Chan, 1995). Domain-knowledge is the knowledge developed in relation to particular areas of experience. An expert's schemata comprise principles, developed from experience, which facilitate pattern recognition. Thus, the expert is able to make rapid inferences. Novices have schemata that comprise some principles. The schemata, however, do not include understandings of related principles and application. The difference is attributed to novices having an inadequate knowledge base, making it difficult for them to draw inferences from the presenting triggers (Glaser, 1984).

In summarising the research into the development of clinical decision-making ability, Corcoran-Perry and Bungert (1992) discussed the importance of mental representations and pattern recognition in expert nursing decision-making. Mental representations were described as pictures of a situation that the nurse encounters; pattern recognition as a process that enables the decision-maker to “chunk”, or put together, data that results in an intuitive grasp of the situation. Both mental representations and pattern recognition are developed through experience of similar situations (Corcoran-Perry & Bungert, 1992). The mental representations discussed by Corcoran-Perry and Bungert (1992) are like schemata, as they consist of knowledge gathered through experience into meaningful patterns.

The study of the use of schemata by health professionals is limited. Examination of medical expertise research describes expert cognitive structures called illness scripts (Schmidt et al, 1990). Illness scripts reflect disease processes and outcomes within clinically relevant frameworks, rather than in-depth knowledge of pathophysiological states. Consequently, illness scripts reflect the knowledge gained from experience, rather than theoretical knowledge. Illness scripts are similar to schemata as they both consist of an organised body of knowledge in a form that is meaningful to an individual.

Other researchers have identified prototypes in physician decision-making. A prototype (or pattern) is a framework that is made up of declarative knowledge (or knowing that) and procedural knowledge (or knowing-how) (Papa et al, 1990). The study examined pattern recognition, prototypes and experience in medical students, residents and senior medical physicians. They were asked to identify relationships between each of 9 clinical diagnoses and 67 historical and physical findings associated with the diagnoses. It was found that pattern recognition was the most significant factor in diagnostic accuracy. Pattern recognition, the recognition of patterns of response, involves comparisons with previous experiences of patients. The patterns are stored in prototypes. The more distinctive the identified prototype the more accurate is the diagnosis (Papa et al, 1990). Prototypes therefore consist of an organised body of knowledge developed through experience and can therefore be considered schemata.

Cholowski and Chan (1995), in a comparison of *Hypothetico-Deductive Reasoning* and the *Knowledge-Driven Decision-Making* models, discussed the use of schemata. Clinical decision-making requires the retrieval of relevant knowledge from memory. This knowledge is organised in long-term memory in the form of schemata. In explaining the use of schemata Cholowski and Chan state:

In order to solve a complex clinical problem, the clinician must construct an understanding of the problem that connects his or her store of knowledge with the task requirements of the problem. (1995: 150-151).

Novices are thought to focus on the immediate clinical situation, as they have no relevant content knowledge (domain-specific knowledge) due to inexperience (Cholowski & Chan, 1995). Therefore, novices may not have a full understanding of a situation or the relationship between the presenting information and their knowledge base.

Though Cholowski and Chan (1995) are apparently the only researchers to use the term schemata in relation to the clinical decision-making behaviour of health workers, there are similarities in their beliefs to the findings in research studies. Similarities include pattern recognition, domain-specific knowledge and the importance of memory in clinical decision-making ability. Further, there is an argument that illness scripts and prototypes are considered schemata. The presence of pattern recognition, domain knowledge and superior memory reflects descriptions of experts developed in cognitive psychology (for example, Glaser and Chi, 1988).

2.1.4 The relation between Hypothetic-Deductive Reasoning and Knowledge-Driven Decision-Making models

The *Knowledge-Driven Decision-Making* model describes the structure of knowledge and its application within the *Hypothetico-Deductive Reasoning* model. Therefore, the *Knowledge-Driven Decision-Making* model indicates how domain knowledge, in the form of schemata, affects the generation of hypotheses in the *Hypothetic-Deductive Reasoning* model. Figure 1 depicts the relationship between the two models.

Both models, however, fail to describe the decision-making approach of nurses with little or no experience and hence little domain knowledge. Further, the models do not identify the factors that may influence the nurse's experience and hence perception of clinical decision-making. Several factors that affect the models are reflected in the factors that influence clinical decision-making behaviour. The following sections explore the factors.

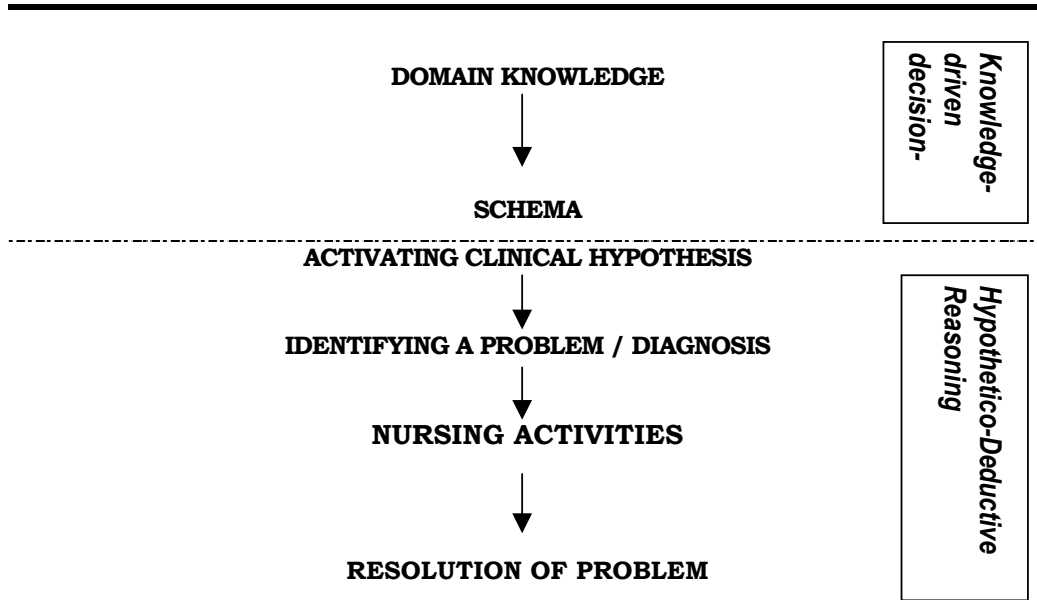


Figure 1: Hypothetico-Deductive Reasoning and Knowledge-Driven Decision-Making Models Combined

2.2 EDUCATION AND CLINICAL DECISION-MAKING

The review of clinical decision-making models indicates that knowledge level is an important feature of *Hypothetico-Deductive Reasoning* and *Knowledge-Driven Decision-Making* models. Therefore, the nurse’s educational preparation could affect clinical decision-making. The following discussion explores how educational preparation may influence clinical decision-making.

2.2.1 Educational preparation

Knowledge is identified by both nurses (Baumann & Bourbonnais, 1982; Thompson & Sutton, 1985) and researchers (Tanner et al, 1987; Brykczynski, 1989; Hamers, Abu-Saad, Halfens & Schumacher, 1994) as important to clinical decision-making behaviour. Knowledge refers to the information that nurses use when solving patient problems and may be

theoretical or clinical knowledge (Carnevali & Thomas, 1993). Theoretical knowledge is information that is obtained through formal study. Clinical knowledge is information developed from clinical experience and does not necessarily reflect educational preparation. Though knowledge is consistently identified as an important contributor to clinical decision-making behaviour, its meaning is not clearly elaborated in the literature. Theoretical knowledge, clinical knowledge and educational preparation are not clearly differentiated.

In a study examining the effectiveness of simulations in teaching and assessing clinical decision-making, nurses with a bachelors degree were more likely to make accurate decisions implying that formal educational preparation affects diagnostic accuracy (del Bueno, 1983). The subjects viewed six videotaped patient simulations. They were asked to respond, in writing, to three questions that discerned the priority problem, appropriate action/s, and the reasons for the action/s. Multiple actions were to be placed in order of priority. Time restraints were applied in order to mimic the urgency of decision-making. The results indicated that experienced nurses made fewer decision errors than inexperienced nurses did. There is no indication, however, of what constituted experience and inexperience.

Other studies support del Bueno's (1983) findings that educational preparation is an important factor (Tanner et al, 1987). In a study of the cognitive strategies employed by nurses and nursing students, as knowledge and experience and educational preparation level increased, a positive relationship was found between identification of accurate diagnoses and years of education. The researchers concluded that experience and educational preparation were important in making accurate diagnoses.

Later studies found that educational level does not play an important role. In a study that explored the relationship between risk-taking behaviours

and levels of education and experience, graduates from an Associate Degree and Bachelor degree programs and practising nurses with the same qualifications were studied (Masters & Masters, 1989). A questionnaire that measured risk-taking propensity was completed. The study found, in part, that educational level had no effect on the decision-making risk-taking behaviours of nurses.

Approaches to learning and processing information, science content knowledge, ability to interpret and organise clinical data and logical reasoning ability and the accuracy and quality of nursing diagnosis may effect decision-making (Cholowski & Chan, 1992). Undergraduate nursing students were asked to respond to a questionnaire determining preferred approach to learning and a knowledge test determining knowledge relevant to diagnostic reasoning. In addition, students responded to a diagnostic reasoning task involving a 200-word vignette of a patient with an acute medical problem. They were required to identify four important nursing diagnoses, to select one as the major diagnosis and explain the reason for its choice.

The findings indicated no direct link between theoretical knowledge and nursing diagnosis, indicating that content knowledge is not sufficient to formulate a nursing diagnosis (Cholowski & Chan, 1992). Pathways were mapped indicating that surface approaches to learning resulted in low-quality nursing diagnoses indicating less competent diagnostic reasoning. Deep/achieving approaches to learning resulted in high-quality nursing diagnoses. Consequently, it appears that not only is theoretical knowledge important but also the apparatus of learning and teaching. As experience is purported to play an important part in clinically decision-making, how a nurse learns from experience is therefore important. That is, does she/he have a surface approach or deep approach?

The apparent importance of educational preparation found in earlier studies (del Bueno, 1983; Tanner et al, 1987) might reflect when the studies were undertaken. Though nurses were prepared at a Bachelors degree level in the USA, many nurses also appear to have been prepared at an Associate Degree level. It is not clear from the studies reviewed whether the Bachelors degree was an initial qualification or one obtained after an Associate Degree. Therefore, nurses who had obtained a Bachelor degree may have undertaken studies after commencing work. The identified diagnostic accuracy could therefore be related to the knowledge gained from experience rather than educational level.

In a clearer indication of the role of educational preparation, Sims and Fought (1989), in a study of 90 registered nurses, identified educational level as important in the movement from inference to actions. Following the reading of a clinical case simulation, critical care nurses answered an open-ended inference question and a multiple-choice action question at four decision points in the case. The researchers found that the greater the educational preparation the more accurate the decision-making. No relationship was found between experience, expertise and the congruence of action and inference (Sims & Fought, 1989). The researchers concluded that nurses focus on knowing how rather than knowing why.

Differentiating the effect of knowledge and level of educational preparation on clinical decision-making cannot clearly be identified because the higher the nurses' educational preparation the longer they have been practising. In addition, the extent to which theoretical knowledge informs subsequent clinical knowledge cannot be quantified or qualified. Though the knowledge gained through formal education plays an important role in clinical decision-making behaviour, the research indicates that the in-depth clinical knowledge that develops from experience plays a crucial part in the development of clinical decision-making behaviour. Furthermore, there is

some indication that the way learning is approached, whether in the classroom or clinical area, may affect clinical decision-making. The in-depth clinical knowledge that comes from experience is referred to as domain knowledge (Benner, 1984). Domain knowledge is knowledge that is developed in relation to particular areas of experience. It includes declarative knowledge (or knowing that), procedural knowledge (or knowing how) and conditional knowledge (or knowing when and where) (Alexander, 1992). Domain knowledge may be implied (tacit) or stated (explicit). Other terms for domain knowledge include subject-matter knowledge (Voss, Blais, Means, Greene & Aswesh, 1986), content-specific knowledge (Petersen, 1988) and domain-specific knowledge (McCutchen, 1986; Alexander, Schallert & Hare, 1991).

When applied to clinical decision making in nursing, domain knowledge refers to the knowledge that nurses develop in relation to their area of nursing practice. Though nurses have different experiences, there are common features that are the result of shared wisdom and experience (Benner et al, 1992). Therefore, experience plays a crucial role in developing the domain knowledge that a nurse uses in decision-making.

2.3 EXPERIENCE AND CLINICAL DECISION-MAKING

The previous discussion indicated that experience plays a significant role in clinical decision-making. A number of studies stress the importance of the nursing practice experience in the development of clinical decision-making behaviours (Benner, 1984; Corcoran, 1986a; Holden & Klinger, 1988; O'Neill, 1994). The following section discusses how nurses' clinical experience contributes to clinical decision-making behaviour. The discussion includes the nurses' clinical world, the development of clinical decision-making behaviours, and the role of critical reflective thought.

Benner (1984) studied nurses of varying years of experience, describing how clinical decision-making behaviour developed through five levels: novice, advanced beginner, competent, proficient and expert. The development of expertise in relation to three dimensions was described. The dimensions are the use of past concrete experiences rather than abstract thought; viewing the patient situation as a whole rather than as a combination of related chunks of data; and being fully involved in a situation rather than being a detached observer. It was concluded that expert judgment was derived from an understanding of the whole situation (Benner, 1984).

The amount of experience affects how decision-making is approached (Corcoran, 1986a). Expert nurses (at least 18 months hospice experience) and novice nurses (less than 6 months hospice experience) both used opportunistic overall approaches in decision-making when the patients' situation was simple. That is, they followed through on whatever clinical information was appropriate at the time. When faced with situations that were more complex, the expert nurses employed a different approach – systematic overall approach. They were more systematic, orderly and sequential in gathering information (Corcoran, 1986a). Consequently, there was less opportunity for important data to be missed. The effects of experience highlighted in this study supports the approaches to decision-making described by Benner (1984).

Experience rather than education may affect the selection of correct hypotheses (Holden & Klinger, 1988). The subjects in Holden and Klinger's study included nursing students, nursing students with parenting experience and paediatric nurses. It was concluded that practical experience rather than education determines how a person identifies a problem. The study indicated that the development of clinical knowledge is the result of experience, whether it is professional or personal experience.

In another study of experienced nurses, the purpose was to uncover the knowledge embedded in a nurse's practice (Brykczynski, 1989). Experienced practitioners, on average eight years practice, were observed and interviewed. Observation involved obtaining descriptions of the participants' actual practice. Individual interviews focused on determining education and experiential background, goals and expectations of care and clarification of issues from the observation session. This approach increased the opportunity of determining practice, which may be considered routine by the participants. The findings indicated discretionary judgement was an important aspect of clinical decision-making. Discretionary judgement occurs when a person is able to make decisions independently. The study concluded that skill development was most probably the result of clinical knowledge developed through experience, supporting Benner's (1984) findings.

2.3.1 The nurse's clinical world

A nurse's clinical world reflects the particular clinical experience and understanding of a nurse (Benner, Tanner & Chesla, 1992). No two nurses have the same clinical world, as their experiences and what they have learnt from experience will be different. The clinical world is important as it assists in understanding the role of experience in clinical decision-making; and how the experience affects subsequent behaviour.

A study examining skill acquisition in critical care nurses found that the clinical world of nurses varies, depending on level of experience (Benner et al, 1992). That is, nurses notice and respond to different clinical data. The research also identified that with more experience there was an increased sense of responsibility for what happens to the patient. These findings support the early findings of Benner (1984).

The sample consisted of 105 nurses divided into three groups: at least five years critical care experience (expert), two years experience (intermediate),

and up to six months experience (advanced beginner) (Benner et al, 1992). In these groups, interviews were undertaken where the participants were asked to relate incidences from practice and observation of specific patient-care situations. In addition, 48 of the nurses were interviewed individually in order to determine their work history and nursing education. Finally, the practice of the 48 nurses was observed a minimum of three times in order to determine aspects of clinical practice that may not have been apparent in the narratives.

The approach taken in this study would appear to have captured clinical decision-making in practice (Benner et al, 1992). Though it is indicated that the group were educationally homogeneous (98% with a Bachelors degree), there is no indication of how many had undertaken postgraduate work, particularly in the expert group. Level of theoretical knowledge may have influenced the experts responding to different clinical data.

An aspect of experience not widely explored in the nursing literature is its application when making diagnoses. In a study of the diagnostic reasoning of community health registered nurses it was concluded that experts were more likely to make judgments based on similarities when patient problems were complex (O'Neill, 1994). Experienced nurses had more than four years experience, intermediate nurses two to four years experience and novices up to two years experience. All the participants completed a questionnaire that included eight diagnostic problems designed to determine similarity to a single prototype (SSP) and a population prototype (SPP). A prototype is reported as being a cluster of patient clues or signs and symptoms (O'Neill, 1994).

Specifically, the study found that nurses use similarity as a basis for judgements and that an expert was more prone to judging by similarity than less experienced nurses (O'Neill, 1994). Judging by similarity reflects

Benner's (1984) findings that expert judgement is derived from an understanding of the whole situation. Such an approach to clinical decision-making requires the decision-maker to work within her/his own clinical world (Benner et al, 1992). The clinical world of a nurse will shape the development of domain knowledge.

2.3.2 Development of clinical decision-making behaviours

The focus of many studies examining clinical decision-making appears to be on the experienced nurse. The examination, however, has not established a clear argument on the importance of experience to clinical decision-making behaviour. This is because it is sometimes hard to determine the level of experience or expertise of the nurses in the studies (del Bueno, 1983; Holden & Klinger, 1988; Henry, LeBreck & Holzemer, 1989; Henry, 1991; McFadden & Gunnett, 1992; Sheidler, McGuire, Grossman & Gilbert, 1992; Lauri, 1992; Henry & Holzemer, 1993; O'Neill, 1994). The amount of experience varies, as does the definition of expertise. In some studies *inexperienced* refers to nursing students and *experienced* to qualified nurses (del Bueno, 1983; Westfall et al, 1986; Tanner et al, 1987; Holden & Klinger, 1988). Consequently, it is difficult to determine the amount and type of experience that changes clinical decision-making behaviour; and there is little understanding of how clinical decision-making behaviours develop.

Benner's (1984) research appears to be the only study that attempts to understand the phases in a nurse's development. The study was an important milestone in understanding how different levels of experience influence a nurse's practice. Nevertheless, it failed to explain in detail how nurses progress between the different phases in their development: how clinical decision-making develops. Rather, a cameo picture is presented that describes the abilities of nurses at five different levels of experience: novice, advanced beginner, competent, proficient and expert.

Since Benner's (1984) seminal work, research into clinical decision-making has concentrated on the examination of experienced nurses. Nevertheless, there is limited understanding of how expert practice develops and what factors promote or hinder its development. For example, though Benner acknowledged that not all nurses with experience become experts, there is no indication of why this is so. Possible explanations for this phenomenon include the environment in which decision-making occurs and the individual nurse's personality and intellectual ability (Sternberg, 1996). A profession that is practice-based cannot afford to hinder the development of expert clinical decision-making behaviour through lack of understanding of the decision-making behaviours of less experienced nurses or ignoring how clinical decision-making behaviours develop.

In addition, the research has frequently focused on the accuracy of clinical decisions (Baumann & Deber, 1989; Henry et al, 1989; Shamian, 1991; Thiele et al, 1991; Sheidler et al, 1992). Expressions associated with accuracy include good, agreement with experts, proficiency, efficiency and effectiveness, correct and incorrect. The emphasis on accuracy has resulted in less explication of why nurses make different decisions. Consequently, there is no understanding of how the clinical environment that nurses experience influences their perception and thus approach to clinical decision-making.

2.3.3 Critical reflective thought

The domain knowledge that develops from experience is not described in many of the studies reviewed. The clearest indication comes from Benner (1984) who stated that domain knowledge is gained when the nurse is actively engaged in a process that enables refinement of theoretical knowledge. Consequently, the amount of experience is not necessarily important and may be a poor indicator of performance (Ericsson, 1996). What is important is the nurse's ability to refine and challenge existing

knowledge based on experience. The process is referred to as critical reflective thought (Woolly, 1990).

Therefore, the ability of the nurse to develop domain knowledge is dependent on the ability to engage in critical reflective thought. Such thinking might be influenced by the quantity and recency of clinical experience and the depth of a nurse's memory (Woolly, 1990). Critical reflective thought is also called deliberative practice and is the result of effective learning (Ericsson, 1996). Characteristics of such learning include a well-defined task, informative feedback and the opportunity for repetition and correction of errors.

Nevertheless, critical reflective thought does not necessarily capture the complexity of nursing practice, as there is potential for the separation of thinking and action (Lauder, 1994). Therefore, analysis of the process that translates thinking (critical reflection) into action is needed (Lauder, 1994). The analysis may indicate different approaches to learning. A deep approach to learning occurs when an individual attempts not only to understand, but also to develop meaning from an experience. In a surface approach to learning, the individual does not go beyond the experience; there is no attempt to make sense of or assign meaning to the experience (Biggs, 1988; Biggs, 1989; Webb, 1997). Approaches to learning have been identified as effecting the formulation of diagnoses (Cholowski & Chan, 1992).

Del Bueno (1990) cautions against the assumption that knowledge and experience are the only important factors. She suggests that assessing people on the bases of experience and educational qualifications only ignores the differences between individuals. The differences between individuals may be explained by the influence of experience. The following section examines factors in the clinical environment that may affect clinical decision-making

experience, and therefore behaviour.

2.4 THE CLINICAL ENVIRONMENT AND CLINICAL DECISION-MAKING

The above discussion highlighted the important role of experience and domain knowledge in developing decision-making behaviours. The quality of the experience, however, can be affected by the clinical environment. For example, an experience that is less than satisfactory will affect potentially the nurse's learning and the subsequent development of domain knowledge. Factors in the clinical environment identified as influencing decision-making are patient personality, the disease process and disease severity, time availability, the volume of work, staffing levels, and collegial relationships. The following section discusses the factors in relation to knowing the patient, task complexity, resources and collegial relationships, and their impact on clinical decision-making behaviour.

2.4.1 Knowing the patient

The importance of "knowing the patient" is now identified in relation to clinical decision-making (Carnevali & Thomas, 1993; Tanner, Benner, Chesla & Gordon, 1993; Radwin, 1995). The recognition has occurred as research approaches have incorporated naturalistic methods, such as phenomenology (Radwin, 1995; 1996).

Naturalistic research approaches indicate that the time the nurse spends with the patient, coupled with the nurses' experience, affects understanding the patient (Jenny & Logan, 1992; Tanner et al, 1993; Radwin, 1995; 1998). In these studies, the nurse's experience was defined as what the nurse learnt from previous patients rather than years of experience. Tanner and associates (1993) interviewed critical care nurses in groups according to level of experience (see previous discussion in section 2.3.1 – Benner et al,

1992). It was concluded that knowing the patient was central to skilled judgement, required involvement, and promoted patient advocacy and learning about patients.

There are two categories of knowing the patient: in-depth knowledge of the patient's patterns of responses and knowing the patient as a person (Tanner et al, 1993; Radwin, 1996; 1998). Knowing the patient's pattern of responses includes knowing how the patient will respond to therapeutic measures, the patient's normal routines and habits, coping resources, physical capacities and endurance and body language and characteristics (Horvath, Secatore & Reiley, 1990; Jenny & Logan, 1992). Knowing the patient as a person includes knowing the patient's personality, normal expressions, likes and dislikes, personal habits and family customs (Tanner et al, 1993).

Knowing the patient is believed to promote patient advocacy and assists in establishing knowledge about patient problems (Hamers, Abu-Saad, Halfens & Schumacher, 1994). In this study examining the factors influencing pain assessment of children, data were collected from 10 paediatric nurses using semi-structured interviews and examination of nursing patient reports. In developing knowledge about patient problems, it is thought that the nurse establishes a unique experiential knowledge base that shapes their clinical world (Benner et al, 1992): that is the development of domain knowledge.

Aspects of the patient that influence clinical decision-making include the medical diagnosis, the age of the patient, and family and friends (Hamers et al, 1994). The medical diagnosis has been determined to be the main factor influencing the amount and frequency of analgesic administration in children (Hamers et al, 1994). This finding has been reported by others (Edwards, 1994).

A study examining how experienced triage nurses make decisions by telephone, found that the most likely cause of the health problem, the impact on the patient, accessibility to health care services and perceptions of vulnerability influenced clinical decision-making (Edwards, 1994). A small sample of triage nurses (5) received two simulated telephone calls from clients requiring assistance. The simulation process may have influenced the nurses. Consequently, the results may not reflect clinical decision-making in practice.

2.4.2 Task complexity

The nature and complexity of nursing activities may influence clinical decision-making (Carnevali & Thomas, 1993). A study of experienced and inexperienced critical care nurses found that the severity of the patient medical condition, rather than the nurse's experience, affected proficiency, patient outcome and the amount of data collected in decision-making (Henry, 1991). Few differences between experienced and inexperienced nurses were identified. In this study, critical care nurses were required to complete two computerised clinical simulations, one high-acuity and one low-acuity. Henry's (1991) findings are supported in the outcomes of other studies (see Corcoran, 1986a; Edwards, 1994).

2.4.3 Resources

Resources, including time and volume of work, are believed to influence clinical decision-making (Carnevali & Thomas, 1993). The amount of time and available resources influenced rapid decision-making in studies undertaken by Thompson and Sutton (1985) and Bucknall and Thomas (1997). In Thompson and Sutton's (1985) study, coronary care unit nurses completed a demographic questionnaire and a semi-structured interview. The interview involved the nurses responding to 11 questions related to a written patient case. In the Bucknall and Thomas (1997) study, nurses' perceptions of the problems associated with clinical decision-making in

critical care units were examined. The participants (230) responded to a questionnaire, which focused on the problems experienced when making decisions. Thus, the choice of decision appears to be more likely influenced by time and available resources, than by research and experience. Further, increased levels of technology affected the nurse's clinical decision-making behaviour. This was due to the nurse's need to “keep up” with appropriate technological knowledge (Bucknall & Thomas, 1997).

The volume of work also influences decision-making (Carnevali & Thomas, 1993). Large workloads may result in decisions that are not based on clinical data (Hamers et al, 1994). Consequently, the nurse may be more likely to respond to what she/he is immediately confronted with rather than to examine the total situation. Responding to the immediate situation was discussed by Aspinall (1975), who found that many nurses were action-orientated: they focused on doing something for the patient rather than the analysis of all data.

2.4.4 Collegial relationships

Collegial relationships influence clinical decision-making (Orme & Maggs, 1993). The study examined how expert nurses, midwives and health visitors make decisions. A group of expert clinicians was asked to explore specific clinical decisions, identify the processes at work and to attempt to elucidate the common and specific factors making up the decision-making process. The clinicians had all been registered for five years and had various levels of post-registration professional qualifications.

The findings indicated that decision-making must be based on knowledge grounded in research, involves risk-taking and will flourish in a supportive environment (Orme & Maggs 1994). Supportive management, positive peer encouragement, permission to take risks, peer willingness to discuss and become involved and the opportunity for reflection were important

influences. The clinicians also indicated that a clearly defined philosophy of care contributed to effective decision-making (Orme & Maggs, 1993). These findings are important because a work environment that is not conducive to reflection and risk taking, and where nurses do not receive support, could result in lost opportunities to develop domain knowledge or to apply it.

The perceived level of autonomy of the nurse affects clinical decision-making (Bucknall & Thomas, 1997). Nurses identified disagreement with treatment decisions, for patients with poor prognoses, and disharmony between nurses and junior doctors. Bucknall and Thomas (1997) reported that as many as 30% of intensive care nurses disagreed with decision-making.

The conclusions of Baumann and Bourbonnais (1982), Thompson and Sutton (1985), Orme and Maggs (1993), Edwards (1994) and Hamers and associates (1994) reflect the context within which the nurse functions. The finding that the experienced nurse uses a unique knowledge base that influences clinical decision-making therefore needs to be considered within the context of the clinical environment. Further, how the clinical environment may affect the development and use of such knowledge needs exploration. The following section examines expertise in order to determine how clinical decision-making behaviours develop.

2.5 EXPERTISE AND CLINICAL DECISION-MAKING

The previous discussion indicated the important contribution of domain knowledge and experience to clinical decision-making. The recognition of the importance of experience and domain knowledge to clinical decision-making behaviour led to the recognition of expert nurse practice. Many researchers refer to experts (Benner, 1984; Corcoran, 1986a; Brykczynski, 1989; Benner et al, 1992; Jacavone & Dostal, 1992; O'Neill, 1994; Fisher & Fonteyn, 1995). Expert nurses have 'an intuitive grasp of each situation',

enabling them to focus accurately on the problem without being distracted by irrelevancies (Benner, 1984:32). The following section explores expert behaviours and intuition in clinical decision-making.

2.5.1 Characteristics of expert decision-makers

Six characteristics that are present in expert behaviour are pattern recognition, similarity recognition, common-sense understanding, skilled “know-how”, and sense of saliency and deliberative rationality (Benner & Tanner, 1987). Pattern recognition is the recognition of relationships in a situation. Similarity recognition is the recognition that relationships exist despite obvious differences. Common-sense understanding is the result of a deeper understanding of a situation. Skilled “know-how” is the ability to visualise a situation. Sense of saliency is the ability to recognise what is important. Lastly, deliberative rationality is the ability to anticipate events. The characteristics work in synergy in expert practice (Benner & Tanner, 1987).

Cognitive psychology research more clearly delineates the characteristics of expert decision-makers. For example, Glaser and Chi (1988) review investigations of typists, judges, medical doctors and computer programmers, describing seven essential characteristics of experts.

Experts mostly excel in their own domain or practice area, indicating that there is little transfer of knowledge and ability from one domain to another. Experts perceive patterns in what they observe. The patterns are a reflection of an organised knowledge base. Generally, experts are faster at problem solving. The speed may be the result of a lot of practice or may be due to the need for less information, due to pattern recognition. The short- and long-term memory capacity of experts is superior. As the expert becomes faster and behaviours become automated, more memory capacity is available. The fifth characteristic describes how experts see and

represent a problem more deeply. Deeper understanding indicates the expert's ability to sort information into meaningful categories. The sixth characteristic describes how experts initially attempt to understand rather than solve the problem. The process involves developing a picture of the problem. The final characteristic is a strong ability to monitor personal skills, reflecting the greater underlying knowledge that experts possess (Glaser & Chi, 1988).

Examination of the decision-making of experienced nurses within their areas of expertise supports the characteristics of experts identified by Glaser and Chi (1988). Fisher and Fonteyn (1995) describe five distinct strategies that are employed when caring for patients:

Pattern recognition: identifying similarities and differences in patient conditions, problems, and responses to therapy with those previously encountered during the care of similar cases.

Anchoring: formulating hunches from initial clinical data to anticipate the likelihood of future clinical events.

Attending: distinguishing, from all the available patient data, those indicators that are most relevant.

Focused questioning: puzzling over information, searching for more information, or checking hunches to assist in making sense of the data.

Listing: taking a cognitive inventory of relevant information to organize and plan care. (Fischer & Fonteyn, 1995:270-271).

When clinical decision-making occurred outside the expert's area of expertise, anchoring and attending were not evident (Fisher & Fonteyn, 1995), a phenomenon identified by others (Benner, 1984). Pattern recognition is also commonly identified as playing a crucial role in clinical decision-making and problem solving (Benner, 1984; Benner & Tanner,

1987; Norman et al, 1990; Papa et al, 1990; Schmidt et al, 1990; Deber & Baumann, 1992; Corcoran-Perry & Bungert, 1992; Papa & Elieson, 1993).

The concepts of expert and expertise in nursing remain unclear. The reason for the lack of clarity is that different definitions of expert are used. Experts vary from nurses with a specified number of years of experience (Corcoran, 1986; Holden & Klinger, 1988; O'Neill, 1994) to those who have been identified by their colleagues as experts (Jacavone & Dostal, 1992; Fisher & Fonteyn, 1995). In some studies, there is no indication on what basis expertise is determined (Orme & Maggs, 1993; Fonteyn & Grobe, 1994). The lack of clarity leads to confusion and hinders the development of a clear understanding of what expertise in nursing is. The only consistent aspect identified is intuition.

2.5.2 Intuition and clinical decision-making

Numerous studies have examined intuition (Benner, 1984; Young, 1987; Rew, 1990, 1991; Benner et al, 1992; Corcoran-Perry & Bungert, 1992; Jacavone & Dostal, 1992; Lauri & Salantera, 1995; Cioffi, 1997). Intuition or having an intuitive grasp is the 'direct apprehension of a situation based upon a background of similar and dissimilar situations and embodied intelligence and skill' (Benner, 1984:295). Intuition is therefore the result of experience and is used by experts (Benner, 1984). Therefore, an expert is able to progress rapidly to the centre of a problem and is not distracted by irrelevant data.

There appears to be general acceptance that intuitive decision-making is advantageous to nursing practice (Benner, 1984; Young, 1987; Rew, 1990, 1991; Benner et al, 1992; Corcoran-Perry & Bungert, 1992; Jacavone & Dostal, 1992; King & Appleton, 1997). There is little discussion of the possible negative aspects of intuitive judgement, for example, that inaccuracies may occur or, indeed, that intuitive judgement might never

develop (Paul & Heaslip, 1995). Another possible negative consequence of intuition is increased rigidity (Sternberg, 1996), indicating the potential development of fixed views, resulting in entrenched stereotypical behaviour.

The studies that have identified intuition in decision-making have been qualitative. Unfortunately, there has been no comparison of the intuitive decisions of experts. Consequently, there is no examination of the different clinical worlds and domain knowledge of expert nurses; nor is it understood how the clinical world and domain knowledge of nurses affects clinical decision-making. Further, there is some belief that experts cannot verbalise, or verbalise with difficulty, what they know (Benner, 1984; Young, 1987). Consequently, there is a limited understanding of how expertise develops. The only indicators identified are the importance of experience and critical reflection-on experience in the development of domain knowledge, resulting in rapid decision-making that is more accurate.

2.6. CLINICAL DECISION-MAKING AND PAIN MANAGEMENT

The following discussion focuses on the assessment of pain and the factors influencing decision-making. Assessment was selected as it forms the key to the nursing process (Iyer, Taptich & Bernocchi-Losey, 1995). Consequently, unsatisfactory assessment activities may affect the subsequent phases of the nursing process – diagnosis, planning, implementation and evaluation. The factors influencing decision-making about pain were selected, as they appear relevant to how decisions are shaped; and subsequently the pain management that the patient receives (Carnevali & Thomas, 1993).

2.6.1 Assessment

Studies examining nurses' assessments of pain commonly rely on comparing patients' and nurses' ratings, using a visual analogue scale

(Bondestam, Hovgren, Johansson, Jern, Herlitz & Holmberg, 1987; Van der Does, 1989; Choinière, Melzack, Girard, Rondeau & Paquin, 1990; McKinley & Botti, 1991). Comparisons between nurses are also made (Chuk, 1999).

Van der Does (1989) found that though relationships were significant, the correlations between nurse and patient ratings were not strong. Similarly, Choinière and associates (1990) found significant but small correlations between nurses' and patients' ratings. Further, they found that the nurses had a tendency to either underestimate or overestimate the patients' pain. The inability to assess the patient accurately was also evident in the tendency to overestimate the degree of pain relief following the administration of analgesia (Choinière et al, 1990). Bondestam and associates (1987) found similar results.

McKinley and Botti (1991) found poor correlation between patients' and nurses' ratings of pain. The study reported that the nurses were more likely to overestimate the rate of pain among patients. The result indicates some contradiction to other studies that report underestimation as well as overestimation (Bondestam et al, 1987; Choinière et al, 1990).

Poor correlations between nurses' ratings have been identified by others (Chuk, 1999). In this study, the nurses were presented with a patient vignette in two parts. At the end of the first part, the nurses assessed the pain level of each patient in the vignette. The study concluded that nurses believe that severe pain is always accompanied by changes in vital signs; and that this was a more reliable indicator of patient pain than the patient's self report was. Similar findings were found by Caty (1995) who attributed the result to nurses viewing pain within a physiological model rather than as a subjective experience.

Factors identified as influencing decision-making in relation to patients in pain

are similar to the general influencing factors identified in sections 2.2, 2.3 and 2.4. The following sections discuss the factors that influence the nurses' assessment of pain in relation to knowledge and experience, the working environment, the patient and drug dosage and drug prescriptions.

2.6.2 Knowledge and experience

Knowledge and experience have been identified by many researchers as influencing clinical decision-making related to pain (Choinière et al, 1990; Ferrell, Eberts, McCaffery & Grant, 1991; Jacavone & Dostal, 1992; Hamers, Abu-Saad, Halfens & Schumacher, 1994; McCaffery & Ferrell, 1994; Caty, 1995; McCaffery & Ferrell, 1997). A study describing clinical decision-making in relation to nurses' assessment and relief of pain found lack of knowledge to be a frequent barrier to providing pain relief (Ferrell et al, 1991). Nurses were asked to complete a questionnaire after actually caring for a patient in pain. The results indicated that lack of knowledge in physicians, other nurses and patients was a barrier to providing pain relief. The study provided no indication as to how this influenced nurses' care (Ferrell et al, 1991).

Hamers and associates (1994) study of the factors influencing pain assessment and interventions in children identified knowledge of the effects of pain-relieving interventions as influencing pain-relieving activities. Pain relieving interventions included analgesics and non-pharmacological interventions, for example distraction. The study included observation of the nurses' pain relieving activities, a subsequent interview and observation of patient records (Hamers et al, 1994). A strength of the study was that clinical decision-making was studied as it occurred.

A study exploring the knowledge of Australian nurses regarding assessment of pain, selection of analgesic dose and concerns related to opioid usage found knowledge to be a contributing factor (McCaffery & Ferrel, 1994). The nurses were required to complete a questionnaire that related to two

different patient vignettes. The responses indicated that the nurses lacked knowledge concerning the role of the patients' report of pain. Rather, pain assessment was based on the patients' behaviour. In addition, nurses in the study were reluctant to administer morphine, which was attributed to lack of knowledge of the effects of opioids (McCaffery & Ferrell, 1994).

Caty's (1995) study of assessment and management of children's pain also identified lack of knowledge as contributing to clinical decision-making behaviour. The researcher identified that nurses appeared not to be cognisant of current paediatric pain-related knowledge resulting in underestimation of pain in infants. Further, many nurses described pain as a subjective experience. This could imply that nurses understood pain within a physiological model rather than a subjective model (Caty, 1995). Consequently, the nurses may have been more inclined to look for physiological cues when determining pain severity. Physiological signs include blood pressure, pulse rate and respiratory rate (Murray, 1992) and changes in skin colour, decreases in blood oxygen saturation and lack of appetite (Abu-Saad & Hamers, 1997).

Choinière and associates' (1990) comparisons of patients' and nurses' assessment of pain in burn injuries found that years of experience had a significant influence on clinical decision-making. They further specified that it was experience in "burn-nursing" rather than nursing experiences in general. This would imply that domain-knowledge developed through experience (see section 2.2.1) affects the ability to make decisions about pain. This is supported by Hamers and associates' (1994) study of factors influencing pain assessment and interventions in children who found that nurses used past experience to determine what to do in present and future situations.

Jacavone and Dostal (1992) examined expert decision-making in the

assessment of cardiac pain. Experts (more than five years experience) and beginners (less than one years experience) in a coronary care unit were observed and informally interviewed during the delivery of patient care. The study concluded that in addition to knowledge of the titration of drugs, the ability to recognise subtle physiological changes was an aspect of practical knowledge (domain-knowledge) required in assessing cardiac pain (Jacavone & Dostal, 1992).

2.6.3 The environment

A number of studies identify aspects of the environment that influence pain assessment and management (Ferrell et al, 1991; Hamers et al, 1994; Willson, 2000). Willson (2000) examined factors influencing the administration of analgesia following surgery. The study employed an ethnographic methodology. Consequently, through participant observation, and observation of documentation and interviews, it was possible to capture clinical decision-making behaviours in the clinical context. This suggests greater authenticity than studies that use paper, audiovisual or computer patient scenarios.

Factors identified as important were the organisation of nursing care, the effects of shift-work and the impact of other health workers. Time pressures were identified as a tension between all factors (Willson, 2000). For example, time pressures may have directed the mode of nursing care (patient centred versus task centred); or may have minimised the time available with the patient or in discussion with other health professionals. The effects of time and the pressures of work have been identified by others as influencing pain assessment and management (Ferrell et al, 1991; Hamers et al, 1994).

2.6.4 The patient

The role of the patient in pain assessment and management has been identified in a number of studies. Patients' reports of pain, including pain severity, is identified as important (McKinley & Botti, 1991; Murray, 1992; Caty, 1995; Rheiner, Megal, Hiatt et al, 1998). McKinley and Botti (1991) and Rheiner and associates (1998) both found that what the patient says was the most influential factor. The importance placed on the patients' reports of pain, however, varies.

Other studies indicate that though the patients' self-reports are significant other factors are seen as more important. A study required three groups of nurses to complete three questionnaires and then evaluate patients' needs for post-operative narcotic pain-relief. Greater reliance was placed on clinical observations, time since last medication, non-verbal signs of distress and restlessness and medical diagnosis (Murray, 1992). Non-verbal cues have been identified by others and include facial expression and body posture (Ferrell et al, 1991; McKinley & Botti, 1991; Rheiner et al, 1998) and crying in children (Caty, 1995). Characteristics of the patient that influence assessment and management of patient pain include medical diagnosis (Murray, 1992; Hammers et al, 1994) and physiological signs (Jacavone & Dostal, 1992; Murray, 1992; Abu-Saad & Hammers, 1997).

In a study examining factors influencing nurses' pain assessments and interventions, nurses were observed during pain assessments and implementation of pain relief and interviewed at the end of the shift. In addition, the patient records were examined (Hamers et al, 1994). The findings indicated that nurses apparently placed a lot of value on medical diagnoses. The more severe the diagnosis the more pain the patient was presumed to experience. Consequently, pain-relieving interventions were increased if the nurse viewed the medical diagnosis as producing high levels of pain. The importance of medial diagnosis has also been identified by

Murray (1992) where the type of surgery was given first priority in evaluating patients' needs for narcotic analgesia. In Murray's (1992) study physiological signs were rated fourth after type of surgery, non-verbal signs and time elapsed since previous medication.

2.6.5 Medication dosage and orders

The type and frequency of the drug prescribed (Field, 1996), the time elapsed since previous administration (Murray, 1992) and concerns related to the risk factors associated with narcotic use (Chuk, 1999) have been identified as influencing clinical decision-making.

A study examining the methods used to assess and monitor pain relief found that the dosage, type and frequency of the drug prescribed were the most influential factors (Field, 1996). Nurses of varying levels of experience and responsibility completed a questionnaire that determined assessment methods, decisions to give or withhold analgesia, evaluation methods and pain assessment charts. In other studies, less importance appears to be placed on the dosage and type of drug. In Murray's study (1992) nurses rated time elapsed since last dose after type of surgery (medical diagnosis) and non-verbal signs of distress and restlessness when determining the patients' need for narcotic pain relief.

Chuk (1999) examined whether vital signs would influence the amount of intravenous (IV) morphine given for pain relief. Nurses were required to respond to two patient scenarios and indicate how they would rate the patients' pain and their choice of bolus and maintenance dosage of morphine. In addition, they were asked to express their concerns about the dosage. The findings indicated that the dosage chosen by the nurses differed significantly for each patient scenario. Vital signs were identified as the variable that influenced dose selection (Chuk, 1999).

2.7. SUMMARY

The clinical decision-making models discussed were *Hypothetico-Deductive Reasoning* and *Knowledge-Driven Decision-Making* models. Both models describe how experience influences clinical decision-making. In *Hypothetico-Deductive Reasoning*, experience affects the generation of hypotheses; in the *Knowledge-Driven Decision-Making* model, experience affects the development of knowledge in the form of schemata. Hence, the quality of experience will affect the nurse's ability to generate hypotheses or develop schemata.

Various factors influence the nurse's experience of clinical decision-making, regardless of the decision-making model. Educational preparation, knowing the patient, patient acuity, resources and collegial relationships may affect the quality of the experience and influence the development of domain knowledge.

Domain knowledge, identified as an important aspect of clinical decision-making behaviour, is the result of experience and is developed through critical reflection-on practice. Therefore, the quality of the experience affects the development of domain knowledge. As domain knowledge is an important characteristic of the expert's decision-making, any factors that may affect its development will potentially influence clinical decision-making behaviours.

Clinical decision-making in relation to pain management indicates that nurses have trouble determining patients' pain levels. Consequently, nurses appear to either overestimate or underestimate levels of pain, and overestimate the degree of pain relief. The research identifies knowledge and experience, the effects of shift work, time pressures, the patient and medication dosages and medication orders as influencing clinical decision-making activities.

Understanding of the clinical decision-making behaviours of nurses is limited to the importance of knowledge and experience, the models of clinical decision-making employed and the factors influencing decision-making behaviour. The following chapter focuses on why the knowledge of clinical decision-making is limited.

Chapter III

Limitations of clinical decision-making research

The previous chapter explored clinical decision-making models and factors influencing clinical decision-making behaviours. The importance of experience and the role of domain knowledge in clinical decision-making were highlighted. The literature provides no understanding of how the various experiences, or clinical worlds, of nurses affect the development of domain knowledge, and hence the development of clinical-decision making behaviour. Further, the research does not delineate how clinical decision-making behaviours develop over time.

The following chapter critically reviews the research approaches employed in examining clinical decision-making behaviours. Research methods and data collection strategies are reviewed in order to explain their inability to provide a comprehensive picture of clinical decision-making. The conclusion drawn is that the research has not described how nurses perceive clinical decision-making or how the perceptions affect subsequent clinical decision-making behaviour. A different research approach, phenomenography, is proposed as a more inclusive alternative to studying clinical decision-making.

3.1 THE RESEARCH APPROACHES

The following section explores the research approaches employed in studying decision-making in relation to how the approaches have limited understanding of clinical decision-making. The research approaches are referred to as systematic-positivist and intuitive-humanist respectively (Thompson, 1999).

3.1.1 The systematic-positivist approach

The *systematic-positivist approach* makes a number of assumptions. Nursing actions are the result of rational, logical thoughts. Clinical decision-making strategies can be formalised and generalised. Clinical situations can be analysed into their various elements. A clinician's knowledge can be formalised. Finally, human beings have a limited capacity to be objective and rational. Therefore, the approach focuses on making explicit the cognitive approaches and knowledge used in clinical decision-making (Tanner, 1987; Thompson, 1999).

The *systematic-positivist approach* to researching clinical decision-making appears to be the more common approach (Baumann & Bourbonnais, 1982; del Bueno, 1983; Thompson & Sutton, 1985; Corcoran, 1986a; Westfall, Tanner, Putzier & Padrick, 1986; Sullivan, 1987; Tanner, Padrick, Westfall, & Putzier, 1987; Henry, 1991; Shamian, 1991; Lauri, 1992; McFadden & Gunnett, 1992; Sheidler, McGuire, Grossman & Gilbert, 1992; White, Nativio, Kobert & Engbert, 1992; Henry & Holzemer, 1993; O'Neill, 1994; Lauri & Salantera, 1995). The approach focuses on the quantitative analysis of data, either in the laboratory setting or in the context in which decisions are made.

The advantages of the *systematic-positivist approach* lie in the research designs that promote control, providing a common situation in which many nurses may make decisions. Consequently, it is easier to determine the accuracy of decisions and to compare experienced and non-experienced nurses' decision-making. Further, the variety of data collection strategies (for example, computer simulations, pseudo clinical scenarios, videos, questionnaires and so on) potentially expands the amount of data to be analysed.

The use of the *systematic-positivist approach* is limited, as its concern with

creating controlled situations means that potentially relevant variables are excluded (Gardner, 1985). Gardner cites examples of factors, such as emotional, historic and cultural variables and the background context in which the decision occurs, as being factors that are sometimes excluded within the *systematic-positivist* analysis of clinical decision-making. The *systematic-positivist approach* is therefore limited, as it does not include the complex environment in which nurses make decisions and the nurse's clinical world. Therefore, the *systematic-positivist approach* is limited in its ability to explain how the nurse's perceptions of decision-making influence subsequent behaviours. To capture perceptions a research approach is required that will enable the description of the nurse's world.

3.1.2 The intuitive-humanist approach

The *intuitive-humanist approach* assumes that the nurse works with patterns and relationships, that knowledge is derived from similar and dissimilar situations and that action precedes rational analytic thought (Tanner, 1987; Harbison, 1991). The approach therefore assumes that the knowledge applied in practice is practical, not theoretical.

The *intuitive-humanist approach* examines clinical decision-making within the nurse's clinical world. The nurse usually provides a description of a clinical decision-making experience. Few studies employ the *intuitive-humanist* approach in examining clinical decision-making (Benner, 1984; Brykczynski, 1989; Sims & Fought, 1989; Lauri, 1990; Rew, 1990; Benner, Tanner & Chesla, 1992; Jacavone & Dostal, 1992; Orme & Maggs, 1993; Edwards, 1994; Hamers, Abu-Saad, Halfens & Schumacher, 1994; Fisher & Fonteyn, 1995).

Advantages of the *intuitive-humanist approach* include both the variety and openness of data collection methods employed. The use of open-ended questions that focus on nurses' reflections on patients they have nursed

(Lauri, 1990; Benner et al, 1992; Jacavone & Dostal, 1992), provide data that reflect clinical practice. Likewise, collecting data as the nurse provides patient care (Brykczynski, 1989; Benner et al, 1992; Jacavone & Dostal, 1992; Hamer et al, 1994; Fisher & Fonteyn, 1995), generates data as decision-making occurs. Consequently, the *intuitive-humanist approach* helps to eliminate the problems associated with data collection strategies in the forms of written case studies or computer simulations (Sims & Fought, 1989; Lauri, 1990; Edwards, 1994). The benefits of using naturalistic research approaches include examining how the nurse's personal experiences and domain knowledge influence clinical decision-making behaviours (Radwin, 1995).

Nevertheless, naturalistic studies can be problematic. The presence of audiotapes and/or observers during decision-making in the clinical setting can be intrusive. They are intrusive as there is the potential to breach the patient's privacy; and the presence of an observer may influence the nurse's decision-making (Polit & Hungler, 1999). A possible approach could be the questioning of nurses within an interview format that focuses on the patients they have previously cared for, asking them to reflect on the experience. The value of the interview lies in its potential to highlight the quality and variety of knowledge and how that knowledge is used (Lauri, 1990).

Though a naturalistic approach should assist in capturing the experience of clinical decision-making, it has failed to capture the development of clinical decision-making behaviours in *inexperienced* nurses and the influence of individual experiences. The reasons for such omissions are twofold. In the first instance, studies have concentrated on *experienced* and expert nurses (for example, Benner, 1984; Corcoran, 1986a; Holden & Klinger, 1988; O'Neill, 1994). Consequently, there is little understanding of how clinical decision-making behaviours develop. In the second instance, thematic analyses that reduce the data to a common experience have removed

variation in experience from descriptions of clinical decision-making. Hence, there is no understanding of individual perceptions. An underlying assumption appears to be that *inexperienced* nurses can contribute little to understanding clinical decision-making.

3.2 DATA COLLECTION STRATEGIES

The *systematic-positivist* and *intuitive-humanist* approaches have both failed to capture individual perceptions of clinical decision-making: and how this influences behaviour in both experienced and inexperienced nurses. The following section reviews the data collection strategies employed in both approaches in relation to how they have restricted understanding of decision-making behaviour.

Both the *systematic-positivist* and *intuitive-humanist approaches* employ a variety of data collection strategies. The strategies include: written clinical vignettes (Baumann & Bourbonnais, 1982; Thompson & Sutton, 1985; Corcoran, 1986a; Baumann & Deber, 1989; Shamian, 1991; McFadden & Gunnnett, 1992; Sheidler et al, 1992; Panniers & Walker, 1994), video simulations (del Bueno, 1983; Westfall et al, 1986; Thiele et al, 1991a,b), thinking aloud (Corcoran, 1986a; Henry et al, 1989), computer simulations (Holden & Klinger, 1988; Henry et al, 1989; Lauri, 1990; Henry, 1991; White et al, 1992), questionnaires (Sullivan, 1987; Holden & Klinger, 1988; Ala & Jones, 1989; Masters & Masters, 1989; Henry & Holzemer, 1993; O'Neill, 1994; Stusky & Laschinger, 1995; Cholowski & Chan, 1992; Lauri & Salantera, 1995), and verbal reports and patient notes (Hamers et al, 1994).

3.2.1 Patient scenarios and simulations

A data collection strategy commonly employed involves the use of pseudo clinical scenarios. A pseudo clinical scenario comprises a clinical case study that is created by the researcher. Other simulated data collection strategies include case scenarios (Sims & Fought, 1989; Fisher & Fonteyn, 1995; Edwards, 1994) and computer simulations of patient case situations (Lauri, 1990; Henry & Holzemer, 1993). Nurses may be asked to respond to the scenario as if it were reality.

Simulated data collection strategies are limited as not all senses are activated, for example smell, and there is no opportunity to observe body language. Assessment of non-verbal behaviours is identified as important in establishing the authenticity of verbal data (Fuller & Schaller-Ayers, 2000; Jarvis, 2000). Further, the scenario may not be based on an actual patient case (Sims & Fought, 1989; Fisher & Fonteyn, 1995; Edwards, 1994). There is no indication that the studies reviewed for this literature review utilised actual case studies, rather than a compilation of clinical cases. Consequently, the case may not have captured the reality of practice.

Efforts have been made, within the *systematic-positivist approach*, to overcome the effects of pseudo clinical scenarios. Thinking aloud (TA) at the time of decision-making is an approach that has been used to overcome the limitations of pseudo clinical situations (for example, Corcoran, 1986a; Henry et al, 1989). Even with TA, however, the situation is still influenced by an alteration to the background context. In addition, TA is intrusive: it can breach patient privacy and change the nurse's behaviour. Consequently, the results may not be authentic.

3.2.2 Reflecting on encounters with patients

A variation on scenarios is the approach of asking the nurse to discuss a patient they have previously nursed. The patient incident may reflect a particular diagnostic condition or state or may be seen by the nurse as being a critical incident to the development of practice (Benner, 1984; Lauri, 1990; Benner et al, 1992; Jacavone & Dostal, 1992). In conjunction with this strategy, the nurse may be asked to think aloud in order to capture thinking during clinical decision-making (Fonteyn & Grobe, 1994; Fisher & Fonteyn, 1995).

Reflection-on practice is an advantageous approach as it has the potential to examine the nurse's clinical world and thus perceptions of clinical decision-making. Further, thinking aloud during reflection is far less intrusive to the patient and the clinical environment.

3.2.3 Thinking aloud, patient notes and verbal reports

Thinking aloud assists in determining the processes of decision-making rather than examining the decision. The strategies of thinking aloud, patient notes and verbal reports as well as visual presentation help to minimise the loss of the background context found with written simulations. Yet, the authenticity of the process can be affected. It is unnatural to think aloud, either to an observer or to an audiotape recorder, when making decisions. There is some indication that thinking aloud does not affect clinical decision-making behaviour, however, this is limited (Henry, et al, 1989).

3.2.4 Observation

Another common data collection method is observation (Brykczynski, 1989; Benner et al, 1992; Jacavone & Dostal, 1992; Hamers et al, 1994). The observation techniques encompass participatory observation (Brykczynski, 1989), which is most commonly undertaken when nurses interact with

patients. Observation in the clinical setting may create similar problems to those addressed with thinking aloud; the presence of an observer is intrusive and may influence the nurse's behaviour.

3.3 CONCLUSION

The current approaches to examining clinical decision-making have identified knowledge and experience as playing an important part in developing clinical decision-making. The knowledge has been gained by examining *experienced* nurses rather than looking at the development of experience over time. Further, it is unclear how perceptions of clinical decision-making affect subsequent clinical decision-making behaviour.

The exclusion of affective factors results in loss of the context in which decisions are made. The exclusion of factors that influence behaviour, such as smell, sight and the physical, verbal and behavioural aspects of the patient, creates a false situation that does not reflect the dynamic nature of the environment in which clinical decision-making occurs.

Concentration on the examination of *experienced* nurses' decision-making has resulted in reduced awareness of the practice of less able nurses. The focus on accuracy of decisions does not explain the reasoning processes involved in decision-making or explain why particular decisions are made.

The research approaches and data collection strategies discussed in sections 3.1 and 3.2 have shown limited understanding of clinical decision-making. The problems associated with the data collection strategies lie with the reliance on one particular approach. Consequently, the opportunity to capture the complexity of nursing practice is reduced. Approaches to the examination of clinical decision-making need to include a combination of data collection methods in order to capture the multiple factors affecting clinical decision-making. In particular, methods that encourage reflection-

on-practice should help in determining how the nurse's personal experience and therefore perceptions affect clinical decision-making. Further, analysis of data needs to include variation between individuals, rather than identifying common themes. Such research approaches should assist in determining how the nurse's clinical world and domain knowledge affect clinical decision-making. Finally, more emphasis should be placed on the novice or advanced beginner, and how clinical decision-making behaviours develop.

The research approaches have not included description of the perceptions of clinical decision-making; nor have the effects of perceptions on clinical decision-making been included. Consequently, there is little understanding of how experience influences the development of clinical decision-making. This is a significant omission to the understanding of clinical decision-making. Examining perceptions of clinical decision-making will possibly provide understanding of how perceptions shape behaviour and the subsequent development of expert decision-making. Furthermore, understanding how clinical decision-making behaviour develops would be useful in determining the type of clinical environments that promote clinical decision-making development.

It is doubtful whether the limitations associated with current research studies can be overcome while the current research approaches are employed. The difficulties arising include the context in which data is collected, data collection strategies, methods of data analysis, and the focus of the analysis.

A research approach that has the ability to describe perceptions of clinical decision-making is phenomenography. The approach was developed in Sweden by Marton and a research group. Phenomenography enables the study of the content of thinking and the explanations that people give for

the reality they encounter (Marton, 1986; Marton & Booth, 1997). Phenomenography can employ a variety of data collection methods in order to focus on variation in experience. The goal of phenomenography is the description of individual perceptions of a phenomenon rather than a researcher's interpretation of that phenomenon (Dahlgren & Fallsberg, 1991; Marton & Booth, 1997).

3.4 PHENOMENOGRAPHY AND CLINICAL DECISION- MAKING

Each person in a nurse-patient interaction has a personality, different knowledge base and distinct previous experiences. Consequently, perceptions of a nurse-patient interaction will vary. Hence, each nurse-patient interaction is unique. The unique interaction provides the nurse with domain knowledge (Benner, 1984; Brykczynski, 1989; Sims & Fought, 1989; Orme & Maggs, 1993; Cholowski & Chan, 1995). Therefore, the perceptions gained from patient interactions will affect the domain knowledge the nurse uses when making decisions.

To appreciate perceptions of clinical decision-making, it is necessary to examine decision-making within the nurse's clinical world in order to capture the nurse's experience. The clinical world of the nurse reflects the nurse's experience and understanding at any point in time (Benner et al, 1992). The inclusion of the nurse's clinical world will assist in determining how individual clinical worlds affect clinical decision-making behaviour.

The clinical environment is complex. Nursing activities occur in a dynamic environment that is constantly changing. The dynamics of the clinical environment affecting clinical decision-making include the patient's medical condition (Henry, 1991), relationships with health colleagues (Orme & Maggs, 1993), and the pressures of workload (Thomson & Sutton, 1985; Hamers et al, 1994). Therefore, as clinical decision-making occurs in a

Perceptions of clinical decision-making 60

context specific environment, it is influenced not only by the patients and their needs but by the knowledge and experience of each nurse. Consequently, the study of clinical decision-making requires a research approach that facilitates the description of variation in perceptions and the subsequent effects on decision-making behaviour. Phenomenography is a research approach that will enable such an analysis.

The objective in using phenomenography in the examination of clinical decision-making is to describe nurses' perceptions of clinical decision-making. Clinical decision-making is the phenomenon under investigation. Each nurse's perception of clinical decision-making is sought in order to determine variation across individuals. Therefore, the use of phenomenography is able to facilitate the descriptions of the ways that clinical decision-making is experienced, conceptualised and understood by nurses; and how these influence subsequent behaviour. The specific advantage of phenomenography over other approaches is that it enables the description of individual perceptions of clinical decision-making and how the perceptions shape the nurses' understanding and future actions (Marton, 1981b; Marton & Booth, 1997). The approach can assist in identifying the links between experience, domain knowledge, and the clinical world of the nurse and the development of clinical decision-making behaviours.

Phenomenography has not been previously used in the examination of clinical decision-making in nursing, but it was envisaged that it could assist in determining the various clinical decision-making behaviours of nurses. The aim of phenomenography is to describe variations in individual perceptions of a phenomenon (Marton, 1981b; Pramling, 1995; Svennsson, 1997). Therefore, it has the potential to facilitate understanding of the relationship between experience, domain knowledge, the nurse's clinical world and the development of clinical decision-making behaviours.

Thus, the specific objectives of this study were:

1. to describe nurses' perceptions of clinical decision-making;
2. to describe changes in perceptions of clinical decision-making in the first two years of the nurses' practice;
3. to assess the use of phenomenography in studying clinical decision-making.

The following chapter provides a description of phenomenography and its potential as a research approach in examining the various perceptions of clinical decision-making behaviours. Phenomenography is proposed as an alternate approach to the examination of clinical decision-making.

Chapter IV

Phenomenography

The purpose of the following chapter is to describe the phenomenographic research method and its application. The discussion encompasses a description of phenomenography, its origins, and the assumptions on which it is based. The aims of phenomenography, the various types of phenomenography, examples of phenomenographic research and the phenomenographic interview, are also examined. In addition, phenomenography and phenomenology are contrasted. Finally, the outcomes of phenomenographic research, including the development of categories, the outcome space, approaches to the analysis and trustworthiness of the outcomes are explored.

4.1 A DESCRIPTION OF PHENOMENOGRAPHY

Phenomenography was first discussed in the literature in the early 1980s (Marton, 1981a,b). It has been employed primarily in the examination of learning tasks (for example, Prosser & Miller, 1989). More recently, the phenomenographic research approach has been applied in a broader research context in order to describe perceptions and understanding of a phenomenon. Phenomenography assumes that how a phenomenon is perceived affects subsequent behaviour (Dahlgren & Fallsberg, 1991; Kumlin & Kroksmark, 1992; Sjöström, 1995; Marton & Booth, 1997). This section describes phenomenography in terms of its underlying assumptions and origins.

4.1.1 The different ways of investigation the world

There are two perspectives adopted in investigating how people interact with and experience the world (Marton, 1981b; Marton & Booth, 1997). They are called a first-order and second-order perspective (Marton, 1981b; Marton & Booth, 1997). Both perspectives facilitate descriptions of a phenomenon that are relational, experiential, contextual and qualitative (Marton, 1986). A phenomenon is anything that is apparent to the senses or directly observable. In the context of research, description of a phenomenon helps to elaborate how particular aspects of life are experienced (Talbot, 1995).

When research assumes a first-order perspective, the researcher is orientated to and makes comments about the world (Marton 1981b: 178). With a second-order perspective, the research is orientated towards how people perceive the world and the researcher makes comments about how people experience the world (Marton, 1981b: 178). Therefore, a first-order perspective in research would provide a general description of a phenomenon, whereas a second-order perspective would provide a description that encompasses the various ways a phenomenon is experienced, and therefore perceived, by people (Marton, 1981b; Marton & Booth, 1997).

A research approach that assumes a second-order perspective is phenomenography (Marton, 1981b, 1986; Marton & Booth, 1997). Phenomenography, therefore, identifies and describes the various ways that individuals perceive a phenomenon (Marton, 1981a,b; Pramling, 1995; Marton & Booth, 1997; Svensson, 1997). As an inductive research approach, phenomenography assists in understanding human activities within complex and changing situations (Sjöström, 1995; Abrandt, 1997); that is, how people understand their world.

4.1.2 The origins of phenomenography

Svensson (1997) describes phenomenography as a recent research tradition that developed within the Education discipline. The tradition grew from the investigation of how students experience learning. Specifically, the studies examined how university students approached study (Booth, 1997).

A question examined by the studies was why learning differs among students (Marton, 1994; Booth, 1997; Entwistle, 1997). The conclusion drawn from the studies was that the students' perceived learning differently; and that the perceptions consequently affected how they approached learning situations (Marton, 1984). Two key approaches were evident: deep and surface. Deep approaches to learning involve understanding a situation and assigning meaning. Surface approaches involve understanding of the situation only, with no attempt to make sense of or assign meaning to the situation (Biggs, 1988; Biggs, 1989; Webb, 1997).

4.1.3. The assumptions of phenomenography

Phenomenography is based upon the following assumptions (Svensson, 1997):

- **Knowledge is based on thinking and activity:** the meaning people assign to a phenomenon is dependent on what they think and what they do.
- **Knowledge is dependent on the world or environment in which thinking and activity occur:** the contexts in which people exist affects knowledge and understanding.
- **Knowledge and conceptions of the world are related:** how people conceive or understand their world is dependent on what they do and the world in which they exist.
- **Knowledge about reality will vary depending on what people think:** how people understand their world will depend on how and what they think.

-
- **Human reality presents itself in different forms:**
understanding of the world varies among people.

Hence, what is learnt from experience affects subsequent behaviour and actions are influenced by how the world is perceived. Perceptions or understanding of the world will vary between people. Therefore, the aim of phenomenography is twofold: to describe the different ways that a phenomenon may be perceived; and to describe how perception affects future actions (Marton, 1986; Dahlgren & Fallsberg, 1991; Pramling, 1995; Entwistle, 1997; Marton & Booth, 1997; Svensson, 1997).

4.2 THE AIMS OF PHENOMENOGRAPHY

In the following section, the aims of phenomenographic research are explained. In addition, the various ways that phenomenographic research is approached are described. Finally, examples of phenomenographic research are presented in order to illustrate the diverse situations to which the aims of phenomenography have been applied.

Phenomenographic research has two aims. The first aim is to develop descriptions of how individuals perceive a phenomenon, rather than a description of the various characteristics of the phenomenon. The second aim is to keep the individual perceptions of the phenomenon (Dahlgren & Fallsberg, 1991:151; Abrandt, 1997; Entwistle, 1997). Consequently, the results are descriptions of similarities and differences in relation to how a phenomenon is perceived by individuals (Marton, 1981a; Dahlgren & Fallsberg, 1991; Bowden, 1994; Bruce, 1994). A corollary of these aims is that phenomenography assumes that the meaning that people assign to a phenomenon subsequently affects behaviour.

4.2.1 Types of phenomenography

Five variations of phenomenography are identified by Hasselgren and Beach (1997). The variations are experimental, discursive, naturalistic, hermeneutic and phenomenological. Hasselgren and Beach (1997) base their analysis on the various ways that data are produced and for what purpose the data are obtained.

Experimental Phenomenography reflects a controlled approach to research. A typical approach involves participants being given a text to read. The analysis determines how the text is understood or what the participants have learned (Hasselgren & Beach, 1997). Examples of experimental phenomenography include studies by Marton (1975) and Prosser and Miller (1989).

Discursive Phenomenography does not directly relate to an educational or learning context. Rather, the focus is on determining indirectly the participants' understanding of a phenomenon, by questioning them on a related issue. Hasselgren and Beach (1997) cite a study by Dahlgren (1979) where he asked, "Why does a bun cost two shillings?" The focus of the analysis was determining the children's understandings of price formulation.

Naturalistic Phenomenography involves collecting data from "authentic" situations (Hasselgren & Beach, 1997). A recording is made of everything that occurs, verbal and non-verbal. The analysis focuses on determining from the dialogue various understandings of a phenomenon. The participants are not questioned directly. An example is Lybeck's observation and recording of what happened when students received instruction in the phenomenon of "density" (1981, cited by Hasselgren & Beach, 1997).

In Hermeneutic Phenomenography, analysis of data involves interpretation of text or statements not written initially for research. Therefore, the analysis focuses on determining meaning from the words. For example, Lindblad (1995) examined descriptions of teacher teaching experiments from the 1940s (cited in Hasselgren & Beach, 1997).

The Phenomenological Phenomenographic approach focuses on the experience of learning rather than the outcome of learning (Hasselgren & Beach, 1997). Thus in phenomenological phenomenography, the focus is on what is happening within the subject's mind rather than on the phenomenon, which occurs in the other approaches (Hasselgren & Beach, 1997). Examples of this approach are found in the early years of phenomenography's development: Therman (1983) studied conceptions of political power and Neuman (1989) studied how children acquire basic mathematic skills (cited in Hasselgren & Beach, 1997).

More recently, Australian phenomenographers such as John Bowden, have differentiated phenomenographic research undertaken as part of an academic qualification, from research studies undertaken by teachers investigating student learning (Bowden, 2000). The former has a broad focus as it describes how people perceive aspects of the world in which they live. The latter is viewed as being more pragmatic, as it aims to make (university) studies more effective by means of more sophisticated education (Bowden, 2000). Therefore, some phenomenographic studies have a wider focus on conceptions of the world while others have a narrower focus on improving student learning.

Phenomenographic studies with the narrower focus of improving student learning are called Developmental Phenomenography. Those studies with the wider focus are called Pure Phenomenography (Bowden, 2000). As Experimental Phenomenography focuses on improving learning, it should

be classified as Developmental Phenomenography. The focus of Discursive, Naturalistic, Hermeneutic and Phenomenological Phenomenography research is perceptions of the world and is therefore classified as Pure Phenomenography.

4.2.2 Examples of phenomenographic research

The following diverse examples illustrate how the phenomenographic approach has been used.

Walsh, Dall’Alba, and associates (1993) examined student understanding of some basic concepts and principles in kinematics. In the study, 30 first-year university students and 60 final year high school students were presented with questions in a written format during an interview. Questions focused on the student’s understanding of acceleration, relative speed, Newton’s laws, composition of velocities and terminal velocity. Focused questioning, for example “Could you explain that further?” was also employed.

Prosser (1994) mapped the range of perceptions of learning during a university physics course. Twenty first-year university physics students were interviewed before and after a physics course. During both interviews, students were set four practical tasks, which they had to complete. At the final interview probing questions, such as, “What sort of things did you do in tutorials and why?” were asked.

Ebenezer and Gaskell (1995) explored changes in students’ perceptions of the chemistry of liquids. Thirteen year 11 high school students were interviewed for 30 minutes. During the interview, students observed one of three demonstrations of a chemical system, followed by questioning related to the system.

There are a number of examples of phenomenographic research in the health disciplines (Kumlin & Kroksmark, 1993; Abrandt, 1997; Takman, 1999).

Physiotherapists' conceptions of established therapeutic relationships were described by Kumlin and Kroksmark (1992). The study involved semi-structured interviews, which focused around five topics. The physiotherapists were asked to discuss their thoughts and feelings concerning the topics.

Abrandt (1997) examined physiotherapists' learning through formal education and professional experience. A group of physiotherapy students was interviewed during the final year of university studies and following 18 months professional experience. Questioning focused on determining how the various ways that the concepts of health, movement, function and interaction were experienced.

Health care professionals' ways of experiencing patient encounters in acute medical environments was studied by Takman (1999). During individual sessions, enrolled nurses, physicians and registered nurses were interviewed. The interviews were unstructured and involved the interviewee being asked to narrate an encounter with a patient in a clinical setting, which they remembered clearly. Follow-up questioning occurred in order to deepen the level of information obtained.

A review of the current literature identified five phenomenographic studies that examined nurses and nursing. Sjöström (1995) examined the thinking of nurses and physicians during the assessment of patients in pain. The study involved critical care nurses, physicians and patients. Following an initial interview that focused on experience, conceptions of what work consists of and what is important, participants were asked to assess a patient's pain level and to rate the patient's pain on a Visual Analogue

Scale. At the second interview, questioning focused on the assessment of the patient. Before the third interview, participants were asked to assess three different patients' level of pain. The final interview focused on conceptions of pain management and the significance of experience.

Undergraduate nursing students' understandings of aseptic technique were investigated by Davey (1997). The study involved 18 undergraduate nursing students completing a written exercise and participating in an in-depth interview. Both data collection activities involved three questions. The interview activity enabled the participants to express more fully ideas about asepsis that were mentioned in the written exercise.

Conceptions of life situations in male and female patients' with congestive heart failure were examined by Martensson, Karlsson and Fridlund (1997, 1998). Both studies involved interviewing patients and asking 10 open-ended questions. The questions focused on the biophysical, the sociocultural, the emotional, the intellectual and the spiritual-existential.

Finally, nurse managers' perceptions of patient oral health were studied by Paulsson, Nederfors and Fridlund (1999). Twelve nurse managers were interviewed for approximately 30 minutes. Thirteen questions were asked of each participant. In addition, follow-up question, for example, "Have you any experience of this?" were asked.

Though the focuses of the above studies differ, they reflect common features: face-to-face interviews, focus questioning in order to explore responses in greater depth, and audiotaping of participant responses.

4.3 PHENOMENOGRAPHY AND PHENOMENOLOGY

In nursing, phenomenology has been applied extensively in research studies (Crotty, 1996). The terms phenomenography and phenomenology are similar. The following section explores the similarities and difference between phenomenography and phenomenology in order to differentiate the two research approaches.

Phenomenology and *phenomenography* are both concerned with the study of phenomena and share the same philosophical origins (Marton, 1986; Marton & Booth, 1997). In both, the results are descriptions that are relational, experiential, contextual and qualitative (Marton, 1986). The descriptions are relational as the focus is on people and their relationship to the environment. They are experiential because people's experiences influence how a phenomenon is perceived. They are content-orientated because perceptions are made in relation to their content. Finally, they are qualitative because understanding is differentiated.

The difference between each research approach is the focus of the research. In *phenomenology* the aim is to describe all the ways a phenomenon is experienced whereas in *phenomenography* the aim is to describe individual variations in perceptions of a phenomenon (Marton, 1986; Crotty, 1996; Holloway & Wheeler, 1996; Entwistle, 1997; Marton & Booth, 1997). The different focus in approaching research reflects whether the research question is asked from a first-order or second-order perspective (Marton, 1981b; Marton & Booth, 1997; Webb, 1997).

Phenomenology poses research questions from a first-order perspective. Therefore, the research question is orientated towards achieving a general description of the phenomenon. *Phenomenography* poses research questions from a second-order perspective. The research questions are orientated towards the different way a phenomenon may be perceived,

including how perception affects behaviour. Therefore, *phenomenology* would ask, what does it mean to be a good learner: thus describing the phenomenon of learning. *Phenomenography* would ask, what are the various ways that learning (the phenomenon) is experienced: and how do the perceptions affect behaviour (Marton, 1981b; Marton & Booth, 1997; Webb, 1997).

In practice, *phenomenography* enables the description of variations in perception of a phenomenon. In addition, the effects of perception on behaviour are described. Finally, the relationships between the various perceptions of the phenomenon are also described (Marton, 1986; Marton & Booth, 1997). In *phenomenology*, the immediate experience of the phenomenon is described, which is frequently referred to as “the essence” of the experience. The result is a description of the phenomenon as it was experienced (Marton, 1986; Tesch, 1994; Crotty, 1996; Talbot, 1995; Marton & Booth, 1997).

4.4 THE PHENOMENOGRAPHIC RESEARCH PROCESS

The phenomenographic research process involves a qualitative analysis of data. The results are statements that describe how people perceive a phenomenon. The following section explains the process of data collection, data analysis and the trustworthiness of the findings.

4.4.1 The phenomenographic interview

The objective of data collection is to explore the different ways that a phenomenon is perceived by people. The primary method of data collection is a thematic or semi-structured interview (Marton, 1986; Dahlgren & Fallsberg, 1991; Bowden, 1994; Walsh, 1994). Other methods of data collection may be included. Prosser (1994), and Ebenezer and Gaskell (1995) asked students to complete scientific practical activities before interviews. Sjöström (1995)

asked participants to complete patient pain assessments between interviews; and Davey (1997) asked participants to complete written exercises as well as interviews.

In a phenomenographic interview, open-ended questions are used in order to capture individual responses. Participants are encouraged to relate their understanding of the phenomenon being investigated. If necessary, the interviewer is able to explore in more depth the different perceptions of participants, depending on responses (Dahlgren & Fallsberg, 1991; Bowden, 1994; Walsh, 1994). Consequently, individual perceptions of a phenomenon are identified (Bruce, 1994; Bowden, 1994).

The interviews are audiotaped and transcribed verbatim. The transcribed interviews become the data to be analysed (Marton, 1986; Bowden, 1994; Walsh, 1994; Sjöström, 1995; Bruce, 1997). Therefore, the phenomenographic interview endeavours to enter the world of the participant (Bruce, 1994; Bowden, 1994; Sjöström, 1995).

The specific purpose of the interview is to identify variation in the participant's understanding of the phenomenon being examined. Therefore, the aim of the interview must be clearly linked to the aim of the research. The focus of the interview is not the participants or the phenomenon being studied. Rather, the focus is variations in how the phenomenon is experienced. The interviewer's role is to see the phenomenon as the participant sees it. Therefore, the interviewer must focus on how the phenomenon is seen, experienced and thought of by the participant.

Participants are asked to respond to a few essential questions and/or to undertake a task and/or solve a problem. Throughout the interview, there should be reflection-on experiences and discussion on how the phenomenon appears to the participant. The interviewer is therefore able to

notice analogies, explore confusing areas and elaborate meaning by asking the participant to explain further with focus questioning. Finally, the interviewer needs to stay alert to variation within and between interviews, so that focus questioning can occur (Bruce, 1994). The above points need to be considered as they affect the trustworthiness or validity of the interview. That is, whether the interviewer obtains data that are relevant to a phenomenographic study.

4.4.2 Approaches to the analysis

Walsh (1994) describes two different approaches to phenomenographic analysis of data: construction and discovery. A constructive approach to the analysis interprets the data from the researcher's perspective. This approach has the potential to impose a framework that is not necessarily supported by the data. Consequently, bias may occur resulting in categories of description that reflect the researcher's perspective rather than letting the participants' perspective emerge (Walsh, 1994). The discovery approach to analysis assumes that the categories will be determined from the data. The purpose of the analysis is to facilitate the progressive emergence of categories. A limit to discovery analysis is that particular transcripts may dominate the analysis resulting in the exclusion of data (Walsh, 1994).

4.4.3 Development of categories

The analysis of the data involves two phases (Marton, 1986; Dahlgren & Fallsberg, 1991; Sjöström, 1995). In phase one, statements significant to the phenomenon are identified. The meaning of the statements may be reflected in the comments, but is usually interpreted in relation to the overall context in which the comments were made.

In phase two, the selected significant statements form the data pool from which the categories are identified (Marton, 1986; Dahlgren & Fallsberg, 1991; Sjöström, 1995). At this stage, there is a shift from the individual

participants to their commonly shared perceptions of the phenomenon. The significant statements are brought together into categories based on similarity. The categories are then differentiated, each category being illustrated by quotations from the data. The process of analysis is ‘...tedious, time-consuming, labor-intensive, and interactive’ (Marton, 1986:43).

During the analysis, the focus is how the phenomenon is perceived and experienced by individual participants. The process of formulating categories involves looking for the distinctive characteristics that describe the relationship between the phenomenon and the individual. The descriptions of the categories are the primary outcome of the research (Dall’Alba, Walsh, Bowden, et al, 1989; Entwistle, 1997; Marton & Booth, 1997).

4.4.4 The outcome space

The categories identified are potentially part of a larger picture, where each category is connected to the other categories (Marton, 1986; Entwistle, 1997; Marton & Booth, 1997). The connections between the categories form the outcome space. The relationship between the categories describes the various ways of experiencing the phenomenon (Marton & Booth, 1997). The connections between the categories are important as they provide a framework in which categories can be understood. The framework is useful in understanding the perceptions (Marton, 1986).

4.4.5 Trustworthiness of phenomenographic research outcomes

The standard approach to validating research is determining internal and external validity (Talbot, 1995). Internal validity is achieved when the research findings can be shown to be the result of the effects of the variable being manipulated by the researcher. External validity exists when the research findings may be generalised (Talbot, 1995). The process of

validation was developed primarily within an experimental model of research where the focus is on determining cause and effect. Determining internal and external validity is an important aspect in determining cause and effect.

In interpretative research, the objective is to describe a phenomenon, not to measure cause and effect. That is, hypotheses are not tested, variation is not measured on quantitative dimensions and findings are not tested for significance. Therefore, the above validation approach is inappropriate in interpretative research. Validation in interpretative studies is a matter of judgement and justification (Mishler, 1990). Therefore, no formal or standardised rules exist or, indeed, may be determined. This is because determination of validation depends on linguistic practices, social norms and contexts, assumptions and traditions, which formal or standardised rules usually eliminate (Mishler, 1990). Though no specific standards for assessing validity in interpretative research exist, the need for researchers to validate research is not negated.

Mishler (1990:419) defines the process of validation in interpretative research as:

'...the process(es) through which we make claims and evaluate the "trustworthiness" of reported observations, interpretations, and generalisations.'

Validation depends on the extent to which the concepts, methods and inferences of a study or domain of inquiry can be relied on. Therefore, emphasis is placed on the working knowledge and experience of researchers and peer review. Consequently, the validation process is linked to what researchers did (Mishler, 1990).

The validation process in interpretative research involves determining the truth as it is seen and experienced by the participants and the researcher - trustworthiness (Kvale, 1989, 1995; Mishler, 1990). Trustworthiness can change because people exist within a constantly changing environment.

Consequently, trustworthiness or truth is never assessed in isolation but is made within the context of the general discussions of researchers and the wider community (Mishler, 1990; Kvale, 1995). Therefore, determining trustworthiness is an active process that can result in different outcomes at different times.

Previous research can act as an exemplar by providing examples of “good practice”. Such exemplars can then be used in determining trustworthiness of interpretative research (Mishler, 1990). The exemplars act as a template for determining trustworthiness. Hence, those involved in interpretative research need to be vigilant about indicating how the research was undertaken and what problems arose. Detailed descriptions of the research process help to explain the steps involved in the research making explicit the research process. The details help the reader to determine the trustworthiness of the outcomes and help to teach other researchers.

In phenomenography, no two people on examination of the original data will identify the same categories (Marton, 1986). The identification of the categories is a form of discovery and hence not necessarily replicable. Nevertheless, once the categories have been described, it should be possible for others to reach agreement, at some level, concerning the presence of the categories (Marton, 1986). Trustworthiness of the research is thus determined in relation to the description of categories. Furthermore, description of the research process provides an exemplar by which trustworthiness may be ascertained. That is, the steps the researcher undertook in data collection, data analysis and description of the categories are made explicit.

4.5 SUMMARY

In summary, phenomenography is a recent research tradition that aims to describe the various ways that people perceive a phenomenon and how perceptions influence subsequent actions. Various approaches are taken in

phenomenographic research, which reflect the different ways data are collected and for what purpose they are obtained.

Phenomenography and phenomenology share similar philosophical origins. Where the two approaches vary is in the focus of the research. Phenomenographic research focuses on individual variations in perception of a phenomenon; and how perceptions affect behaviour. In phenomenological research, the focus is on describing the ways that a phenomenon is experienced.

The primary data collection method in phenomenographic research is a semi-structured interview. The interviewer focuses on the interviewee's understanding of the phenomenon in order to identify variation in perception. Analysis of the data focuses on variations in perception in order to identify and describe categories of meaning. The final stage of the analysis requires the identification of the relationships between the categories. The trustworthiness or validity of the findings is determined by how the researcher makes explicit the processes involved in data analysis and the links between the identified categories and the data.

The following chapter describes in detail how the phenomenographic approach was applied in the study. The processes of data collection and analysis are described. The description includes the design, participants, data collection strategies, interview schedule, data analysis and the approach followed to ensure the trustworthiness of the findings.

Chapter V

Research process

The purpose of the following chapter is to describe the design of the study. In addition, the research activities undertaken during the study are explained. The discussion includes a description of the participants, the data collection methods and the interview schedule. Finally, the approach to data analysis is described and the steps taken to establish the trustworthiness of the analysis explained.

5.1 DESIGN

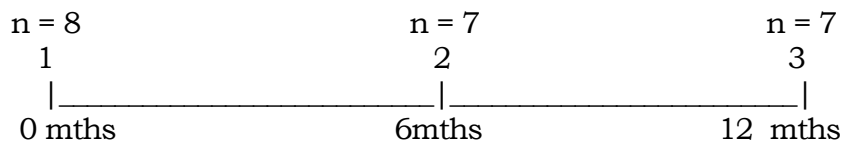
The objectives of the study, outlined in Chapter III, were:

1. to describe nurses' perceptions of clinical decision-making;
2. to describe changes in perceptions of clinical decision-making in the first two years of the nurses' practice;
3. to assess the use of phenomenography in studying clinical decision-making.

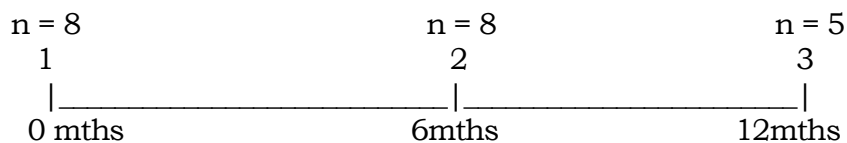
In order to achieve objective 1, a qualitative descriptive design was selected to facilitate descriptions of perceptions of clinical decision-making. Phenomenography aims to describe variations in perceptions of a phenomenon and how subsequent behaviour is affected (see discussion in Chapter IV). Further, the development of clinical decision-making behaviour has been related to experience (see discussion in Chapter II). Therefore, to achieve objective 2, a research design was needed that would enable the description of perceptions of clinical decision-making over time. A longitudinal design was selected in order to examine how perceptions change over time and to ensure a more trustworthy description of changes if the same participants were involved.

The original design anticipated that 17 nurses would be followed for a period of two years from the beginning of their practice. When nurses were approached to join the study, the most common reason given for not participating was the two-year commitment. Consequently, changes were made to the design. The changes required the inclusion of participants for one year only who were in either their first or second year of nursing practice. The design change still enabled perceptions to be observed over a two-year period (objective 2). The final study design involved 24 registered nurse participants who fell into one of three groups (see figure 2).

GROUP 1



GROUP 2



GROUP 3

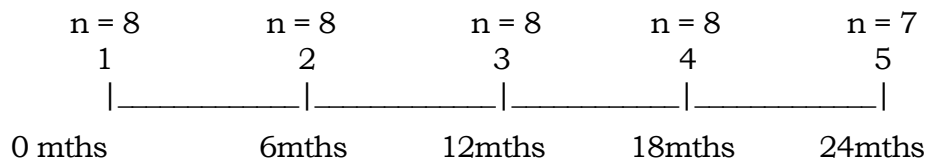


Figure 2: Two-Year Interview Schedule

Group 1 consisted of eight participants who were commencing their first year of practice and were to be interviewed three times. Group 2 consisted of eight participants who were commencing their second year of practice and were to be interviewed three times. Group 3 consisted of eight participants who were commencing their first year of practice and were to be interviewed five times. Multiple interviews were included in order to capture changes in perceptions

(objective 2). The design required that 88 interviews be undertaken over two years.

The definition of clinical decision-making employed in the study is broad, encompassing the five phases of the nursing process: assessment, diagnosis, planning, implementation and evaluation (see Chapter I, p.4). An approach to data collection was needed that would enable participants to provide data that reflected the five phases. It was felt that asking the participants to discuss how they perceived their clinical decision-making would not necessarily provide such a broad perspective. Therefore, the phenomenographic approach employed in the study was discursive (see Chapter IV), as the focus was on determining indirectly the participants' perceptions of clinical decision-making (Hasselgren & Beech, 1997). Focusing on determining indirectly the participants' perceptions of a phenomenon, by questioning them on a related issue, facilitated the inclusion of the context in which the nurses' clinical decision-making occurred.

5.2 PARTICIPANTS

The purpose of the following section is to describe the participants involved in the study. In addition, the methods employed to protect the participants' rights are described. Finally, the demographic questionnaire is presented.

5.2.1 Participant selection

The 24 participants involved in the study were commencing either the first or the second year of practice as registered nurses. On commencement of the study, the participants' ages ranged from 21 to 50 years. The mean age was 28 years. Twenty-three of the participants were female. All held Bachelor of Nursing degrees from university programs. The majority of the participants were in full-time employment. Participants were employed in a

variety of health institutions: teaching hospitals, nursing homes and community medical/surgical hospitals. Those working in teaching hospitals in the first year of practice had participated in graduate transition programs, which were between 6-12 months in length.

The participants were approached to join the study in the first month of either the first or the second year of practice. The nature of the study and the commitment required were discussed on first contact. Written consent to participate in the study was obtained. The consent form is shown in Appendix A).

5.2.2 Protection of participants' rights

Several methods were employed to ensure protection of the participants' rights to fair treatment, confidentiality, anonymity, privacy and protection from discomfort and harm. Participants were fully informed about the nature of the study before giving written consent. Participation was strictly voluntary, with freedom to withdraw from the study at any time. Confidentiality was maintained by ensuring that all audiocassette tapes from the interviews were erased following confirmation of the accuracy of the transcriptions. Both the transcribed data and demographic questionnaires were coded and the participants' names removed. The researcher had no connection with any of the participants employing institutions. The research proposal was approved by the Human Ethics Committee, University of Sydney. Ethics approval was not sought from any employing institutions as the interviews were undertaken in the nurses off duty time.

5.2.3 Demographic data

A demographic questionnaire was completed. The questionnaire is shown in Appendix B. The questionnaire elicited information about age, gender, nursing, and other work experience. Information obtained from the

demographic questionnaire is included in Appendix C.

Five participants withdrew during the course of the study. A participant from Group 1 dropped out following one interview, for no known reason. Three participants from Group 2 brought forward travel plans and were absent from the country at the end of the data collection year, and therefore only completed two interviews. From Group 3, one participant's fourth interview was delayed, due to personal commitments of the participant, and served as the final interview.

5.3 DATA COLLECTION METHODS

Three data collection strategies were employed. In this section, the data collection strategies are described.

5.3.1 Data collection strategies

Employing a single method of data collection may limit the external validity or authenticity of a study. Consequently, a single approach to data collection may not be enough to determine its appropriateness in describing or measuring a concept (Burns & Grove, 1997). The use of multiple data sources is called data-collection triangulation. The data-collection triangulation method involves collecting data over time from different persons in a variety of situations. The data must have the same foci (Talbot, 1995). The purpose of data-collection triangulation is to increase the validity or authenticity of the findings.

The benefit of using a variety of data collection methods has been demonstrated in both qualitative and ethnographic research (LeCompte & Preissle, 1993; Denzin & Lincoln, 1994). An eclectic approach is seen to assist in capturing the complexity and variety of human experience (LeCompte & Preissle, 1993; Denzin & Lincoln, 1994; Roberts & Taylor,

1998). Therefore, it was thought that a variety of methods would facilitate entering the clinical world or context in which a nurse functions. In addition, it was also thought that a variety of methods would help to make explicit the participants' perceptions of decision-making. Finally, it was anticipated that the inclusion of a variety of data collection strategies would minimise the apparent bias that can occur when only one approach is used; and so increase the validity or authenticity of the findings.

Benner (1984) indicated that the development of clinical knowledge is context specific. Therefore, movement to different clinical areas or wards will affect clinical knowledge and thus decision-making. As participants in this study were working in a variety of clinical areas and some participants would be moved to different clinical areas, all data collection strategies focused on the one clinical topic in order to provide consistency. The consistency was required in order to describe changes in perceptions of clinical decision-making, not to enable comparisons between the participants. Pain was selected as the focus of the data collection strategies as it is common to all areas of nursing practice and is therefore meaningful in all areas of practice.

Data collection involved from three to five semi-structured interviews, depending on which group the participant was in. At interview, all participants were asked to describe a patient they had recently nursed who was in pain.

At the first and last interviews, the participants were asked to define pain. Providing a definition of pain was included in order to describe how the participant's perception of pain had altered over the period of the study. In addition, a clinical scenario was included in order to describe how the participant's decision-making, in relation to the scenario, had changed over the period of the study. The researcher and a nurse academic developed

the clinical scenario for the study. The scenario is shown in Appendix D. The participants were presented with the scenario at the first and last interview and were asked to respond to three questions (see Appendix D).

Unfortunately, the clinical scenario and definition of pain provided little insight into perceptions of clinical decision-making. The limited findings from their analysis are not reported in the thesis. Possible reasons for their lack of usefulness to the objectives of the study are:

- As individual participants' responses changed little, the participants may have retained a memory of their previous responses, which would have affected determining changes in perceptions of clinical decision-making.
- The participants' responses to the clinical scenario reflected specific nursing actions, which provided little insight into how they perceived clinical decision-making.
- The definition of pain reflected "textbook" definitions of pain, which appeared to be learnt by rote.

In addition to the use of a clinical scenario, participants were asked to recall a patient in pain who they had recently nursed. Recalling a patient enabled the researcher to hear the participants' actual clinical decision-making experiences. The participants were asked to respond to the following statements:

- Describe for me a patient you have recently nursed who was in pain. Why does this patient stick in your mind?
- Explain your thoughts and actions, including the factors and incidences that influenced you in nursing this patient.
- Evaluate the management of this patient's pain including your own actions.
- Describe factors in your professional and personal life that you believe have influenced your professional development.

The above statements were developed in order to focus on the participant's individual experience and to encourage reflection. Individual experiences

and reflection were required, as perceptions are the result of experience and perceptions affect subsequent behaviour (Dahlgren & Fallsberg, 1991; Marton & Booth, 1997; Svensson, 1997). Participants were prompted if responses did not reflect the above statements. Further questioning occurred when it was necessary to investigate in more depth issues raised by the participant. This prompting enabled the researcher to explore specific aspects raised by the participant, an important feature of the phenomenographic interview (Bruce, 1994; Walsh, 1994).

At the second and subsequent interviews, participants were asked to reflect on how their clinical decision-making had changed since the previous interview. In addition, at the final interview participants were asked to reflect on changes to their clinical decision-making since commencing practice. An example of the interview schedule is included in Appendix D. The data collection strategies required the participants to verbalise responses. Henry, LeBreck and Holzemer (1989) have found that verbalisation of cognitive processes does not affect the responses given. As indicated in Chapter III, various data collection strategies have been employed in previous research studies investigating clinical decision-making behaviours of nurses.

It was explained to the participants that the focus of the interview discussion was not to determine the accuracy of responses. Participants were therefore reassured that there was no right or wrong answer and that no judgement was being made in relation to the accuracy of their responses. All interviews were recorded on an audiocassette tape and later transcribed.

5.4 INTERVIEW SCHEDULE

The literature provides no guidelines concerning the interval of time that should separate interviews, as no longitudinal research studies examining clinical decision-making appear to have been undertaken. An interval between data collection was required that was (a) long enough to identify changing perceptions of clinical decision-making, (b) was not an excessive commitment for the participant, and (c) would allow time for participants to forget earlier responses. The period set between each interview was five to six months (see figure 2).

5.5 DATA ANALYSIS

The following section describes the steps followed in analysing the demographic questionnaire and interview data. The description encompasses the steps involved in identifying the categories that describe perceptions of clinical decision-making over time and the outcome space.

5.5.1 Demographic data

The demographic data were not analysed. Age, gender and work experience were reviewed in order to facilitate description of the participants. Statistical analyses were not applied.

5.5.2 Approaches to the analysis of the data

The outcomes of phenomenographic research are categories that describe how persons perceive the phenomenon of interest. The identified categories are then differentiated and relationships identified (Marton, 1986). The researcher should have no preconceptions of what the descriptive categories will be. The descriptive categories emerge directly from the analysis (Marton, 1986; Dahlgren & Fallsberg, 1991; Walsh, 1994; Sjöström, 1995; Entwistle, 1997).

An approach to the analysis was required that would ensure that each participant's perceptions were considered. Note was taken of Walsh's (1994) discussion that identified two different approaches to phenomenographic analysis, construction and discovery. Though both approaches to phenomenographic analysis have strengths and limitations (see the discussion in Chapter IV), the discovery approach was selected for the analysis. It was felt that the discovery analysis approach would maximise the inclusion of individual perceptions.

5.5.3 Analysis of the interview data

The transcribed data were analysed using the method developed by Marton (1986). The seven steps outlined by Dahlgren and Fallsberg (1991:152), which evolved from that outlined by Marton (1986), were followed. The steps clearly specify the process and expand on that outlined by Marton (1986). The seven steps are:

Step 1: Familiarisation - requires the researcher to read the transcripts of interview in order to become familiar with the text. The step also enables corrections to be made to the transcription.

Step 2: Condensation - involves identifying significant statements in the transcript. The statements become that data to be analysed.

Step 3: Comparison - selected significant statements are compared and sources of variation or agreement are noted.

Step 4: Grouping - similar responses are grouped together.

Step 5: Articulating - an attempt is made to describe 'the essence of the similarity within each group of answers' (Dahlgren & Fallsberg, 1991:152).

Step 6: Labelling - categories are identified and named.

Step 7: Contrasting - categories are compared for similarities and differences.

The grouping and articulating steps may be undertaken a number of times in order to ensure the analyses are satisfactory. In order to minimise the

possibility of particular participant responses dominating the analysis, that is a limitation of the discovery analysis approach (Walsh, 1994), during steps 2, 3, and 4 a check was made to ensure that all transcripts were represented.

5.5.4 Development of the categories

The first part of the analysis involved identifying significant statements about clinical decision-making in the transcripts (steps 1 – 2). These statements are given in Appendix E. Significant statements were reflected in anything that related to assessing, diagnosing, planning, implementing and evaluating patient care (as reflected in the definition of clinical decision-making employed in the study). The statements were highlighted in the transcript, collated and grouped according to interview sequence. Similar statements were then grouped together, in order to determine the categories (steps 3 – 4). The process of grouping was undertaken a number of times.

The second part of the analysis involved determining the categories of meaning (steps 5 – 6). The significant statements were compared for similarities. The process was undertaken a number of times, in order to determine appropriate articulations (step 5) and labelling that reflected the content of each category (step 6). The categories were then differentiated, each category being illustrated by quotations. The categories are the primary outcome of the study. They reflect the distinctive characteristics of nurses' perceptions of clinical decision-making.

As the data were collected over a two-year period, it was also necessary that the data analysis incorporate change over time. Therefore, the final part of the analysis described perceptions of clinical decision-making at one-month and at six, twelve, eighteen and twenty-four months.

5.5.5 The outcome space

The next phase of the analysis involved comparisons of the categories (step 7). The categories were compared for similarities and differences. The comparisons resulted in the identification of the outcome space. In this study, the outcome space provided a graphic portrayal of the relationship between perceptions of clinical decision-making; and how the perceptions changed over the two years of data collection.

5.6 TRUSTWORTHINESS OF THE RESEARCH

The following section discusses the steps taken to ensure the trustworthiness of research.

The validation process as suggested by Mishler (1990:429) was applied to the analysis of data in the study (see discussion in Chapter IV). The process involved the researcher responding to the following:

- What are the warrants for my claims?
- Could other investigators make a reasonable judgment of their adequacy?
- Would other researchers be able to determine how my findings and interpretations were “produced”. Therefore, were the categories identified trustworthy enough to be relied upon?

An academic, experienced in undertaking phenomenographic research, was consulted in order to determine that appropriate approaches to research design, data collection and data analysis were undertaken during the study. Further, examples of phenomenographic research were studied to facilitate understanding of the process (Dahlgren & Fallsberg, 1991; Kumlin & Kroksmark, 1992; Sjöström, 1995). The studies were selected as they investigated perceptions of health workers. These activities aided the

validation process by serving as exemplars through which trustworthiness could be determined (Mishler, 1990). Finally, the categories and significant statements are available in Appendix E.

5.7 SUMMARY

This chapter described the research process undertaken in the study, including the participants, data collection methods, and interview schedule, data analysis steps and validation process of the analysed data. The discussion has provided a foundation on which to understand the context in which the analyses were undertaken. The following chapter presents the results of the analysis.

Chapter VI

Description of perceptions of Clinical decision-making

The following chapter presents the findings from the analysis of interviews undertaken during the first two years of the participants' practice. The purpose of the analysis was to describe perceptions based on what the participants referred to when asked to discuss a patient they had recently nursed who was in pain, with specific reference to their clinical decision-making.

The analysis indicated that the participants' perceptions of clinical decision-making in the first two years of nursing practice fell into four categories. The four categories are:

- The effect of the clinical environment on clinical decision-making.
- The role of other health professionals in clinical decision-making.
- The place of the patient in clinical decision-making.
- The role of experience in clinical decision-making.

The description includes the characteristics that distinguish each category. In addition, variations in perceptions over the two years are described. Changes in perceptions are described at five intervals: one, six, twelve, eighteen and twenty-four months. These intervals reflect the approximate time intervals between participant interviews.

The categories were identified following analysis of the significant statements identified in the interview transcripts (see Appendix F). The results describe the participants' various perceptions of clinical decision-making. The categories reflect the perceptions of many participants. Quotations from the interviews have been selected to illustrate the category. In addition, quotations have been selected in order to describe variation in perceptions of

clinical decision-making over the two years of data collection. The quotations selected are not exhaustive of the significant comments identified within the interview transcripts. The numbers at the end of each quote indicate, consecutively, the number assigned to the participant, the interview number and the page number in the transcript. For example, (8:2:13) refers to participant 8's second interview, on page 13 of the transcript. The participants are referred to as RNs in order to distinguish them from other nurses that may be referred to in the interview quotations.

6.1 CATEGORY 1: THE EFFECT OF THE CLINICAL ENVIRONMENT ON CLINICAL DECISION-MAKING

In this category, perceptions of factors in the clinical environment that influence clinical decision-making are described. The participants' responses revealed three factors: the volume of work, the capacity to make a difference, and awareness of the practices and policies of the clinical environment. Unfamiliarity with the clinical environment reduces confidence resulting in decision-making that is dependent on outside influences. As familiarity with the type of work increases and knowledge of policies and procedures develops, there is an increased ability to manage workloads. Consequently, autonomous decision-making starts to develop. With increased autonomy, some RNs begin to take a leadership role.

The responses indicate that the volume of work is perceived to affect clinical decision-making. The effects of the volume of work appear to be made worse by the pressure to complete nursing activities within restricted time-periods:

... it was just so fast and there was (sic) so many things happening and I, I like to have a grasp on everything. (1:1:15)

You've got a work load that you're trying your hardest to get through by handover at the end of the day. (7:2:7)

Large workloads can also result in extensive volumes of patient data that require interpretation:

There's so much to take in isn't there. All the patients to remember and everything that's going on. (16:2:10)

Consequently, there may be difficulty in comprehending what is happening to the patient.

The second factor, the capacity to make a difference in patient care, encompasses the patient's medical condition and the scope of nursing and medical knowledge to treat patients. The severity and complexity of the patient's medical condition may mean that there is a limit to the ability of nursing activities to achieve positive outcomes for the patient:

... and there was just nothing you could do. (6:1:6)

... but there was nothing you could do. Just sit there and talk to her. (15:1:4)

Under such circumstances, decision-making may seem futile, implying uncertainty in the capacity to have a positive impact on the patient's wellbeing:

... so all I could do was really make him as comfortable as I could the whole time. (13:3:5)

... and I found it very hard not being able to do anything for him. (1:1:8)

Awareness and understanding of the work context is the final factor in the clinical environment perceived as being important to clinical decision-making. For some RNs, understanding how the ward functions is important to decision-making:

Rather than just being task orientated, I'm getting more of an idea of how systems interact. (2:2:7)

... it's all experience based, I think, and just familiarity with the way things work. (14:2:10)

In addition, familiarity with hospital policies, ward organisation and priorities relevant to the ward context may affect decision-making:

I don't know if it's hospital policy or not. I don't know what the policy is. (9:3:1)

Large workloads, knowledge of the type of work and time constraints can result in a work environment characterised by tension. The tension affects decision-making, resulting in decisions that may limit the scope of nursing practice:

At that point, I can't do anything further for her because I've got another 40 residents to do the rounds with. (3:1:8)

... I haven't got time to do anything for them. (2:2:5)

I did not have the time to push the issue or to sit down with her [the patient], and try and talk her through [the pain]. (3:3:9)

Consequently, decision-making may not reflect the most appropriate approach to patient care:

I mean as nursing staff we were trying to push analgesia as much as possible, but you can only do so much. (18:1:6)

I was incredibly pressured with lots of things happening and I was taking, in a way, I was taking the easy way out. (2:2:2)

Further, large workloads may make it difficult to concentrate and focus on the patient's needs.

It was just very confusing and there was so much going on and it was really hard to sit, to concentrate and keep focused on what you were doing. Because there was so many things going on ... you just have to be so careful that you just keep focused on what you're doing. (1:3:11)

The perceived high levels of tensions in the clinical environment, can affect the ability to draw on the knowledge required in informed decision-making:

I've got all this emotional flap that has to go down before my knowledge comes up. (2:2:11)

Accordingly, there may be uncertainty that decisions are appropriate,

leading to further tension:

I always feel uneasy about doctors going on my say so when I'm busy and they're busy. (2:2:4)

In an endeavour to reduce uncertainty, decision-making may be based on established protocols and guidelines rather than the presenting clinical picture or knowledge of the patient:

So, my decision-making is affected that way because I feel like I'm forced into making those decisions. But they're not mine. (19:3:9)

This suggests that factors in the clinical environment, other than the RN, may shape clinical decision-making.

Large workloads appear to cause confusion, affecting the ability to think critically and reflect-on-practice. Consequently, the quality of nursing care may be questioned resulting in frustration that quality decision-making is not possible:

I mean I've walked away a couple of time and think, "I could have done that better" or "I could have approached that differently". But, because you are in such a hurry you don't have time to think or you just do it on automatic. (7:1:8)

I felt a bit powerless to do any more for her. (14:2:6)

These concerns may follow the RN outside the clinical environment:

So, what do I cut down on? Good nursing care and go home in a state of conflict whereas I didn't used to. (3:3:9)

The tensions associated with the clinical environment may affect the RN's behaviour towards patients. The RNs may be abrupt and show irritation:

I told the man that I was actually finding him very irritating. (2:3:4)

This can result in detachment from the patient in an act of self-protection:

Q: And you're not emotionally involved?

A: I am but I still have a mask. I'm not doing it with my heart, but I have a huge barrier that protects me and I had no idea how thick that barrier was. (2:3:3)

Detachment from the patient may cause emotional distress:

I put the nurse's face on, I think, "I've got nothing to give you, don't ask for any more you're asking for too much". (2:3:17)

The responses suggest that familiarity with the clinical environment promotes decision-making focused on priorities rather than less important issues:

Well I guess I'm prioritising better. I'm able to work out where things are more important in the eyes of the hospital. (16:2:22)

In addition, there may be less reliance on other health professionals resulting in increased independence:

... just knowing what's going on in the ward and knowing how to go about making a decision, how to instigate things without having to ask. (7:3:9)

Therefore, the effects of workload are tempered by familiarity with the work environment.

6.1.1 Variations in perceptions in the two years of practice

Perceptions of the importance of workloads, the capacity to make a difference and awareness of practices and policies would appear to be more significant in the first six months of practice. At this time, decision-making appears to lack of confidence:

I mean I've walked away a couple of times and think, "I could have done that better" or "I could have approached that differently". But because you are in such a hurry you don't have time to think or you just do it on automatic. (7:1:8)

Yeah, if I knew a bit more about everything I'd be able to handle it a lot better. (1:1:15)

This suggests that inexperience makes it difficult to cope with the tensions associated with the clinical environment.

Within six months, confidence apparently increases. Consequently, there appears to be less dependence on the guidance and direction of other nurses:

I don't have to go and ask someone what to do; I can go off and take the initiative. (7:2:12)

I find I'm making more decisions on my own and I feel more confident when I make decisions. (4:2:10)

Familiarity of the clinical environment appears to provide knowledge of ward protocols. This suggests that there is more certainty in the appropriateness of decision-making:

... we just follow the protocol. You're not making any decisions on your own. (16:2:23)

Thus, reliance on the input of other nurses may be transferred to a reliance on established protocols and guidelines to guide decision-making.

Though different clinical environments share common features, moves to other wards can affect the degree of familiarity. Ward rotations occur frequently throughout the first year of practice. Hence, familiarity with ward policy and ward organisation may be reduced:

It's just really hard being a new person in a unit [ward] ... to know the boundaries of what you can and can't do. (8:3:7)

It [the current ward] was so different from kids [ward] and outpatient [clinic] that I may as well have been brand new all over again ... which you are I think every time you change ward. (7:3:10)

The ability to contribute significantly to clinical decision-making may therefore decrease, until familiarity with the new nursing staff and the type of work and boundaries of practice within the next ward is acquired.

By the second year of practice, the RNs are apparently more comfortable with the clinical environment. The comfort is the result of a perceived ability to cope with workloads and the various needs of patients:

I mean it's a real buzz when you finally can go off, you go off and do things and they become like second nature to you. (7:3:9)

I don't run around in circles and I know I can depend on my own knowledge a lot more than I can from other people. (19:3:8)

Consequently, decision-making may be based on personal beliefs rather than protocols and policies, implying increased confidence:

I was more prepared to be the person that I am. (2:3:5)

So all I can do about that for myself is to try to be direct with other nurses and to try and be direct with patients. (2:3:10)

Though decision-making appears to be more independent after one year of nursing practice, decisions may be changed to meet the requirements of other staff:

So, my decision-making is affected that way, because I feel like I'm forced into making those decisions. But they're [the decisions] not mine. (16:3:9)

Eighteen months into practice, the performance of other colleagues and the management of the ward may be examined critically. Critique of the clinical environment suggests the need for control in order to develop nursing care that reflects personal standards:

I almost prefer to be in charge because there are so many people that actually haven't got much idea of what they are doing. I actually feel safer when I'm in charge. (2:4:14)

A: I'm in charge. That's good.

Q: Why's that good?

A: I think you have better control over the situation. It's nice to have a bit of control. (8:4:3)

Thus, half way into the second year of practice there is an apparent willingness by some RNs to take a leadership role.

6.1.2 Summary

The RNs perceived three factors that affect clinical decision-making. These were: the volume of work, encompassing the pressure to complete nursing activities within time-periods and extensive volume of patient data; the capacity to make a difference, characterised by the patient's medical condition and the extent of nursing and medical knowledge to treat

patients; and awareness of practices and policies. These factors are perceived to affect decision-making in a number of ways.

The tensions that can result from large workloads, a lack of knowledge of the type of work and pressures to complete work in set time-periods, suggest that decision-making may not always be appropriate. Further, some RNs perceived a difficulty in concentrating and focusing on patients. There may also be uncertainty in the capacity to make decisions that are pertinent to the patient's needs. Consequently, there may be reliance on outside guidance. The guidance may come from other nurses or from protocols and guidelines.

Perceptions of confidence in clinical decision-making apparently occur as the RN becomes familiar with the clinical environment. Increased confidence is evident after six months experience but may be affected by moves to other wards. With each move, the need to establish a relationship with the staff as well as familiarity with the type of work and ward policies becomes evident. As confidence increases, the large workloads and time restrictions affecting decision-making appear to be managed better. Consequently, there appears to be less dependence on the input of other nurses; though, a dependence on policies and guidelines when making decisions appears to remain.

The ability to analyse the functioning of the clinical environment is apparent in some RNs after eighteen months. Decisions of colleagues are reviewed, indicating the need to assume a leadership role. By the end of two years of practice, decision-making is characterised by its independence and autonomy.

6.2 CATEGORY 2: THE ROLE OF OTHER HEALTH

PROFESSIONALS IN CLINICAL DECISION-MAKING

In the following category, the participants' perceptions of the role of other health professionals in decision-making are described. Three factors are identified by the participants as describing the role of other health professionals in clinical decision-making: to provide approval, to minimise risk taking, and to provide comfort and support. Although nurses appear to be the foremost person to whom the RN refers, other members of the health care team may be consulted. Initially the RN appears dependent on the advice and guidance of others. Over time, the perceived dependence on other health professionals appears to decrease, suggesting less reliance on others. Therefore, involvement of other health professionals may reflect the RN's level of independent clinical decision-making.

Many RNs perceive the need to refer to other nurses for approval when making decisions:

Actually I always had somebody to consult with, the person who was in charge. (1:1:11)

I still call upon anyone [to] confirm in my mind that what I'm doing or what I'm saying or what I'm deciding is right. (8:2:13)

Consultation suggests that the RN is willing to make a decision, but lacks the confidence necessary for independent action. The need for approval may be the result of lack of clinical experience and patient contact reducing the RN's confidence:

Because I'm inexperienced, I use [other staff] as a resource to get more information about things. (21:1:5)

I make decisions on my own because I know a lot more now. I'm more confident in making decisions without having to run to someone else to say, "Do you think this is right or do you think this is wrong?" (8:5:10-11)

In addition to lack of confidence, the RN believes that she/he does not have

the authority to act independently:

I haven't got the authority to turn around and implement something outright and say, "Hey, what's been going on is not working, let's do it this way." (3:5:15)

Therefore, some RNs perceive lack of clinical experience and authority as affecting the ability to make decisions independently of others.

Involving other health professionals in decision-making is perceived to minimise the risks associated with decision-making. The presence of other staff may also reduce the amount of decision-making:

I still feel very much like a student because you, I mean you may not be mirroring someone and walking around behind them, but you're very much, you know, you're asking people continuously. (7:2:12)

You don't sort of have to make too many decisions at my stage [one half year's experience] because there's always someone above me who's making the bigger decisions of what's really happening. So, go along with the flow. (8:4:11)

Therefore, other health professionals appear to provide a safety net, providing reassurance that another nurse may take the ultimate responsibility:

I like to be left on my own to do my work and if I've got a problem, then I'll go and ask somebody. (15:2:2)

I try to think myself first and then, when I can't think of any other options I go and ask them [other nurses]. (12:3:15)

The RN perceives that advice from other health professionals may not reflect what she/he believes is acceptable. Therefore, there is an apparent recognition that not just anyone can be consulted:

If I don't know what I'm doing or don't know why I'm doing it, or why I should be doing it, I'll grab the person who I get along best with. The person who I think is going to know what I should do. (8:1:12)

A comfortable relationship is perceived to influence whose advice is sought:

But I'd ask it anyway because I felt really comfortable asking her, [which] has helped me to make my decisions. (20:1:7)

In addition, the type of relationship may influence how the advice of other staff shapes decision-making. Relationships based on collaborative principles may encourage the exploration of various approaches to nursing practice:

The nurse that I'm working with, who's the Nursing Unit Manager [charge nurse] is really supportive and always interested in what I've got to say in terms of my opinions on things and my questions. That's been a tremendous help because that's also been really encouraging to me to just keep going and keep learning. (23:4:5)

If the relationship is non-collaborative, the quality of decision-making, and hence patient care, can be affected:

It's becoming more a team effort [managing pain]. It has to be because, if it isn't, if one person says, "No, I'm not going to give that" [analgesia], then it all falls apart. (5:4:5)

Though other health professionals appear to play a significant part in directing decision-making, the directions may be questioned. Directions may be questioned if they are inconsistent or ambiguous:

I've found that's the hardest thing so far, the inconsistency [when speaking to others]. (21:1:6)

I'm much more assertive with the doctors when I think that somebody's pain [medication] hasn't been adequate. (17:5:7)

In addition, advice that is biased is perceived to affect the quality of clinical decision-making, suggesting that patient care is less than optimal:

Everyone's not meant to be subjective but everyone's being subjective, you know. I mean you know yourself; you start doing it [being subjective]. (7:1:4)

Some RNs appear to have difficulty questioning the decisions of other health professionals. This suggest that the RN lacks a voice in directing patient care:

And you can't, you can't go against that, you can't change it, you can't change the orders. I just; I find it disappointing to see this happening. (4:1:7)

I just sort of threw in suggestions. But I didn't really question her authority or her experience because she's not the type of nurse who appreciates that sort of thing. (11:5:6)

6.2.1 Variations in clinical decision-making behaviour in the two years of practice

When the RN commences practice, there is a marked perception that other health professionals need to be involved in decision-making:

I'm not great at making decisions for myself so I like to check with someone else. (22:1:6)

I thought I was doing OK but I thought I'd just check up with the others [nurses]... I pretty much check everything. (5:1:15)

In addition to nurses, other members of the health care team are perceived to play a role:

If not, call the intern, he'll tell me. (8:1:12)

I haven't needed to yet [call the pain management team], but I'd have no hesitation about calling them. (8:1:11)

Other health professionals appear to provide guidance and support to the RN's clinical decision-making. The need for guidance and direction suggests the RN needs to confirm thoughts and actions:

I thought I was doing OK about I thought I'll just check up with others. I pretty much check everything. (5:1:15)

Hence, early in practice there would appear to be little independent clinical decision-making due to the apparent dependence on the guidance of other health professionals.

The perceived importance of the other health professionals in decision-making, though strongest in the first six months, continues throughout the first year of practice:

I don't constantly have to get verification ... but if I'm unsure, I still check obviously but I do a lot more on my own. I just go ahead and do things. (18:2:11)

Just to get reassurance, I'll get someone to double check that with me, which doesn't need to be double-checked, but I feel happier doing that. (12:3:11)

This appears to reflect a continued lack of confidence in the ability to make decisions independently of others.

Between six and twelve months, the RN perceives the role of other health professionals to be less important. This may indicate that the RN is developing confidence. Consequently, the RN requires less guidance and direction:

I don't quite feel I need to reassure (sic) all my actions or justify everything I do. (20:2:14)

I've got a belief in what I'm doing but to get a second opinion just to make sure that I haven't overlooked anything. Other than that I implement it [a decision/action]. (3:2:11)

The decreasing reliance on other staff could indicate growing independence. Hence, the RN is more likely to engage in independent decision-making.

The RNs perceived confidence appears to facilitate the development of leadership in clinical decision-making. Leadership is apparent when clinical situations are complex, requiring the input of various persons:

I worked fairly closely with the RMO [resident medical officer] ... (21:2:7)

I feel as though they [the patients] are in pain; you try and do something about it or try and convince the doctor to do something about it. (5:2:3)

Thus, increased confidence in the ability to make decisions suggests a willingness to liaise with other staff in order to influence the direction of patient care:

But it would be nice to get everyone together and say "right, we've got a problem with her, what are we going to do" ... (8:2:5)

In addition to the willingness to take a leadership role, perceived confidence

may also promote assertive behaviour:

I think I just become a little more assertive. (4:2:6)

I think I'm questioning a lot more the rationale behind what's done as opposed to just doing it because it's the way I was shown and you know, not really understanding. (20:2:10)

Consequently, the ability to challenge the decisions and actions of other health professionals becomes evident, particularly when attempting to “do the right thing” by the patient:

I was a bit more hesitant about going above the intern level [on the first ward], but now I go and wake the Registrar up and say, “Come and look at him now!” (8:2:12)

I get the person [doctor] on call but I would go above them and I wouldn't have a problem with going above them if I didn't think that they were doing a thorough enough examination [of the patient]. (14:3:6)

This implies that decision-making is influenced by the needs of the patient rather than what other staff believe to be appropriate:

... to me if its prescribed, give it and if they're in pain increase it [medication dose]. It's up to us to keep them free from pain. (3:2:5)

I don't sort of ask. I just sort of say, “I'm going to give such and such”. (23:3:6)

Therefore, the perception that the RN can challenge other health professionals appears to develop as the patient is seen in a wider context, as a deeper understanding of the patient's health status is acquired, and a feeling of comfort with the clinical environment develops.

Nevertheless, the RN continues to perceive the need to verify decisions into the second year of practice:

Sometimes my decision-making, you know, I'm still double-checking with everything I do. (13:3:9)

I still ask, “Am I doing the right thing? ... Is this the right way to do it?” (12:3:6)

The continuing need to corroborate decision-making suggests continuing uncertainty in clinical decision-making. Considering rotation through unfamiliar wards is common during the first year of practice, it is not surprising that reliance on other health professionals continues.

Another consequence of increased confidence, is the RN's perception that she/he can contribute positively to decision-making:

I'm doing the right thing, making the right decisions. (7:3:10)
I have more clarity in the way I act according to the information I have in front of me. (14:3:18)

Such a perception can facilitate the questioning of planned health care strategies:

I had to fight for the Pethidine to be given. (1:3:7)
In the last year I wouldn't have known what to do, ... I wouldn't have been so strong. (1:3:8)

The ability to question practice decisions implies that the RN has found a voice within the health team:

I don't feel inadequate when I feel I have to ask somebody. (21:3:11)

When the guidance of other health professionals is required, it is perceived as a positive act rather than reflecting negatively on nursing ability.

Eighteen months into practice, the RN describes the importance of group consultations. For some RNs, this was important in situations that were complex, requiring the knowledge of various health disciplines:

As a nursing team, we all got together and discussed [the case]; we got to say what we thought would be best for him and we were well represented in that case. We were given the opportunity to speak and say what we thought. (13:4:11)

The desire to be involved in overall planning may indicate a need to have a voice and take-on a leadership role.

By the end of two years of practice, many RNs perceived that their personal clinical knowledge, rather than that of other health professionals, influenced

the direction of clinical decision-making:

I listen to my own inner voice ... on my shift I give them the care that I like to give ... (2:5:9)

I make decisions on my own because I know a lot more now. I'm more confident in making my own decisions without having to run to someone else to say, "Do you think this is right or do you think this is wrong?" (8:5:10-11)

This suggests that personal clinical knowledge would appear to develop from practical experience. Further, there is some indication that the needs of the patient, rather than other health professionals, may be viewed as an important guide to decision-making:

I kept standing there saying, "You can't tough her, wait for the local [anaesthetic] to work. Wait for this, just wait a minute": but of course, they [doctors] don't always listen. (8:5:5)

Though there is a perceived increase in confidence at the completion of two years of practice, there is an apparent degree of powerlessness when questioning the decisions of more experienced nurses:

I just sort of threw in suggestions, but I didn't really question her authority or her experience because she's not the type of nurse who appreciates that sort of thing. (11:5:6)

The powerlessness may only reflect the attitude of particular nurses rather than the RN's ability to question decision-making in general.

6.2.2 Summary

The participants perceived that other health professionals played an important role in clinical decision-making. Specifically, other health professionals provided approval and comfort and minimised the risks associated with decision-making.

The degree of involvement of other health professionals reflects the amount of independent decision-making. At the commencement of practice, there is a perceived reliance on other professional to provide guidance, direction and

alleviate anxiety. This dependence decreases as the first year of practice progresses. Factors that appear to impact positively on the RNs' confidence encompass familiarity with the clinical environment, experience, collegial relationships and the development of clinical knowledge. As the RNs perceive that their confidence is increasing, leadership and assertiveness are apparent, as well as the ability to question the decisions of others. Hence, the directions of other health professionals may not be blindly carried out.

By the second year of practice, the RN perceives that they can make a positive contribution to clinical decision-making. Consequently, the RN may recognise the ability to practise without direction and decision-making may be more independent. Nevertheless, the RN still perceives the need to consult other health professionals in decision-making about complex clinical situations.

6.3 CATEGORY 3: THE PLACE OF THE PATIENT IN CLINICAL DECISION-MAKING

The following category describes the participants' perceptions of the place of the patient in clinical decision-making. Knowledge of the patient is perceived as important from the commencement of practice. The knowledge provides an understanding of health and illness and facilitates meeting patient wishes.

Throughout the two years of practice, knowledge of the patient was perceived to be important to the process of clinical decision-making. Knowledge of the patient may include pre-admission behaviours as well as current responses to illness:

I think just knowing the man a little bit more. I think basically that's important. (5:1:13)

If I hadn't known her pre-operatively, I'd have just thought that was her natural state. (6:4:3)

Some RNs see that the relationship is extended to the patient's family, indicating the importance of the family to decision-making:

I was trying to connect-up with them [the patient and family]. (17:3:6)

In addition, knowledge of the patient over a twenty-four hour period is seen by some RNs to improve knowledge of patient characteristics:

Being on the evening shift and the night shift, doing evenings and nights, gave me a view. Then, [adding] the day shift was giving me a twenty-four hour picture of her [that 'patient's] management. (3:3:7)

Knowledge of the patient is perceived by many of the RNs to promote understanding of health and illness that is not necessarily provided by theoretical knowledge. Such knowledge may provide the RN with a practical understanding of human responses to illness and ways to approach decision-making:

You could come home, and read all about bowel cancer, and all about dying, and try and put the two together. But, when you actually get the patient there, I mean that, you know, that all goes by the wayside. (7:3:8)

Q: What's the main thing that influenced you?

A: To see what she came in like and her deterioration. I couldn't say knowing her personally but knowing her and meeting her family, observing her activities and what she could do for herself and what she wanted when she was first admitted, to her inability towards the end. (3:4:9)

This suggests that the direction of decision-making may be based on the assessment of patient cues. The approach enables the provision of nursing care that is individual to the patient's needs rather than what other nursing staff, ward protocols and theoretical knowledge implies is appropriate.

In addition, the relationship with the patient is perceived by many RNs to facilitate the acquisition of cues that reflect the patient's response to illness:

I really listen to what they're saying. Sometimes I get them to scale it [pain level] from one to ten, to see how severe it is. But, usually I know. I can – just from what they're telling me and what they've had. (17:4:6)

I'm thinking about what pain relief is best for them. I'll talk with them [that patient]. I'll involve the patient much more [now]. (16:4:6)

Such relationships may provide a deeper understanding of the patient's individual needs and response to illness. This suggests that knowledge of the patient's situation assists in providing a framework within which the clinical situation can be interpreted and on which decision-making can be based:

You've got to know your patients, you really do. You've got to know their little foibles. (5:3:6)

You've got to not sympathise but empathise with them and put yourself maybe in their position and try and understand more on [the patient's] level how they're thinking. (19:1:12)

The RN may then be able to appreciate the patient's responses to illness, facilitating individualised clinical decision-making.

Some see the relationship as being based on empathy with the patient's situation:

I think I have more empathy with families. When families are reacting I remember – I'm not living the moment again – but I remember how much I was affected by something that was much less fear than they're going through. So I think it's [personal experience of illness] actually increased my capacity to empathise. (2:4:4)

Sometimes I sit down and go "oh, wait a minute, suppose this was my child or my sister". You tend to forget. (13:4:16)

Empathy is seen to promote closeness, which may assist in establishing a relationship based on rapport:

... So with anybody I'm looking after I try and develop some sort of relationship with him (sic) and I find myself getting very involved with my patients. (15:1:7)

I know she trusts me. We've built up a good rapport. That's incredibly important to me and I know that she thinks that when I come in that I know what I'm doing, that she likes me and I haven't told her any lies. Whatever I've said has actually come to pass and we have a huge level of trust between us I think. (2:4:4)

Close relationships may therefore improve the extent that the patient's voice is part of decision-making. Patient care based on the patient's needs is seen to be a source of fulfilment for the RN.

The feelings generated from the relationship with the patient are seen, by a few RNs, to affect clinical decision-making. The closer the relationship the more likely the RN will want to formulate decisions that are appropriate to the patient's recovery:

We had rapport and that made me want to make things right for him. I was highly motivated to get it right for him. (2:1:9)

The greater the rapport the stronger the desire for decision-making to reflect the patient's wishes:

I think my priority is very much patients rather than staff. It has to be. (2:5:15)

This suggests that incorporating the patient's wishes may take priority over the needs of other staff members. Therefore, some RNs perceive that it is more important to meet the patient's wishes rather than the wishes of other nursing staff.

Finding the time to establish a relationship with the patient, however, may be problematic. For some RNs, the spread of working shifts over a twenty-four hour period and large workloads is seen to affect the establishment of the nurse-patient relationship:

When I've got spare time I spend it with the patients and talk to them. So I spent a lot of time there talking to him. (1:1:10)

I... looked after her for a period on night duty where I got to know her quite well because I had time to spend with her. (22:1:3)

In addition, the patient's length of admission is perceived to affect the closeness of the relationship:

... whereas this ward is long term nursing and I prefer that a lot more because you get to know the kids a lot more. (19:2:3)

The patients stay in for longer. I get a much better picture of where people are at. So, I've got a better ground to make a decision for them and that's what I wanted. (2:4:16)

Thus, the amount of time the RN can spend with the patient is seen to affect how deeply a patient is known as a person as well as understanding of the medical condition. This suggests that if appropriate time cannot be found, the patient as an individual is less likely to influence the RN's clinical decision-making behaviour.

Though rapport with the patient is perceived to be important when making decisions, there is an apparent concern of becoming too attached:

... but I think I can get too attached sometimes. (19:2:5)

Closeness to one patient might occur to the detriment of another:

I try to treat them [patients] all the same, but each one's sort of special, if you know what I mean. I try not to give them extra – well I do give some of them extra special treatment – what I try not to do is neglect the other children. (11:4:9)

Fear of the effects of close relationships with patients, however, did not appear to be a widely held perception of the participants in this study. This could be because other nurses may not place as much value on incorporating the patient's responses into clinical decision-making:

I mean people [other staff] go in and they're into the machinery and they're counting his respiratory rate, but they're not really talking to him and looking at him as a person or about him. (13:4:8)

So, I tend to listen to a patient more than the rest of the staff. (8:2:4)

Consequently, there may be pressure on RNs to base decision-making on established protocols rather than the patient's individual needs and wishes.

Some RNs see the patient's medical condition as affecting the relationship with the patient. If the patient is unable to communicate verbally, non-verbal cues are seen to provide useful data on the patient's health status:

See in ICU you never know if they're in pain or not because half the time they're unconscious ... it's a lot harder to assess whether they're in pain ... (8:3:2)

Therefore, body language or changes in the patient's personality may provide alternate cues of responses to illness:

I think if you know them, [children as patients] it's a lot easier. But if you don't, you've got to look at how they're [the patient's] reacting to the whole situations. (19:3:5)

I noticed the change in character because it made me think there was maybe something wrong. (24:3:4)

Consequently, the RN may need to depend on the knowledge she/he has of the patient in order to identify everyday variations in physical responses and behaviour:

Her observations didn't tell me she had a lot of pain but it seemed to be her nervousness at waiting for the pathology to come back, that's what I thought. Once she got the pathology [results], she didn't have any pain. (4:4:6)

And you could tell she was uncomfortable, but with her obsessiveness [about her looks] you couldn't sort of differentiate between (sic) whether she was really in pain or not in pain. (5:4:1)

Hence, knowing the patient is perceived to be an important aspect of the assessment on which decision-making is based.

It may not always be possible for the RN to incorporate the patient's wishes into decision-making:

I can remember feeling really bad because I was going against the patient's wishes. (2:5:3)

Some RNs perceive difficulties when there is no link between what the patient wishes and effective health outcomes:

So one day I said to [the baby's] mum, "Look, sometimes you have to be cruel to be kind". And we forced him to have his Codeine, his Panadol. And although that afternoon he still didn't have anything to eat or drink, mum said that he was not as irritable, he was not as restless as he had been previously. (12:5:5)

Furthermore, disagreements between nurses and the RN's possible need to distance her/his self from the patient is seen to influence the ability to meet the patient's wishes:

You can't argue with some of the other nurses because they say, "No, no he shouldn't have pain now". So perhaps it wasn't managed – it was managed for the norm and not individually. (4:5:4)

I see a lot of decisions that aren't being made for the benefit of the patient or, you know, just generally to protect yourself. (8:5:6)

Inability to meet the patient's wishes may result in disappointment: that the "right thing" has not been done for the patient:

In the end, it seemed like the right thing to do but it sticks in my mind because I hate doing things against the patient's wishes. (2:5:4)

Knowledge of the patient is perceived by a few RNs to be advantageous to the wider health care team. Nevertheless, the extent to which the knowledge influences other health professionals may be limited:

So it's really hard to be the third person who's actually got contact with the patients eight hours straight for the day to say, "No, I think maybe this and this should happen today". (8:3:5)

6.3.1 Variation in perceptions in the two years of practice

At the commencement of practice many RNs perceive the importance of developing a relationship with the patient in order to "do something" for them:

I think just knowing the man a little bit more. I think basically that's important. (5:1:13)

Knowledge of the patient is seen to assist in the understanding and appreciation of the patient's experience of illness:

I have a close relationship with her [the patient]. As a result, I thought she could call on me a lot more than what she could call on someone else and she felt comfortable with me. (19:2:4)

The understanding that develops may facilitate the RN incorporating the patients' needs into decision making.

By six months, knowledge of the patient is seen to assist the formulation of decisions that are based on caring principles:

Oh well, to be there at any time he wants. As soon as he calls out, to drop everything and go to him and, and give him a luxurious bed bath and rub cream into his feet and sit down and chat. And do extra things that you know other people may decide aren't worth it. (1:2:4)

There is little indication that the patient plays a significant part in directing the decisions made.

By the commencement of the second year of practice, the relationship with the patient is on a different level. The patient is perceived to have a direct role, influencing the focus and direction of decision-making:

I was trying to connect- up with them [the patient and relatives]. (17:3:6)

This suggests that the interaction between the RN and the patient is on a more personal level than that during the first year of practice. The relationship may assist the assessment of patient needs. The patient's personal characteristics and normal behaviours may be compared to the presenting clinical picture, subsequently influencing the direction of decision-making:

Q: What's the main thing that influenced you?

A: To see what she came in like and her deterioration. I wouldn't say knowing her personally but knowing her and meeting her family. Observing her activities and what she could do for herself and what she wanted when she was first admitted ... her in inability towards the end. (3:3:9)

You've got to know your patients, you really do. You've got to know their little foibles. (5:3:6)

The RN perceives that the longer time spent with the patient promotes a deeper understanding of the patient. The longer time is the result of the RN staying in one ward and patients being admitted for longer periods:

The patients stay in for longer. I get a much better picture of where people are at. So, I've got a better ground to make a decision for them and that's what I wanted. (2:3:16)

The deeper understanding and appreciation of the patient's situation that develops, may assist decision-making that promotes individualised care:

My own view I suppose, that I'm learning to do, is to try and approach each patient as an individual; as a person without a history according to their behaviour. (14:3:10)

Eighteen months into practice, the relationship is perceived to be based on empathy with the patient's experience of illness. The empathy may be based on the RN's personal and family experiences of illness:

Q: How do you think your mother dying influenced you?

A: To take more time and care for the people you do come across. I think if that was me I'd want someone to say, "This is what's happening, this is what might happen". (8:4:2)

I think I'm luck in that I have an insight into the type of problems and the low times that children from working class families have. So I bring that into it. (11:4:10)

Empathy facilitates involvement with the patient on a personal level.

The patient is also perceived to be someone who is consulted when making decisions. This is not evident in the responses of the participants, however, until half way into the second year of practice:

He [the patient] discusses very openly his disease and the fact that he's dying. I haven't experienced that with a patient, and to be able to experience that with someone that's so open about it has helped me in my nursing practice. (7:4:4)

She [the patient] likes me. I know she likes me; and if I sit with her, I can calm her down. I can calm her down better than any oxygen. I can get her to stop hyperventilating. I can do it. (2:4:3)

Consulting the patient appears to provide a deeper understanding of what is happening to the patient. In addition, it enables the nurse to involve the patient directly in care.

By the end of two years practice, the nurse-patient relationship may help the formulation of decisions that are based on the patient's wishes:

Now my thing for somebody's pain – if it's emotional pain or needing to be secure when they're dying, all this sort of thing – is to fit in with them as much as I can. And the mental health contingent [RNs] would say that I'm colluding with this patient and making them institutionalised. (2:5:5)

The importance of the patient's wishes may extend to the patient's family:

I was new to the area and I didn't really know about the Morphine [parents request that the baby not have morphine]. I did agree that the Panadol [analgesic] wasn't keeping the baby as pain free as possible. I thought possibly she could have started on Morphine but I did respect the parent's wishes to be involved. (24:5:8)

This suggests that decision-making is driven by the patient's individual needs rather than the RN's or ward or hospital protocols. If decision-making is not based on the patient's wishes, it may be a source of distress to the RN:

Sometimes it was very frustrating because you thought you were doing the right thing by her [the patient]. But in actual fact you were going against what she wanted. (5:5:6)

6.3.2 Summary

The patient is perceived to be central to clinical decision-making from the commencement of practice. The patient's influence may be indirect rather than direct. Aspects that the RN may see as important to decision-making encompass the patient's personal characteristics, pre-admission behaviours and current response to illness. Various factors may influence the depth of the relationship. Finding the time to spend with the patient, large workloads and the patient's admission length are perceived to impact on the extent of RN's knowledge of the patient.

The RN perceives that empathy for the patient's situation is important. Close relationships are seen to facilitate the evaluation of patient cues. This suggests that decision-making is focused on individual patient needs. Variation in nursing staff opinion, a desire to put safeguards in place and incongruence with effective outcome strategies, may affect the RN's ability to formulate decisions that meet the patient's wishes.

The RN perceives the patient to be important to clinical decision-making throughout the two years of practice. How the patient contributes, however, changes. Initially, the relationship is seen to help improve understanding of the patient's circumstances. Eventually, it may assist in incorporating the patient's wishes into decision-making.

6.4 CATEGORY 4: THE PLACE OF EXPERIENCE IN CLINICAL DECISION-MAKING

In this category, perceptions of the place of experience in decision-making are described. Three aspects are identified: personal experience of illness, extent of nursing experience, and variety of experience. Experience is perceived as important throughout the two years of practice. As the RNs gain more experience, they become more confident in the ability to make decisions.

Personal experience of illness and life in general, are perceived to help when making decisions. Experience of illness may assist the RN to appreciate the patient's experience, which is then incorporated into decision-making:

I think just from having that experience of being the patient yourself. It has made a great influence on the way I will react with my own patients now. (19:1:11)

Q: Anything in your personal life that you think influenced you at work?

A: I think, sort of, like living in the bush and doing that sort of thing.

Q: What do you mean by that?

A: Well, you had to sort of fend for yourself down there and you had to pull on all resources. I think that sort of comes across when you're dealing with people. (5:4:11)

In addition, educational experience is perceived by some RNs to be relevant to clinical decision-making. The theoretical knowledge gained may be from formal and informal education programs and the nursing literature:

I've been learning through the [counselling] course I've been doing and the readings I've been doing [that have] really played a big part in how I relate to them [the patients]. I think I'm getting different responses from a lot of them [other nurses] now than I was when I first started nursing in this area [psychiatry]. (23:4:4)

Education is seen by some participants to provide guidance. It may help to shape attitudes, which, in turn, influence decision-making approaches:

Q: What is it that leads you towards that decision, to do that sort of thing?

A: I think it's all because of how we were taught at university. It is something that pervaded through the whole course in terms of explaining things to people. (1:4:8)

What influenced me? I guess it was when I went to a palliative care course and a lot of the things that they spoke to us about would have influenced me. I felt I could speak to him more openly. (4:4:7)

Further, education may provide a base on which decision-making can be initiated:

Unless you are having experience what is the use of the knowledge and education? (23:5:9)

Eventually, the separation of theoretical knowledge and clinical knowledge appears to be blurred:

I can't really remember what I've done at university and what I've learnt on the job. (10:4:5)

Although the RN has had some exposure to clinical situations during undergraduate programs, the knowledge at the commencement of practice, may not always prove useful when making decisions:

But it's very different to what they teach. Like you're learning it all from a book but when you actually get out there the usual story. It's just so different. I mean, sitting there trying to teach a mum how to breast-feed. You just can't read it and learn it from a book (7:4:2)

Most RNs in this study perceive that direct clinical experience is a more valuable source of knowledge to inform decision-making. Thus, clinical experience may assist in understanding the illness experience:

I'm not aware of what can be done ... because I've had no experience in that sort of setting. I just don't have the knowledge that background. (15:1:6)

I know what needs to be done ... and that's only through experience that you gain things like that. (19:2:13)

This suggests that lack of exposure to various clinical situations restricts the RN's ability to engage fully in the process of clinical decision-making. The knowledge gained from practical experience is therefore seen as more valuable. When the RNs have had experience of various clinical situations, they may apply the knowledge gained to the decision-making process:

What I've learnt, patient's pain is very very real and I have to alleviate that somehow. (4:2:10)

... you can't reason with a toddler. I have learned that over and over again. (15:2:5)

Therefore, direct experience of clinical situations is perceived to have more impact on decision-making than educational experiences. This suggests that the knowledge developed from clinical experience provides a firm basis on which to understand patient needs:

Oh, I take back everything I take on board [when doing agency work]. I take [it] back to where I work [Monday to Friday] and I can always use something from what I've learned on a weekend. (4:4:10)

Just knowing how pain can be when you're getting things done. So I guess that influences me a lot. But mainly other reactions of other kids that I've had or friends outside; seeing other people in pain. (10:4:5)

Nevertheless, not all RNs see the value of employing knowledge from

previous clinical experiences. This implies that each patient encounter is seen as being unique requiring an individual response:

Q: Do you consciously think of previous situations?

A: No, because I think every situation's different. The resident [patient] is different. It's a different personality [and], it's a different relative that you're dealing with. It's entirely different every time. (5:3:15)

Clinical experience is perceived by many RNs to provide a clearer understanding of how patients respond to illness. The understanding may reflect both individual and general responses to illness. The responses of some participants indicate that understanding of patient responses to illness may facilitate evaluation of nursing and medical treatments:

I've found through nursing that with children, I've found that babies, coming out of theatre, react a whole different way to how an adult would coming out of pain. (19:2:1)

What I see as good pain relief for most people didn't work with her and that surprised me. (4:2:3)

The RN may therefore be developing a personal knowledge base. The personal knowledge base appears to reflect how a patient may be expected to respond to illness and treatment:

I've now seen similar cases and that sort of thing helps me make decisions based on my experience and based on my greater knowledge. (12:3:12)

Well I guess because I've had more experience in nursing. I've been able to make better judgments on things. (16:3:7)

This implies that the RN applies the personal knowledge base to subsequent decision-making.

In addition to clinical experience, variety of experience is seen as being a valuable contributor to decision-making. Some RNs perceive that the more variety of experience the more knowledge that is gained. Therefore, learning occurs with each patient encounter and experiences of different clinical situations:

But then I haven't got enough [experience] to compare yet. Maybe in twelve months when I've worked different places I can see. (4:1:10)

I mean all these things have been experience that I've learnt from. I mean they've [the experiences] taught me something. (4:2:14)

An important feature of the experience appears to be the development of knowledge. This knowledge may help to explain patient care:

I'm feeling like I'm not informed enough in the medical side of things; as to why she's been taken off certain drugs. (14:1:11)

But it's not in my knowledge at this state what, what better they could do or I could do that could help. (6:1:5)

Experience of various clinical environments is also seen to affect the RN's confidence levels. This suggests that the wider the experience, the greater the level of confidence:

But now I'm not scared of cardiac patients, where a lot of people are who haven't had that experience. (1:2:12)

In addition, experience of a variety of clinical environments is seen to increase the extent to which independent decision-making occurs:

I have an even better understanding of how the hospital works and how the medial system works and this sort of thing. I know at what stage I need to talk to the doctor about something or at what stage I need to speak to a parent about a development. (11:4:11)

Like it's not just all sort of patient nurse relationships. It's, you know, you've got to look at all the other different things - the safety aspects, the paperwork. (23:4:9)

Therefore, the variety as well as the amount of experience appears to be important for the development of confidence, which in turn promotes independence.

As the amount of experience increases, more responsibility may be assumed. The increased responsibility that may come with greater experience is perceived by the RN to help focus decision-making beyond the immediate clinical situation that the patient presents. This suggests that

the focus of decision-making becomes the patient's whole situation rather than the minutiae:

I think just the added responsibility has really opened me up to looking at everything that's going on rather than just the immediate sort of situation. I think I've now looked at it as a whole. (23:5:7)

This approach may facilitate the development of pictures or templates that inform decision-making. A template is a pattern of similar responses. The template may guide decision-making responses and build self-confidence:

I don't know, you put it all [various experiences] together and so you understand why that's happening because I learnt that on the wards. This is why I can make that decision without having to check with anyone else.

Q: You can see the whole picture.

A: Yes. (8:5:11)

The responses of the participants indicate that the templates developed from clinical experience may be the result of numerous patient encounters. The Templates could be shaped through a process of reflection, requiring critique of nursing performance:

I've got more experience. I've seen - I've made mistakes. I've looked and I thought, "Oh goodness, that didn't work very well" or I've lived through tricky situations. It's partly experience, partly living with a higher discomfort level sometimes. (2:5:16)

Q: Why do you think nurses have these intuitive experiences?

A: Because they're dealing with people. Because you're nursing. You can nurse the same baby for like every day for five or six days; you're not dealing with just that baby, you're dealing with the parents as well. It's that contact and it's quite intimate. You're dealing with the same thing everyday or you're ... different baby, but it's a similar scenario, so you've got that. (11:4:11)

The templates are seen to provide information on a range of illness responses. The understanding contained within the templates may become the knowledge base that guides decision-making:

Q: What factors or incidents have influenced you the most in your approach to nursing this woman?

A: Just previous work with residents [patients] that have had similar situations. (3:5:7)

The personal clinical knowledge based that develops through clinical experience is seen, by some RNs, to promote intuitive decision-making

... a lot of things become sort of intuition I guess. A lot of things you know. (20:3:3)

But I know. You know how, you know - because obviously you have these intuitions. (14:5:6)

The knowledge gained from numerous patient encounters may provide a template that guides decision-making:

I think people start to get a look. He's starting to get - his face is starting to go greyish and starting to be drawn down his cheeks. And I came in - I was away for a week - and I came back and I thought, "[name of patient] looks worse". I mean he is dying but it's - some people die slowly. (2:5:8)

This suggest that some RNs see clinical decision-making to be more accurate and focused on the patient's needs, when clinical knowledge is applied in this way:

I think it's [clinical decision-making] become more accurate.

Q: Why's that do you think?

A: I think it's because you're seeing the same sort of scenarios. You're getting to know what the different dementias are, and how they [the patients] cope with it. Then you have to sort of channel your sort of thinking along those lines, of what you can do best for that person or that resident [patient]. (5:5:10)

I was judging that this particular patient [patient with a mental health disorder] was experiencing pain based on the fact that people dying of cancer had the same diagnosis to her and they were experiencing pain. (23:3:6)

6.4.1 Variation in perceptions in the two years of practice

At the commencement of practice, the RN perceives that lack of experience of clinical situations affects knowledge levels. This can result in feelings of uncertainty:

I've got no idea. I've never been in this situation. (6:1:12)

Yeah, if I knew a bit more about everything I'd be able to handle it a lot better. (1:1:15)

Lack of experience of various patient responses can make it difficult to formulate decisions when the patient's situation varies from what might be considered normal. Therefore, many RNs at the commencement of practice could have difficulty interpreting what is happening to the patient:

... I got into a situation where I didn't know how to make a decision because half an hour before his four hourly medications he asked for PRN [as necessary] and I thought, "What do I do?" (2:1:8)

This suggests that decision-making at this stage of practice is more likely to be guided by previous experience than theoretical knowledge. Lack of experience leads to uncertainty and dependence on other health professionals.

During the first year of practice, the RN perceives that each ward experience and each patient encounter improves understanding of clinical responses to illness. This appears to reflect the RN's ability to synthesise data from various sources. Consequently, the RN may develop pictures of nursing situations:

I'm more able to look at signs and symptoms, things that are going on with the patients, and to make decisions of what it could be. (1:2:10)

You're starting to broaden your horizons and look at everything that's going on instead of just what you have to do. (21:2:5)

The change appears to occur with exposure to a variety of patient situations resulting in less uncertainty.

At the commencement of the second year of practice, some RNs perceive that the knowledge gained from previous patient encounters is essential to decision-making:

I try to make decisions faster than I did when I was first starting off because I have a little bit of experience. You've now seen similar cases and that sort of thing - helps me make decisions based on my experience and based on my greater knowledge. (12:3:12)

Further, knowledge from previous patient encounters may be applied to patients in different situations:

I [was] judging that this particular patient was experiencing pain, based on the fact that those people [dying of cancer] had the same diagnosis to her, other than the mental illness, and they were experiencing pain. (23:3:6)

This may result in decisions that are focused on appropriate nursing strategies:

I have more clarity in the way I act, according to the information I have in front of me. (14:3:18)

I'm doing the right thing, making the right decisions. (7:3:10)

This suggests that some RNs are able to recognise the minutiae of patient responses, both similar and dissimilar, increasing the application of the knowledge derived from previous clinical experiences.

After eighteen months experience, some RNs perceive that individual knowledge bases, which are developed from experience, inform decision-making:

I mean all these things have been experience that I've learnt from. I mean they've [the experiences] taught me something. (4:2:3)

I think I've still got a lot to learn and we always have a lot to learn, especially in the field where I am [mental health]. In any sort of a field really. And gradually over time I think I am still going to develop my confidence and ability to make those sort of decisions with further knowledge and experience and through the course [counselling] I am doing. (23:5:9)

Consequently, decision-making may be guided less frequently by institutional protocols and guidelines. Further, the RN may be more likely to make decisions independently:

Before I used to just do things because that's the way you did them. But now I know why I'm doing them; more so than what I knew before. I'm building up my own knowledge base. (10:3:12)

Though some RNs may experience less reliance on other health professionals, some continue to see other health professional as being important to decision-making:

I listen. I'm still learning, so I listen to everything they [nurses that are more senior] have to say. (8:4:7)

Utilising other nurses in this way, rather than as persons who direct decision-making, could indicate a willingness to act autonomously.

At the completion of two years practice, some RNs perceive that experience of various patient situations results in the ability to interpret the patient's situation within a wider context. Consequently, the RN may be able to anticipate how the patient may respond:

It's just a frame of thinking really.

Q: Can you explain that a bit more- frame of thinking?

A: I look at a situation and try and pick out the ... It's hard to explain. But if you think in a way that you're looking ahead and you're thinking, "Well, this and this and this could happen, or, "This and this and this could cause that to happen". Then you prepare yourself for such a thing. You're thinking in your mind, you're preparing yourself for what could happen. And then when it does happen, you're not blown away by it all and you're not caught by surprise, you just think, "Okay, well that's okay" and go on. (1:5:12)

Experience of various clinical situations is also seen by some RN's to promote logical thinking enabling decision-making to focus more directly on the patient's needs:

I'm thinking much more logically. I think I'm assessing patients better overall. I'm thinking more about why I'm doing what I'm doing. I think I'm getting into more of a system, thinking systematically rather than just doing things. (17:5:6)

I think I can move more straight to the centre of a problem than I could before. (12:5:16)

The improved focus may be the result of interpretation of clinical events within the context of the RN's personal clinical knowledge. The interpretation involves the use of clinical templates that reflect the sum of the RN's previous patient encounters:

I don't know you put it all [various experiences] together. And so you understand why that's happening because I learnt that on the wards. This is why I can make that decision without having to check with anyone else.

*Q: You can see the whole picture.
A: Yes. (8:5:11)*

This suggests that at the completion of two years experience, it may be the templates derived from clinical experience that guide decision-making. These clinical templates may be the form that personal clinical knowledge takes.

The development of a personal clinical knowledge base from experience of various clinical environments is seen by some RNs to involve a continuing process of reflection-on-practice, requiring analysis of the RN's and other nurses' practice:

Looking at other people's mistakes and then putting myself in their shoes and thinking, "Well, what would I have done?" Would I have made the same mistake had I been in that situation or would I have done something differently? (12:5:15)

You have to rethink everything. Each time you go on duty you go and have a look at them [the residents] and see what they're doing. And then you've got to reassess and think, "Oh well, I've got to handle you this way instead of that way". Which does make it quite challenging and quite tiring, emotionally draining. (5:5:10)

This suggests that reflecting on clinical practice is a continual process that is time consuming and emotionally draining.

6.4.2 Summary

Personal experiences of illness and nursing are perceived as being important to decision-making. At the commencement of practice, the RN may rely on personal and educational experience to direct decision-making. Within six to twelve months, the RN perceives that the knowledge developed through clinical experience affects clinical decision-making. Consequently, the RN may be able to understand more clearly the patient's needs and responses to illness.

Variety of clinical experience is also perceived as important. It is seen to increase knowledge: and knowledge helps to explain patient care and increase the RN's confidence. Increased confidence enables the RN to make decisions independently of other health professionals. Further, protocols and guidelines may be used less.

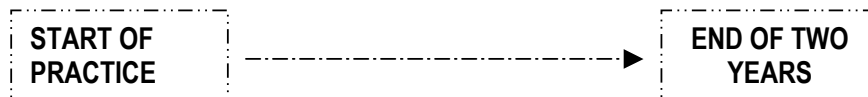
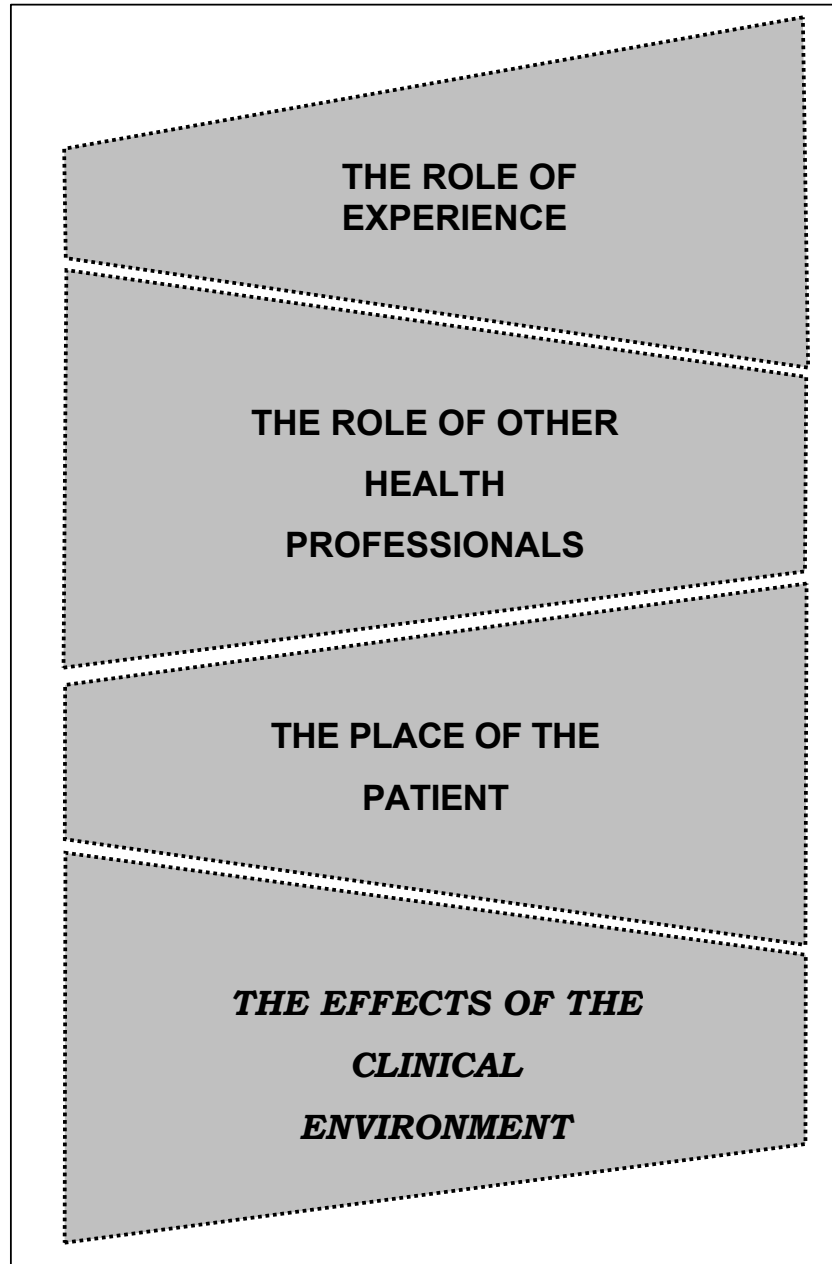
By the completion of two years experience, some RNs perceive that clinical experience is the source of a personal knowledge base. Exposure to a variety of clinical environments and experiences may promote the development of clinical knowledge. The clinical knowledge is perceived by some RNs to be in the form of templates that describe patient responses to illness. For example, each patient encounter may expose the RN to various illness responses including how the patient's responses were most effectively managed. When the RN looks after other patients with similar diagnoses or responses, she/he may look for similarity in response patterns. Similarities may then be used in making decisions regarding the most appropriate nursing response. This knowledge may subsequently assist the RN to view the patient within a wider context.

6.5 THE OUTCOME SPACE

In the following section the relationship between the four categories that describe perceptions of clinical decision-making in the first two years of nursing practice are discussed. The relationships between the categories form the outcome space (see discussion in Chapter 5). The outcome space is also presented graphically in order to illustrate changes in perceptions over the two years of practice (Figure 3). The graphic portrayal indicates that the importance of the various categories of perception vary over time. For example, the perceptions indicate that the role of experience and the place of the patient both increase over time; and that the role of other health professionals and the effects of the clinical environment decrease. The

categories are enclosed within an outer framework indicating that each category is affected by the other categories.

Figure 3: The Outcome Space



The place of the patient, the role of other staff and the effects of the clinical environment are influenced by the ability to use previous experience when making decisions. As experience increases, the patient is perceived as being more prominent in decision-making. Consequently, there may be less reliance on the input of other health professionals; and the RN may be in a better position to manage the demands of the clinical environment.

The role of other health professionals in decision-making is perceived in terms of a dependence/independence continuum. The less experience the more likely the RN is to rely on other staff to affirm or even direct decision-making. Nevertheless, the advice of other health professionals may be questioned. This suggests that though the RNs may have little confidence in their decision-making ability, they are able to recognise decision-making that may be inappropriate to how they perceive the patient's needs.

Gaining independence from other health professionals is perceived to require a work culture that fosters collegial relationships. The more other staff foster nurse-to-nurse rather than treating the RN as a student, the more efficacious the relationship. Pressures within the clinical environment are seen to affect the quality of collegial relationships. Further, larger workloads are seen to influence the relationship affecting how supportive the relationship is. Finally, the amount of time in the ward is perceived to affect relationships with other staff. The shorter the time in a clinical environment the less likely that other members of staff are seen to develop a close relationship with the RN. This could suggest that movement to too many wards might affect the RN's ability to make independent decisions.

Thus, experience is seen to provide the confidence to practise without the safety net that other health professionals provide. Consequently, the patient is more likely to be involved in decision-making. The patient is seen as important to decision-making from early in the RN's practice. The amount of

patient involvement appears to be related to the ability to use previous experience, familiarity with the clinical environment and the degree of independence from other health professionals.

Experience is perceived to provide knowledge of various patient situations. The knowledge may enable the recognition of patient response patterns. The patterns, reflecting the sum total of previous experience, may be a guide to decision-making. The patient's wishes appear to be incorporated, as familiarity of various response patterns is developed. This suggests that familiarity provides the confidence to tailor decisions to the patient without compromising medical and nursing care.

Involvement of the patient and other health professionals is seen as being affected by pressures in the clinical environment. The pressures identified by the participants include the volume of work and the amount of time the patient is admitted. Large workloads may decrease the time available to spend with patients. Further, when the patient is admitted for shorter periods, there may be less time to develop an in-depth knowledge of the patient. In such circumstances, the inexperienced RN appears to rely on other nursing staff. This implies that when RNs have little in-depth knowledge of the patient, they rely on other health professionals and standardised management plans.

The RN sees that experience provides an understanding of the clinical environment. Familiarity of the clinical environment is perceived to increase confidence and ensure that decision-making reflects institutional and medical policy. This suggests that lack of understanding of the work culture and routines and policies may affect decision-making.

6.6 Summary

The forgone chapter has presented the analysis of the data. The analysis

identified four categories that describe perceptions of clinical decision-making in relation to patients in pain, including changes in perceptions during the first two years of practice. The following chapter discusses the findings of that analysis. The limitations of the study are reviewed and recommendations for further research are proposed. Finally, the conclusions of the study are presented.

Chapter VII

Discussion

The participants' responses suggested that perceptions of clinical decision-making in relation to patients in pain in the first two years of practice could be placed into four categories. The categories were the effect of the clinical environment, the role of other health professionals, the place of the patient, and the role of experience.

Category 1, the effect of the clinical environment on clinical decision making, included perceptions of factors in the clinical environment that affected clinical decision-making in relation to patients in pain. The factors were the volume of work, the RNs' capacity to make a difference to the patients' nursing care and awareness of the practices and policies that govern the clinical environment. The effects of the clinical environment were seen by many of the RNs to be greater at the commencement of nursing practice. Later in the two-year period, many RNs perceived that they were more able to control factors in the clinical environment. Thus, familiarity with the clinical environment was seen as important and appeared to affect the confidence of many of the RNs: the greater the familiarity the greater the perceived confidence.

Perceptions of the role of other health professionals in clinical decision-making, in relation to patients in pain, were included in Category 2. Perceptions were that other health professionals provided approval, minimised risk taking and provided comfort and support. Many RNs perceived a greater dependence on other health professionals at the beginning of the two years. At the completion of two years practice, many RNs saw themselves as relying much less on the direction and guidance of other staff when making decisions. Thus, clinical decision-making

appeared to be characterised by a greater independence.

Perceptions of the role of patients in clinical decision-making in relation to patients in pain were included in Category 3. Patients were seen as important to clinical decision-making throughout the two years of practice. Working with patients was seen to provide many of the RNs with clinical knowledge concerning patient responses to illness. Initially the patient's place in decision-making appeared to be indirect, as the patients were perceived to improve the RNs' understanding of illness. By the end of the two years, many RNs saw the patient's place more directly in clinical decision-making. That is, patients' wishes were more likely to influence the direction and scope of the RNs' decision-making.

In Category 4, perceptions of the place of experience in clinical decision-making when patients are in pain were included. Most of the RNs perceived that the application of personal experiences of illness and nursing experiences contributed to clinical decision-making ability. At the commencement of practice, many RNs perceived that a lack of clinical experience affected clinical decision-making. Consequently, many RNs saw themselves as dependent on other health professionals. As the RNs gained more experience, most perceived that their clinical knowledge had expanded, which resulted in more independent decision-making. The clinical knowledge gained from experience was seen by some RNs to be affected by movement to different clinical environments.

The analysis indicated that the perceptions in the four categories were inter-related. For example, when nurses perceive that they have little or no practical experience and are unfamiliar with the clinical environment, they lack confidence and may be dependent on the guidance and support of other staff when making decisions. The patient's influence on decision-making at this time may be indirect. The indirect influence of the patient

suggests that the nurses may view the patient as a source of data regarding responses to illness rather than as an individual who requires various needs to be met. With increased experience, the nurse's familiarity with the clinical environment increases, as does clinical knowledge and confidence. Consequently, there may be a decreased dependence on other staff. In addition, the patient may more directly influence clinical decision-making as the RNs' abilities to balance patient wishes against effective health outcomes develops.

Two features were identified as being common across the categories of perceptions of clinical decision-making in the first two years of practice: confidence and independence. Furthermore, confidence and independence were affected by the RNs' construction and application of clinical knowledge. This chapter discusses the perceptions of clinical decision-making, described in Chapter 6, in relation to confidence and independence when making decisions. The discussion also encompasses the RNs' construction and application of clinical knowledge in relation to its effects on confidence, independence, and the subsequent effects on clinical decision-making. Therefore, the following discussion focuses on how the perceptions of clinical decision-making identified by the RNs impact on clinical decision-making behaviour. The limitations of the study and the implications for nursing are discussed and recommendations for further research are proposed. Finally, the conclusions of the study are presented.

The following two sections discuss the four categories of perception identified in the analysis in relation to the effect of confidence and movement along a dependence-independence continuum. The influence of the construction and application of clinical knowledge is discussed in both sections, as it is common to both confident and independent clinical decision-making behaviour.

7.1 CONFIDENCE AND CLINICAL DECISION-MAKING

The Macquarie Dictionary (1990) defines confidence, in part, as:

1. *full trust; belief in the trustworthiness or reliability of a person or thing.*
2. *self-reliance, assurance, or boldness.*
3. *presumption.*
4. *certitude or assured expectation.*

In the context of this study, confidence refers to the degree of trust and self-belief the nurse demonstrates in relation to clinical decision-making: the more confident the nurse, the greater the degree of self-reliance and assurance in clinical decision-making.

From the commencement of practice, most of the RNs perceived that they lacked confidence when making decisions. The degree of confidence apparently affected the RNs' ability to function as an autonomous decision-maker. Confidence in clinical decision-making may be influenced by a number of factors. The following section discusses confidence in relation to the four categories of perceptions of clinical decision-making identified in Chapter 6. The most influential factors affecting the RNs' confidence when making decisions are the degree of familiarity with the work environment and the amount of relevant clinical experience. Knowledge of the patient and collegial relationships, however, may also play an important part in clinical decision-making confidence.

7.1.1 Confidence and familiarity with the work environment

Some of the RNs in this study perceived that familiarity with the work environment entailed knowledge and understanding of the type of work, and of policies and procedures. Understanding of the type of work, medical diagnoses or disease processes, apparently assisted some RNs to interpret the severity of the patient's illness and may have affected the amount of data collected before decision-making. In addition, perceived lack of understanding of the type of work appeared to result in the RNs' dependence on the direction and guidance of other health professionals.

Knowledge of the patient's diagnosis has been identified in other studies as influencing clinical decision-making (Corcoran, 1986a; Henry, 1991; Murray, 1992; Hamers, Abu-Saad & Halfens, 1994; Edwards, 1994). For example, Murray (1992) and Hamers and associates' (1994) studies found that the more severe the medical diagnosis the more pain the patient was seen to experience; and the less likely that the patient's response was part of decision-making.

In addition to understanding the type of work, a general understanding of the clinical environment and the work of health care were seen by some of the RNs to affect clinical decision-making confidence. This finding supports the observations of Benner (1984) who noted that decision-making was affected when a nurse's clinical knowledge was not pertinent to the patient's needs. For example, a nurse who has been practising for eighteen months in one medical-surgical unit would experience relatively few problems if moved to a different medical-surgical unit. In this instance, the nurse would be familiar with the general principles of medical-surgical nursing and the policies and procedures of the institution. Furthermore, the nurse's clinical knowledge base to a certain extent would be transferable to the new medical-surgical unit. If the same nurse were moved to a psychiatric unit, however, more adjustments would be necessary. The nurse would have no clinical knowledge base on which to base interpretation of patient clinical responses.

Therefore, familiarity with the work environment may not necessarily be related to the amount of experience. The importance of other factors besides experience, such as the acuity of the patient's medical condition, has been identified by a number of researchers (Henry, 1991; Murray, 1992; Hamers et al, 1994). It is therefore possible that lack of relevant clinical knowledge, rather than lack of experience in general, will increase the RNs' dependence on other health professionals and policies and guidelines when making decisions.

Perceived unfamiliarity with the clinical environment, coupled with large workloads, appeared to result in dependence of some of the RNs on established protocols and guidelines. Protocols and guidelines are documents that describe how care is to be provided in specific situations (Alfaro-LeFevre, 1998). Dependence on protocols and guidelines appeared to be more apparent in the first few months of practice. Consequently, clinical decisions may not have been based on the patient's presenting clinical condition. Rather, decision-making may have been based on standardised medical/nursing management approaches, which may or may not have been appropriate to the patient's needs. Other studies have described how large workloads may result in pain management decisions that are not based on clinical data (Murray, 1992; Hamers et al, 1994). In such situations, it could be that RNs are dependent on protocols and guidelines or the medical diagnoses to direct decision-making, rather than the patients' clinical presentation.

Established protocols and guidelines are reported to play an important part in establishing quality assurance standards (Carnevali & Thomas, 1993). Though individualisation of standardised protocols and guidelines is possible (Iyer, Taptich & Bernocchi-Losey, 1995), extensive reliance on protocols and guidelines could influence the degree to which patient assessment data is taken into account in clinical decision-making. Knowledge of the patient's condition and individual needs could be affected and knowledge of variation in patient responses to illness reduced. Consequently, the patient's report of pain will be minimised or ignored resulting in a reduction in individualised planned care and inaccurate decisions as to the patient's pain levels.

The potential to inaccurately assess patient pain levels has been identified in a number of previous studies (Bondestam, Hovgren, Johansson, Jern, Herlitz

& Holmberg, 1987; Choinière et al, 1991; McKinley & Botti, 1991; Chuk, 1999). These studies report both over and underestimation of the patient's pain (Bondestam et al, 1987; Choinière et al, 1990; McKinley & Botti, 1991) and viewing pain within a physiological model (Coty, 1995; Chuk, 1999).

7.1.2 Confidence and clinical experience

Many of the RNs in this study perceived that clinical experience was important to clinical decision-making. Specifically, the longer and more extensive the clinical experience the greater the level of confidence demonstrated. In the first year of practice, many of the RNs moved to different wards at three to four month intervals as part of a graduate transition program. A graduate transition program is an extended work based orientation that last for 6 to 12 months. It may include educational support, in-service education sessions, and usually includes rotation through different clinical units. Though clinical rotations increased the variety of experiences, for some RNs it appeared to affect the degree of familiarity with the clinical environment. Consequently, the RNs' confidence appeared to decrease until she/he became familiar with the new ward.

The importance of experience to clinical decision-making has been reported in a number of studies (Benner, 1984; Corcoran, 1986a; Holden & Klinger, 1988; Choinière et al, 1990; Jacavone & Dostal, 1992; O'Neill, 1994). The effects of moving to different clinical contexts have also been identified previously (Benner, 1984). However, the effects have been explored in relation to the knowledge base of the nurse rather than the effects on overall confidence.

Experience has been described as affecting the development of the nurse's clinical world (Benner, Tanner & Chesla, 1992). The clinical world is seen to encompass a clinical knowledge base, which is expanded and refined as a nurse is exposed to a variety of clinical situations. Therefore, the more

experience, the more extensive the clinical knowledge base is likely to be. Previous experience of clinical situations has also been identified as having a positive effect on the ability to make decisions about patient pain levels as well as in the recognition of subtle physiological changes in the patient's condition (Choiniere et al, 1990; Jacavone & Dostal, 1992). Experience has also been identified as affecting confidence in decisions as well as the decision to administer pain relief (Hamers, Van der Hout, Halfens, Abu-Saad & Heijltjes, 1997).

Clinical knowledge is the in-depth understanding of nursing that develops through personal experience. Benner (1984) referred to this type of knowledge as domain knowledge. Domain knowledge develops in relation to particular areas of experience. It is highly individual, as no two nurses have the same experiences. Domain knowledge has been recognised in cognitive psychology and nursing as an important contributor to expert decision-making (Benner, 1984; Glaser & Chi, 1988; Smith, 1992; Cholowski & Chan, 1995).

The perceptions identified by the RNs in this study may indicate that personal clinical knowledge rather than theoretical knowledge was more likely to increase their clinical decision-making confidence. For example, some RNs perceived that the knowledge gained through direct experience of patient care was more informative than the knowledge gained through education programs. The knowledge gained from education programs was seen by some RNs to influence approaches to rather than the specifics of clinical decision-making. Thus, for the RNs, clinical knowledge appeared to provide understanding of patient responses to illness and guided the selection of appropriate nursing activities. Therefore, clinical experience appeared to extend the RNs' knowledge of patient responses to illness increasing confidence in the ability to provide nursing care that was appropriate to the patient's needs. This was more pronounced in the second year of practice,

when most of the participants were established in one clinical unit.

The use of personal clinical knowledge was apparent in some of the RNs after six months experience. This was evident when clinical decisions were seen by the RNs to be based on how previous patients reacted to illness. The RNs may have been able to recognise patterns in patient responses to illness. In some instances, the RNs indicated that they just knew, providing some indication of intuitive decision-making. The emergence of intuitive decision-making so early in practice is surprising.

Intuition has been defined as the ability to understand what is happening based on experience of similar and dissimilar situations (Benner, 1984). Numerous studies have examined intuition, linking it with expert decision-making (Benner, 1984; Rew, 1990; Corcoran-Perry & Bungert, 1992; Cioffi, 1997). The literature is unclear about the amount of time it takes to develop intuitive decision-making behaviours, however. As few studies have examined decision-making behaviours in novices and advanced beginners, an assumption appears to have emerged that it requires some years of experience to develop intuition. This study has shown that a few RNs perceived that decision-making was intuitive after 12 months experience. The recognition of the importance of domain-knowledge or clinical knowledge in assessing pain levels by other researchers (Choinière et al, 1990) may indicate that intuition plays a part in pain management decision-making.

7.1.3 Confidence and knowledge of the patient

This study supports the findings of others, that how well the patient is understood is seen to be affected by the amount of time spent with the patient (Horvath, Secatore & Reiley, 1990; Jenny & Logan, 1992; Tanner et al, 1993; Radwin, 1994). That is, the less time spent with the patient, the less opportunity there is to identify normal routines and habits, coping

strategies, physical capacities and endurance, and body language and characteristics. The time available to spend with patients was perceived by some of the RNs in this study to be affected by the size of workloads and the amount of time the nurse and patient were in a clinical unit. Time pressures have been identified as influencing pain assessment and management (Ferrell et al, 1991; Hamers et al, 1994; Willson, 2000).

The knowledge developed through patient contact was perceived by some RNs to increase clinical knowledge. Knowledge of the patient appeared to be based upon the RNs' understanding of various patient responses to illness; the larger the clinical knowledge base, the greater the RNs' abilities to recognise patterns in the patient's response to illness. Therefore, increased clinical knowledge was perceived to assist pattern recognition, which has been described as facilitating decision-making based on an understanding of the whole situation (Benner & Tanner, 1987; Fisher & Fonteyn, 1995). Consequently, some RNs in this study appeared more assured of the reliability, trustworthiness and pertinence of decision-making when it was based on knowledge of the patient. Knowledge of the patient has been identified as assisting to incorporate non-verbal signs of distress and restlessness in decision-making about pain (Ferrell et al, 1991; McKinley & Botti, 1991; Rheiner et al, 1998).

The establishment of a clinical knowledge base was evident in some of the RNs after six months experience and, in some cases, earlier. This was demonstrated by the RNs' abilities to reflect and call upon previous patient encounters when making decisions. Therefore, learning from previous experience was applied in other patient encounters. There is no apparent indication in the literature that personal clinical knowledge is applied to decision-making so early in a nurse's practice.

7.1.4 Confidence and other health professionals

The type of relationship established with other health professionals may contribute to the nurse's confidence. Other health professionals were seen by many RNs to provide guidance and direction when they felt uncertain as to what decisions were appropriate. This appeared to be necessary when the RNs had little or no relevant clinical knowledge. In this study, apparent increases in the RNs' confidence appeared to be associated with less dependence on the guidance and direction of other staff.

In addition, some RNs saw that supportive collaborative relationships fostered confident decision-making. The positive benefits of supportive collaborative relationships in the exploration and development of clinical knowledge have been described in other studies (Orme & Maggs, 1993; Bucknall & Thomas, 1997). Furthermore, the co-operation of physicians has been identified as important to collaborative relationships (Ferrell, et al, 1991). Physician co-operation was reflected in knowledge levels and a willingness to be involved in decision-making, resulting in a willingness to prescribe treatments.

Many of the participants in this study appeared to establish confidence early in their clinical practice. For some RNs, each move to another clinical unit meant that it was necessary to establish new staff relationships. As it requires time to establish relationships with colleagues, and adjust to and become familiar with the new unit, each move required the RN to establish new collegial relationships. Consequently, some of the RNs perceived that they experienced periods of decreased confidence each time that they moved to another clinical unit. This increased their dependence on other health professionals when they were called upon to engage in decision-making.

7.2. INDEPENDENCE AND CLINICAL DECISION-MAKING

Independence is defined as not being influenced by the thoughts and actions of others (Macquarie Dictionary, 1990). In this study, the RNs' level

of independence was found to reflect the degree to which clinical decision-making was influenced by the thoughts and actions of other health professionals. Independence can be explained in terms of a continuum. Where the RNs in this study were on the continuum reflected the amount of their clinical experience and the extent of their clinical knowledge. Therefore, factors that impinged on clinical experience affected the degree of independent clinical decision-making.

In the following section, the factors perceived to affect independent clinical decision-making in this study are discussed. These are the workload, the fast pace of the clinical environment, and the amount and variety of clinical experience. In association with the place of the RNs on the independence continuum was the need for approval of clinical decision-making. There is no indication that the relationship between independence and clinical decision-making has been explored in qualified nurses. One study was found that examined the relationship between locus of control and decision-making in nursing students. The study found that locus of control may be an important factor in the degree of independence exercised in decision-making of nursing students (Neaves, 1989)

7.2.1 Independence and workload and the pace of change

Both the size of workloads and the pace at which tasks were required to be undertaken were perceived to intrude on clinical decision-making. Both factors appeared to interact, as large workloads reduced the amount of time that the RN had available for the patient. In this study, large workloads were perceived by some RNs to affect the ability to comprehend clinical information. The impact of workloads and lack of health resources on clinical decision-making has been identified in other studies (Thompson & Sutton, 1985; Hamers et al, 1994; Bucknall & Thomas, 1997). These authors indicated that the greater the workload the larger the amount of data requiring interpretation.

A perceived difficulty in comprehending clinical data was more pronounced at the commencement of the RNs' practice. There was an apparent reliance on direction from or the approval of other health professionals when making decisions. Consequently, when some of the RNs experienced difficulty managing their allocated workload, there was a perceived dependence on the advice and guidance of other health professionals.

In addition, the pressure to complete assigned work was perceived by some RNs to affect data comprehension. A consequence of increased pressure was that less time was seen to be available to contemplate the meaning of data, making it difficult for these RNs to determine what was happening. Studies examining the effect of resources on rapid decision-making have found that time constraints are more likely to influence the choice of decision, rather than research results or previous experience (Thompson & Sutton, 1985; Bucknall & Thomas, 1997; Willson, 2000). For example, the pressure to complete work within limited time-periods has been found to influence whether opioids are selected rather than other analgesia, due to the work load involved in administering narcotic analgesics (Willson, 2000).

Reflection-on-practice and critical reflective thought have been identified as contributing to the development of domain knowledge or clinical knowledge (Benner, 1984; Woolly, 1990; Taylor, 2000). Thus, large workloads and time pressures appear to make it difficult for the nurse to engage with and learn from an experience at a deep level. Such an approach to learning is described as a surface rather than a deep approach to learning. In a surface approach, an individual does not go beyond the experience; there is no attempt to make sense of or assign meaning to the experience (Biggs, 1988, 1989; Webb, 1997).

Independent clinical decision-making was apparent when the RNs appeared more confident in the ability to manage the workload and time constraints. This was evident in some RNs as clinical experience increased; they became more familiar with the clinical environment and their confidence appeared to increase. Hence, the occasions when the guidance of more experienced nurses was needed apparently decreased. In this study, many RNs demonstrated that they were making decisions independently of other health professionals by the second year of practice.

7.2.2 Independence and the amount and variety of experience

For many of the participants in this study, the amount and variety of experience appeared to be crucial to the development of independent decision-making. As the nurse gained more experience, independence in clinical decision-making was more evident. An important aspect of experience was seen to be exposure to a variety of clinical situations. The variety may have fostered the development of a (personal) clinical knowledge base, which then expanded the RNs' existing knowledge of nursing. The benefits of clinical knowledge to nursing practice have been identified in a number of studies (Benner, 1984; Brykczynski, 1989; Choinière et al, 1990; Orme & Maggs, 1993).

All the RNs interviewed in this study perceived that clinical experience was essential to the development of clinical knowledge. Lack of clinical experience was seen to hinder independent clinical decision-making. Direct experience of clinical situations was perceived by many RNs to be important as it could assist in understanding the patient's response to illness. Understanding patient responses appeared to be an important aspect of clinical knowledge. This suggests that lack of clinical experience may affect the extent of the RNs clinical knowledge base; and subsequent dependence on other health professionals.

The benefits of experience were apparently eroded for many of the RNs when they moved to another clinical unit. This was particularly apparent during the first year of practice. The move to another unit often required the RN to establish a (new) clinical knowledge base that was pertinent to the new specialty area. This finding is supported by Hamers and associates (1994) who determined that nurses used past experiences to determine what to do in present and future situations when caring for children in pain. The extent of learning required by the RNs in this study appeared to depend on the variation in the type of work between the clinical units. A consequence for some RNs was an increased dependence on other health professionals until they were able to establish a pertinent clinical knowledge base. Thus, moves to different clinical units appeared to erode the RNs' developing independence.

As the first year of nursing practice progressed, the effects of moves to other clinical units appeared to be decreased. This may be because the RNs' growing clinical knowledge base contained core principles: that is, the RN never went completely back to the beginning. The development of core clinical knowledge has been noted by others (Benner, 1984; Choinière et al, 1990). By the second year of practice, the ability to interpret clinical experiences and incorporate them into a clinical knowledge base was indicated by many RNs in this study.

Experience was perceived by many RNs to provide a clearer understanding of patient responses to illness. Thus, patient encounters appeared to facilitate the RNs' understanding of individual and general responses to illness. Consequently, the RNs apparently perceived that their clinical knowledge base was extended by the inclusion of clinical data from previous patient encounters. The clinical knowledge appeared to facilitate the evaluation of patient responses to treatment, increasing the RNs' confidence in clinical decision-making. Thus, experience of various patient situations

enabled many of the RNs to extend their clinical knowledge base, decreasing their dependence on other health professionals.

A few RNs by the end of two years perceived that their clinical knowledge enabled them to compare the patient response to illness with how previous patients had responded. This suggests that clinical knowledge was organised into clinical pictures consisting of patient responses to illness, which were then applied to decision-making. The clinical pictures employed by some of the RNs in this study appear to be similar to schemata. Schemata are abstract mental representations formed through experience. They consist of an organised body of knowledge with a structure that is meaningful (Howard, 1987). The more experience the more detailed the schemata. Schemata have been identified as an important component of expert decision-making of nurses (Corcoran-Perry & Bungert, 1992; Cholowski & Chan, 1995) and physicians (Norman, Brooks, Allan & Rosenthal, 1990; Papa, Shores & Meyer, 1990). Studies refer to illness scripts, which reflect disease processes and outcomes (Schmidt, Norman & Boshuizer, 1990), prototypes (Papa et al, 1990) and structured networks (Cholowski & Chan, 1995).

Schemata facilitate pattern recognition (Glaser & Chi, 1988). In this study, the schemata appeared to enable quicker recognition of patterns in the patient's clinical presentation. The schemata may therefore have acted as templates when making decisions. The patient was apparently compared to other patients. This suggests that the RNs looked for patterns in how the patient presented in comparison to the schemata, which comprised their clinical knowledge. Consequently, these RNs saw decision-making as being more independent with less need to call upon other health professionals. In addition, clinical decision-making was perceived to be more accurate as well as independent. Pattern recognition has been identified in physicians as being a significant and primary predictor of diagnostic accuracy (Papa et al,

1990; Papa & Elieson, 1993).

Pattern recognition has been identified and described as characteristic of expert decision-making in both nurses (Benner & Tanner, 1987; Corcoran-Perry & Bungert, 1992; Fischer & Fonteyn, 1995) and physicians (Papa et al, 1990; Papa & Elieson, 1993). Previous research provides no clear indication that pattern recognition occurs so early in nursing practice. As most nursing studies usually explore decision-making in nurses who have at least four years experience (experts), it is not surprising that pattern recognition has not been described as a feature of decision-making early in practice.

As discussed previously, pattern recognition is aided by experience of patients in similar and dissimilar situations. The schemata employed in nursing decision-making appear to reflect knowledge and understanding of variation in patient responses to illness. Responses include strategies to manage illness, physical capabilities and endurance. Schemata in nursing may also mirror human responses to illness, rather than disease processes. Therefore, nursing schemata could mimic the concept of nursing diagnosis, a statement describing human response to illness (Alfaro-LeFevre, 1998). The perceived use of clinical pictures, in the form of schemata, by the participants in this study lends support to the relevancy of nursing diagnoses.

7.2.3 Independence and knowledge of the patient

Throughout the two years of practice, patients were perceived to influence the direction of decision-making. The extent of the influence appeared to reflect the RNs' levels of independence when making decisions. The apparent growing independence of the RNs appeared to change the patient's influence. Early in practice, the patient was seen as a source of data: the data subsequently assisting the RNs to understand how patients respond

when ill. Therefore, early in practice the patient's influence appeared to be indirect. As the RNs' confidence increased and they were less dependent on other health professionals, they appeared to collaborate with the patient. Therefore, the patient's influence became more direct.

By the second year of practice, patients appeared to be more directly involved in decision-making. That is, patients appeared to have an influence on the direction of decision-making. Consequently, some RNs perceived that they were influenced more by patients' wishes. A number of studies have reported on the role of patients in clinical decision-making. For example, the patient's report of pain is considered an important factor in pain assessment and decision-making (McKinley & Botti, 1991; Murray, 1992; Caty, 1995; Rheiner et al, 1998). It is possible that the RNs' previous dependence on other health professionals had been transferred to the patient. The transfer of dependence may reflect the recognition by the RNs of the important contribution of the patient to the development of clinical knowledge and the understanding of the illness experience noted by others (Jenny & Logan, 1992; Tanner, et al 1993; Lamb & Stempel, 1994; Radwin, 1996).

7.2.4 Independence and other health professionals

From the commencement of practice, most RNs in this study perceived other health professionals to be important to clinical decision-making. As indicated in the above discussion, many of the RNs appeared to be highly dependent on other health professionals particularly at the commencement of nursing practice. Other nurses were reported to be the main source of advice, providing an apparent safety net. Dependence of RNs on other health professionals early in practice has not been clearly identified in previous research. The role of other health professionals has focused on autonomy and disagreement with other staff (Bucknall & Thomas, 1997) and the importance of a supportive environment (Orme & Maggs, 1993). In

addition, time pressures have been identified as affecting the time available to consult with other staff (Willson, 2000).

The RNs' apparent dependence on other nurses and members of the health care team appeared to decrease as their clinical knowledge and confidence increased. Between six and twelve months, some of the RNs' perceived that their dependence on other staff appeared to decrease. These RNs appeared to be more willing to make decisions independently of others. Increased independence appeared to be evident when the RNs were prepared to take a leadership role and to challenge the decisions and actions of other staff. Therefore, it appears that as dependence on other staff decreased, assertive clinical decision-making behaviours became evident.

The ability to challenge others may have been the result of the RNs' deeper understanding of clinical situations, and the feeling of being more comfortable with and confident in, their ability to contribute to the patient's health management. Therefore, independence from other health professionals when making decisions may have facilitated RNs gaining a voice within the health care team.

7.3 LIMITATIONS OF THE STUDY

Review of the research design and processes suggest three possible limitations to the results of the study. Firstly, the representativeness of the study sample may be questioned. Secondly, the interview process may have affected subsequent nursing practice and interview behaviour. Thirdly, the interviews focused on only one aspect of clinical decision-making: the patient in pain. Finally, the analysis did not determine the accuracy or effectiveness of the decision-making. The identified limitations affect the transferability of the research findings to other areas of decision-making and different nursing contexts. Transferability is the degree to

which the findings of qualitative research may be transferred to other settings and groups (Polit & Hungler, 1999).

The first limitation of the study is how representative the participants were of nurses in the first two years of practice. Participants in this study agreed to a minimum of three interviews at six-month intervals, eight of the participants to five interviews over a two-year period. This substantial commitment may indicate that the participants were non-typical nurses in the first two years of practice. For example, the participants in this study may have been more introspective and therefore more reflective in relation to their nursing practice than other nurses may be. Representativeness is not usually a consideration in qualitative research (Polit & Hungler, 1999). Nevertheless, it is important to consider that nurses who were unwilling to make such a time commitment may have perceived clinical decision-making differently from the participants in this study.

The second limitation is the reflective nature of the research interviews. Reflection is a feature of phenomenographic research, as it assists in determining how the phenomenon under investigation is perceived by the participant (Bruce, 1994). The reflection at interview may have encouraged the participants to reflect on their nursing practice more than nurses usually would. This may have influenced subsequent behaviour. Reflection-on-practice has been described as valuable as it helps nurses to 'track their way systematically through practice issues to arrive at new insights and the potential for improvement and change' (Taylor, 2000:111). The level of reflection of the participants in this study may not have been typical of nurses in the first two years of practice.

Benner (1984) has noted that nursing skills and abilities develop within specific practice contexts and may not always be transferable to different practice settings. The participants' responses at interview were in relation to

patients who were identified as being in pain, a specific area of decision-making. Therefore, perceptions of clinical decision-making in general and within other context specific areas of nursing practice may be different. The perceptions described in this study should therefore only be considered in the context of decision-making in situations where patients are in pain.

Finally, the analysis in the study did not determine the accuracy or effectiveness of clinical decisions. The decision-making of the RNs may have been inaccurate or incorrect. Consequently, the findings provide no indication as to how safe the practice of the RNs was in this study. Therefore, the transferability of the findings is limited to perceptions of clinical decision-making and does not say anything about the quality and effectiveness of the clinical decision-making of nurses during the first two years of practice.

7.4 IMPLICATIONS FOR NURSING

The findings from this study suggest a number of implications for both nursing practice and nursing education.

7.4.1 Nursing practice

A number of the RNs in this study perceived collegial relationships to be important to decision-making. Furthermore, moves to different clinical units were seen to affect collegial relationships; staff may not have been prepared to spend time on developing relationships with new graduates when they were likely to move after two to three months. In addition, some RNs in this study perceived difficulty in comprehending and assimilating clinical information when working in clinical environments with which they were unfamiliar. Thus, many of the RNs in the first year perceived that they were dependent on the support and guidance of other health professionals when making decisions. In addition, some RNs in this study perceived difficulty in comprehending and assimilating clinical information when working in clinical

environments with which they were unfamiliar. Comprehension and assimilation of clinical data were seen by some RNs to improve when they had become familiar with the clinical environment: and when familiarity with the type of work was reflected in their clinical knowledge base. Consequently, there was an apparent decrease in dependence on other health professionals. A few RNs acknowledged that movements to other clinical units affected clinical knowledge, reducing confidence and increasing dependence on other health professionals.

Consideration should therefore be given to the number of clinical units that new graduates work in during the first year of practice. Though a variety of clinical experiences were seen by some RNs in this study to add to clinical knowledge, which in turn benefited decision-making, a balance needs to be achieved between variation in experience and familiarity with a clinical environment. Lack of knowledge and experience has been identified by a number of researchers as having a negative impact on decision-making related to pain (Choinière et al, 1990; Ferrell et al, 1991; McCaffery & Ferrell, 1994, 1997).

Longer periods within clinical units should enable the new graduate nurses to develop familiarity with the unit and establish collaborative collegial relationship. Furthermore, increasing the length of experience in one clinical unit should potentially increase clinical knowledge within that specialty. Consequently, the new graduates' dependence on other health professionals when making decisions should decrease, which, in turn, should increase confidence levels during decision-making.

The patterns of work employment will affect clinical decision-making. Some new graduates choose to work in casual positions; others may be forced to accept casual employment. As discussed above, consistency in working contexts affects the development of clinical or domain-knowledge as well as

the development of collegial relationships. Lack of domain knowledge has been identified by a number of researchers as decreasing the ability to make pertinent and effective decisions (Benner, 1984; Choinière et al, 1990; Jacavone & Dostal, 1992). Therefore, if a new practitioner is employed in casual positions it is likely that the development of clinical knowledge will be affected resulting in decreased confidence and continuing dependence on other health professionals when making decisions. In addition, they may feel isolated due to lack of opportunity to establish relationships with other health professionals.

A possible way to minimise the effects of casual employment is to place the new graduate into the same clinical setting rather than placing them in all clinical settings. This approach would enable them to develop clinical knowledge, which, in turn, should help increase confidence in decision-making. In addition, the new graduate would be working in a familiar clinical environment, which should decrease the perceived reliance on other health professionals and enable them to develop collegial relationships.

Increased clinical knowledge and familiarity with the type of work should decrease the new graduate nurses' reliance on protocols and guidelines. A corollary should be decision-making that is based on the patient's response to illness rather than an anticipated common response. This could mean that in pain decision-making there is more confidence to respond to the patient's report of pain rather than relying on standardised approaches related to the medical diagnosis.

The nursing staff shortages that are apparent in Australian health care (ANF, 2000) obviously play a significant part in the size of workloads that new graduates are expected to assume. Many RNs in this study perceived that the ability to comprehend clinical data relevant to clinical decision-making was affected by large workloads and the pressure to complete work

within short time periods. This suggests that clinical knowledge levels were affected. Consequently, many RNs under such circumstances perceived a dependence on other health professionals. Other health professionals appear to provide approval, and comfort and support, minimising the risks associated with clinical decision-making.

It is suggested that new graduate nurses should be given a reduced workload in the first two months of practice. In addition, upon rotation to a different clinical unit, a reduced workload for a short period would enable new graduates to adapt more quickly to the changed circumstances. Such a strategy should enable the graduates to become familiar with the type of work and reflect on their practice. Reflection has been identified as valuable to the development of interpretive knowledge. Interpretive knowledge is developed from how a person perceives a situation (Taylor, 2000). Thus, the new graduates would have a greater appreciation of the type of work, which would potentially increase their clinical knowledge base and increase their confidence. Furthermore, the new graduates' dependence on other health professionals is likely to be reduced.

The findings of this study lend support to anecdotal information that the workloads that nurses currently assume are frequently excessive. Consequently, the findings have relevance to nursing practice in general, not just to the nurse entering practice. That is, if workloads continue to be large, the ability of nurses to provide nursing care that is based on the patient's response to illness is reduced. This is in contradiction to the Australian Nursing Council's competency standards for registered nurses. The standards indicate, in part, that the nurse carries out nursing care that is based on the results of comprehensive and accurate nursing assessment of the individual (ANCI, 2000).

Reduction of nursing workloads is a problem that cannot be easily resolved.

Nevertheless, the apparent increasing workload of nurses does appear to have an impact on the nurses' ability to provide consistent individualised patient care; acknowledged as a standard of nursing practice in Australia (see ANCI, 2000).

Though many new practitioners are involved in a graduate transition program, this is not always the case. Not all the RNs in this study were part of a transition program and for some, the consistency of guidance and instruction that is usually provided in such a program were questionable. The perceived dependence on other health professionals and lack of confidence appeared to occur across all of the RNs in this study, whether they were involved in a transition program or not. The RNs' perceptions on the need for guidance and reassurance could probably be achieved within a clinical environment that is welcoming, nurturing, and accepting of the new practitioner.

Many of the RNs in this study perceived that collaborative collegial relationships were important to clinical decision-making. Furthermore, many RNs identified their dependence on other health professionals, particularly early in the two years. The dependence appeared to be primarily on other nurses. A few RNs acknowledged that they were assigned to a preceptor. A preceptor is a more experienced nurse who provides orientation, supervision, and guidance on a one-to-one basis (Godinez, Schweiger, Gruver & Ryan, 1999; Usher, Nolan, Reser, Owens & Tollefson, 1999). The preceptor's role is vital in assisting new graduates to become familiar with the clinical environment. Thus, the preceptor can fulfil an important role in socialising the new graduate to the clinical environment.

The preceptor role has the potential to help bridge the clinical knowledge gaps of nurses when commencing practice. This is particularly important in the area of pain management, where the ability to respond confidently

and positively to the patient's report of pain is essential, if nursing decision-making is to reflect current definitions of pain. That is, that pain is a personal and subjective experience that does not require validation by objective assessment data (Fuller & Schaller-Ayers, 2000).

Preceptors of new graduate nurses need to be ready, willing, and able to provide support. Preceptors should be selected because they are willing to provide the orientation, guidance and support that new graduates desire. In addition, preceptors should attend preparation programs that provide instruction on how to support the new graduate as well as encourage reflection-on-practice. Specifically, preceptors need to be taught how to share their clinical knowledge and show the new graduate how that knowledge informed decision-making. The preceptors' understandings from experience have the potential to improve the ability of the new graduate to respond to the patient. As no two people are believed to respond to painful situations in the same way (McCaffery & Beebe, 1994), the knowledge of the preceptor should provide the new graduate with an increased understanding on which to base decision-making.

Promotion of reflection-on-practice should assist the RN to understand the various ways patients respond to illness and the various strategies that may be beneficial to the patients' management. A benefit could be a more speedy development of clinical knowledge. A corollary could possibly be the development of clinical pictures or schemata (see discussion in Section 7.2.2) more quickly than the nursing and cognitive psychology literature would currently indicate. Preceptor preparation should also assist preceptors in evaluating the graduate's performance, in order to determine what is learnt from practice.

7.4.2 Nursing education

The effects of unfamiliarity with the clinical environment and the effects of large workloads and time pressures on decision-making should also be noted

by nurse educators, both academic and clinical. Clinical knowledge was perceived by some RNs in this study to be affected by unfamiliarity with the type of work as well as by lack of relevant clinical experience. Clinical knowledge was perceived by some RNs to be important to decision-making as it aided pattern recognition when making decisions, which subsequently decreased dependence on other health professionals.

Therefore, undergraduate nursing programs need to include clinical experiences that are closely connected to theoretical learning. Such an approach should provide the opportunity for the student to make connections between theoretical principles and the various ways patients respond to illness. The connections would then form the bases of clinical knowledge that would complement theoretical knowledge.

Attending clinical practice sessions weekly rather than in blocks may help students to see practical examples of the complex issues and concepts that comprise nursing practice. This is particularly important in the early stages of nursing programs when students may have little or no understanding of what nursing is or what it entails. Such an approach would consider the theory of schemata, which indicates that understanding of the world or reality in which people exist is in the form of mental representations (Howard, 1987). Consequently, students may develop clinical pictures or schemata in which to understand theoretical knowledge. Clinical knowledge, in the form of emerging schemata, could then be applied to decision-making.

As previously discussed, the human response to pain is complex, being affected by many factors. The factors may be (McCaffery & Beebe, 1994):

- *Affective: fear, anxiety, and anger.*
- *Cognitive/behavioural: beliefs, behaviours related to the meaning of pain, learned responses to pain and injury.*

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- *Constitutional: personality and physical make-up.*

The use of schemata, developed through the experience of caring for patients in pain, should assist in the recognition of the patient's pain as well as in planning appropriate nursing interventions. If undergraduate-nursing students can be assisted to develop schemata that reflect various responses to the pain experience, their ability to acknowledge the patient's response and respond appropriately may be improved in practice.

The benefits of assisting students during undergraduate programs to develop clinical knowledge based on experience include:

- *Increased confidence: there should be improvement in the new graduates' ability to make decisions instead of deferring to other health professionals before responding to the patient's needs.*
- *Increased independence: there should be less need for the new graduates to rely on other health professionals to help interpret patient responses to illness and confirm thoughts and actions.*

The undergraduate clinical experience should also include extended practice placements. Longer placements would enable students to become familiar with the pressures associated with the clinical environment and their effect on decision-making. In addition, students would have the opportunity to be involved with patients for longer periods. Patient contact over longer periods may assist students to develop deeper understandings of patient illness responses, an advantage in interpreting and understanding the complex human responses to pain. A corollary would be an extended clinical knowledge base, which should benefit clinical decision-making.

The benefits of familiarity of the work environment to the decision-making of new graduates include:

- *An improved ability for the new graduates to make decisions when under pressure: workload, time.*

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- *An improved ability for the new graduates to respond to the individual needs of patients, rather than treating all patients the same.*
 - *A decreased need for the new graduates to confer with other health professionals when making decisions. A corollary would be to reduce the stress on the other staff.*
 - *An increased confidence in the new graduates ability to make clinical decisions.*
 - *An improved ability to make appropriate patient care decisions when working in a variable environment.*

Domain knowledge has been identified as requiring the ability to refine and challenge existing knowledge based on experience, a process that has been called critical reflective thought (Woolly, 1990). The process of reflection is influenced by the recency of experience. Undergraduate nursing programs should teach and encourage reflection-on-practice. A reflective approach to nursing practice should assist undergraduates to learn from nursing experiences; a skill that can be taken with the graduates into their later practice. Reflection-on-practice, in both preparation programs and practice is important. It has the potential to assist the student in gaining insight into clinical situations and categorising nursing experiences into meaningful patterns (Durgahee, 1996).

In addition, reflection may assist the development of a deep approach to learning rather than a surface approach. Deep approaches to learning occur when an experience is not only understood, but meaning is also developed (Biggs, 1988, 1989; Webb, 1997). A deep approach to learning is advantageous in the development of clinical knowledge, pattern recognition and schemata, as they require the learner to make sense of what is perceived. Such strategies should help to expand the students' clinical knowledge, which should improve the ability to make context relevant decisions.

7.5 RECOMMENDATIONS FOR FURTHER RESEARCH

This study has highlighted the role of the patient, other health professionals, familiarity with the clinical environment and experience in the development of confidence independent decision-making. Several areas of further research are indicated.

7.5.1 Recommendation 1: Replication of this study on perceptions of clinical decision-making

This study has clearly identified perceptions of clinical decision-making in the first two-years of nursing practice. The perceptions, however, were in the context of patients in pain. Consequently, the findings may not be transferable to other nurses and to other practice contexts. Therefore, replication would help to expand understanding of perceptions on how they may influence clinical decision-making. As the phenomenographic methodology proved successful in examining the clinical decision-making of nurses, the study design could be extended to include other health disciplines. Research objectives should therefore be:

- 1. To describe nurses', physicians', physiotherapists' etc. perceptions of clinical decision-making.*
- 2. To describe changes in perceptions of clinical decision-making during the undergraduate nursing, medical, etc. programs.*

A longitudinal design was beneficial in determining changes in perceptions over time and should be incorporated into other studies. Nevertheless, time and resources may affect the feasibility of the use of longitudinal designs.

7.5.2 Recommendation 2: A more detailed examination of clinical decision-making in the first year of nursing practice

The graduate transition programs that the majority of new graduates appear to be placed in frequently require rotations through a number of clinical units.

The number of rotations appears to vary. Furthermore, it is not apparent whether the effects of rotations on neophyte clinical decision-making have been investigated. As many of the RNs in this study perceived the development of clinical knowledge and clinical decision-making to be affected by rotation to different units, future research should focus on the following questions:

- 1. What are the benefits of clinical unit rotation to clinical knowledge development? To clinical decision-making? To the new graduate?*
- 2. How does the nurses' level of clinical knowledge affect clinical decision-making?*

Such research studies should help to identify the links between clinical decision-making and clinical knowledge development.

7.5.3 Recommendation 3: Examination of the role of other health professionals in the development of clinical decision-making behaviours

RNs in this study perceived that they were dependent on other health professionals when commencing practice and in conditions of uncertainty. Hence, other health professionals would appear to play an important role in the new graduates' decision-making. In addition, moves to different clinical units were perceived to affect collegial relationships. As other health professionals appear to play an important part in decision-making early in the graduates' practice, future research should focus on the following questions:

- 1. What are the benefits of preceptors to the clinical decision-making of new graduates?*
- 2. What factors affect the relationship between preceptors and new graduate nurses?*
- 3. What are the effects of clinical unit rotations on collegial relationships?*

Such research studies should help to delineate the type of clinical environments that foster confidence and independent decision-making.

7.5.4 Recommendation 4: Examination of the development of clinical decision-making in undergraduate nursing students

The RNs' perception that clinical knowledge is more beneficial to clinical decision-making suggests that the linking of theoretical learning and clinical practice is important. Therefore, exploration of the clinical decision-making of undergraduate students would be valuable as it may help to determine the development of pattern recognition, intuition and schemata. Future research should focus on the following questions:

- 1. What are the factors that affect undergraduate-nursing students' understanding of clinical practice?*
- 2. What are the benefits of theoretical and clinical knowledge to clinical decision-making?*
- 3. What is the relationship between the amount of clinical practice and clinical decision-making behaviour in undergraduate nursing students?*
- 4. What are the effects of various patterns of clinical practice experience on undergraduate nursing student clinical decision-making behaviour?*

Such research studies should assist in understanding how undergraduate clinical knowledge is developed. Consequently, education programs could then focus on educational frameworks that foster the development of clinical knowledge and hence clinical decision-making.

7.6 STUDY CONCLUSIONS

The following section discusses the conclusions to the study in the context of the three research objectives.

7.6.1 Objective 1: To describe nurses' perceptions of clinical decision-making

The participants' perceptions of clinical decision-making in relation to patients in pain were placed into four categories.

The effect of the clinical environment on clinical decision-making encompasses how the volume of work, the type of work and familiarity with the clinical environment were perceived to affect confidence and therefore independent decision-making. Experience and time were important elements in developing confidence and independence. Familiarity with the type of work and clinical environment was evident by the second year of practice. Decision-making appeared more confident and less dependent on other staff.

The role of other health professionals in clinical decision-making describes how other health professionals influence the RNs' decision-making. Initially, many of the RNs appeared highly dependent on others, due to inexperience and lack of confidence. Dependence on other staff was seen to decrease during the first year of practice as the RNs were exposed to a variety of patient situations, which extended clinical knowledge and increased confidence. By the second year of practice, the RNs perceived they were able to practise without the direction of other staff, though the need to consult others was still seen as important. By the end of two years, decision-making was apparently based more on the RNs' own experience, lessening the need to call on and consult other staff.

In category 3, perceptions of the place of the patient in clinical decision-making are described. From the commencement of practice, patients were perceived to be important, as they provided an understanding of the illness experience. Understanding of the illness experience appeared to contribute to the development of clinical knowledge. Initially, the patients' role was indirect as they provided data about responses to illness. By the start of the second year, the patient's role was seen to more direct: the relationship was more personal enabling a deeper understanding of the patient's needs. After two years, the patient's wishes were perceived to be the focus of decision-making, as long as the wishes were congruent with effective health outcomes.

The last category, the role of experience in clinical decision-making, encompasses how learning, variety of experiences and the amount of experience were perceived to affect decision-making. A perceived lack of clinical experience when commencing practice appeared to lower confidence and resulted in dependence on other health professionals when making decisions. Following the RNs' contact with a variety of patient situations, clinical knowledge appeared to increase. This knowledge was subsequently applied to clinical decision-making. Increased confidence and clinical knowledge appeared to be affected, however, by ward moves. The moves were more frequent in the first year of practice. By the second year of practice, some RNs were able to interpret clinical events, which contributed clinical knowledge was seen by a few RNs to provide a detailed clinical picture or to clinical knowledge development. By the completion of two years, clinical knowledge was perceived by a few RNs to be in the form of pictures or schema. The schema appeared to facilitate pattern recognition.

7.6.2 Objective 2: To describe changes in perceptions of clinical decision-making in the first two years of practice

A number of changes in perceptions of clinical decision-making in relation to patients in pain were noted during the two years of nursing practice examined in this study. The following section discusses these changes in relation to each category.

7.6.2.1 Category 1: The effect of the clinical environment on clinical decision-making

At the commencement of nursing practice, three factors were perceived to be important to decision-making. These were the amount of work, the RNs' capacity to make a difference to the patient's situation and normal practice parameters. The corollary of such perceptions appeared to be lowered confidence and dependence on other health professionals when making decisions. The relative importance of these perceptions was affected by the RNs' familiarity with the clinical environment. When some RNs were moved to a different clinical environment confidence in clinical decision-making appeared to be reduced and dependence on other health professionals noted. Thus, the relative importance of the work volume, making a difference to the patient's situation and understanding institutional policy, appeared to depend on familiarity with the clinical environment.

By the time the RNs in this study entered the second year of practice, perceptions included an increased ability to manage workloads and meet the various needs of patients. Consequently, many RNs perceived that their decision-making was more confident. Though the RNs' confidence appeared to increase over time, some continued to see the importance of referring to other health professionals.

A year and a half into nursing practice, some RNs perceived that they were able to analyse and question the impact of the clinical environment on clinical

decision-making. This appeared to manifest itself in a willingness to assume leadership. This is a further example of the RNs' growing independence and autonomy in clinical decision-making.

7.6.2.2 Category 2: The role of other health professionals in clinical decision-making

When the RNs first commenced practice, there was a predominant perception that other health professionals needed to be consulted during decision-making. This appeared to occur when the RN required guidance and direction in order to confirm ideas. Hence, many RNs at this time appeared to have little confidence when making decisions.

Other health professionals were perceived as important throughout the first year of practice. The relative importance of other health professionals appeared to diminish in the six to twelve month period, as the RNs' confidence appeared to increase. At this stage, some RNs perceived they could challenge the thoughts and ideas of other health professionals. This appeared to occur as the RN was able to view the patient within a wider context and as the RNs developed a deeper understanding of patient responses to illness. This suggests that the clinical knowledge base of some RNs was developing.

Following completion of 18 months experience, some RNs perceived that including the multidisciplinary team in decision-making was important. Thus, these RNs may have seen that they had a voice in the overall decision-making processes. At the completion of two years practice, many RNs perceived that it was their own clinical knowledge rather than the knowledge of other health professionals that guided clinical decision-making. Therefore, many RNs demonstrated their independence from other health professionals.

7.6.2.3 Category 3: The place of the patient in clinical decision-

making

Knowledge of the patient was perceived as important by the RNs throughout the two years of practice. At the commencement of practice, developing a relationship was seen to be important in order to understand the patients' experience of illness. By six months, some RNs perceived that knowledge of the patient assisted the formulation of decisions based on caring principles. There was little apparent indication in the first twelve months of practice that the patients had any direct influence in decision-making.

By the second year of practice, the patient was perceived by some RNs to have a direct influence on the focus and direction of decision-making. Further, some RNs saw the length of time spent with the patient affecting how deeply they understood the patient. Consequently, many RNs perceived that decision-making was individualised in order to meet the patients' needs.

Following 18 months experience, some RNs considered decision-making as empathic to the patients' experience of illness. This appeared to result in the RN interacting with the patient on a personal level. By the end of two years practice, meeting the patients' wishes during decision-making was perceived by many to be important in clinical decision-making. This suggests that for many RNs decision-making was more likely to be influenced by the patients' wishes than it was by the clinical units or hospital protocols and policies.

7.6.2.4 Category 4: The role of experience in clinical decision-making

At the commencement of nursing practice, most of the RNs perceived that lack of clinical experience affected their knowledge levels. Consequently, the RNs saw that they had difficulty interpreting the patient's response to illness, which, in turn, was perceived to affect their decision-making. Throughout the first year of practice, many of the RNs perceived that experience of a variety of patient situations improved understanding of illness responses.

Consequently, at the beginning of the second year of practice some RNs perceived that this knowledge was essential to decision-making.

After 18 months practice, it was apparent that some RNs perceived that it was the use of a personal knowledge base, developed from experience, which informed decision-making. Thus, the RN appeared less dependent on institutional protocols and guidelines and the guidance of other health professionals.

At the end of two years, some RNs perceived that the ability to interpret the patient's situation within a wider context enabled them to anticipate patient responses. Some RNs saw that this was related to the ability to interpret clinical events within the context of their personal knowledge. This suggests intuition-based decision-making. It is therefore possible that some RNs at the completion of two years experience were able to compare patients to a picture developed from experience of various similar clinical situations. This clinical picture may be shaping and directing clinical decision-making.

7.6.3 Objective 3: To assess the use of phenomenography in studying clinical decision-making

The use of the phenomenographic method enabled research objectives 1 and 2 to be addressed, however, two disadvantages were identified. Firstly, an important feature of this study's design was gathering data over a two-year period. Though this researcher undertook all the interviews and read previous transcripts before interviews, it sometimes proved difficult incorporating what had happened during previous interviews due to the six-month gap between interviews. In addition, for some participants there was a two-year gap between the first and final interview. This comment on the use of phenomenography is primarily a reflection on the use of phenomenographic method in a longitudinal study design rather than its use in general.

Secondly, the longitudinal design also resulted in an enormous amount of data: 80 interview transcripts. As this study was undertaken within a research degree program, it was not possible to involve other researchers in the initial analysis of the data, besides the guidance of supervisors. Again, this is a critique of the longitudinal design and the restrictions of research degrees rather than the phenomenographic method.

The use of phenomenography was successful in this study. It assisted the description of nurses' perceptions of clinical decision-making in relation to patients in pain: and how the perceptions changed in the first two years of practice. Consequently, it was also possible to describe how clinical decision-making behaviour was affected by the perceptions. Of particular significance was the determination of the connections between the categories of perceptions: confidence, independence and the construction and application of clinical knowledge.

The phenomenographic approach employed in the study was discursive. The discursive approach focuses on determining indirectly the participants' understanding of a phenomenon by questioning them on a related issue (Hasselgren & Beech, 1997). It was selected for this study as an approach was needed that would enable the participants to discuss how they perceived their clinical decision-making within the context that decisions were made. The approach was successful in this study, enabling clinical decision-making in practice to be examined. The discursive approach enabled data to be collected that reflected the five phases of the nursing process – assessing, diagnosing, planning, implementing and evaluating. The phases of the nursing process were incorporated into the definition of clinical decision-making employed in the study.

The perception of some RNs that they were able to make decisions

intuitively after only 12 months experience has not apparently been identified in other studies. Furthermore, the perception of some RNs that clinical knowledge enabled comparisons between the various ways that patients respond to illness lends support to the limited acknowledgment of the use of schemata in nursing clinical decision-making.

In conclusion, this study has been successful in describing nurses' perceptions of clinical decision-making, and in describing changes in perceptions in the first two years of practice. Phenomenography has been demonstrated to be an appropriate research approach in the description of clinical decision-making in nursing.

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Appendix A

**'The Development of Clinical Decision-Making
in Registered Nurses'**

Information to Participants

I am a registered nurse enrolled in a PhD program at the Faculty of Nursing, University of Sydney. I am undertaking research into the development of clinical decision-making in new graduate registered nurses and would appreciate your participation in my study. The results of this study will provide guidance for the future educational preparation of registered nurses.

If you agree to participate in the study it would entail you undertaking the following commitment: - four interviews, the first prior to commencement of your first position as a registered nurse, the second at eight months, the third at 16 months and the fourth and last interview at 24 months. The interviews will involve you recalling clinical decisions that you have made during the course of your nursing practice as well as responding to a set clinical scenario. All interviews will occur at a time and place that is convenient to you. All data collected will be held in confidence.

You may withdraw from the study at any time and any existing data related to you would have no personal identification attached.

If you have decided to become involved in the study, would you please complete and sign the attached consent form and post it to me in the attached envelope.

Thank you for your co-operation.

Jacqueline Baker, RN.

CONSENT

I agree to participate in the above study. I understand the terms of involvement in the research and that I am free to withdraw at any time. I also understand that any information given to the researcher will remain confidential.

SIGNED: **DATE:**

Appendix C

Participant Demographics

Participant	Age / Gender	Nursing Experience	Other work Experience
1	23 F	* approximately 12 months working as an assistant in nursing (AIN) * 2 weeks nursing a dying family member	* 4½ years shop assistant * 3½ years accounts clerk * 6 months process worker
2	47 F	* 4 years AIN in hospice * 2 years AIN aged care facility	* trained primary teacher * English literature degree * Teacher of English as a second language to refugees * acupuncture training
3	42 M	* residential care assistant	* 20 years in the Royal Australian Navy – naval police, instructor air engineering and maintenance * 2 years groundsman & maintenance at local schools
4	44 F	* Approximately 6 years as AIN * Research assistant in a public hospital * 10 years pharmacy dispensary assistant	* 0 years clerical work in a bank
5	5 50	* 1½ years AIN	* Secretarial college * Receptionist * General office duties
6	21 F	* 2 years AIN	* 2 years supervisor in a department store
7	29 F	* Nil	* 9 years flight attendant

8	23 F	* 4½ years AIN in operating theatres	* 4½ years sales assistant * 6 months seminar organiser
9	21 F	* AIN ? time * 1 year RN	* sales assistant ? time
10	22 F	* 4 years AIN * 1 month volunteer work overseas * 1 year RN	* waitressing, office assistant
11	22 F	* 3 months AIN * 1 year RN	* 5 years sales assistant
12	22 F	* 1 year RN	* sales assistant * assistant gardener
13	22 F	* 3 years AIN * 1 year RN	* 5 years sales assistant
14	26 F	* 1 year AIN * 1 year client support work with the developmentally disabled adolescents	* 3 years youth worker in the community * 2½ years production assistant
15	21 F	* AIN ? time	* sales assistant ? time
16	35 F	* 2½ years AIN and personal care assistant	* 4 years clerk, social services * 5 years clerical and sales assistant
17	39 F	* 18 months AIN * 2 years hospital nursing program 20 years ago * 1 year RN	* labouring, gardening, home duties, swimming instructor
18	24 F	* 2 years AIN aged care	* 3 years office work * 3 years vacation care worker
19	22 F	Nil	* 2 years child care centre assistant
20	21 F	Nil	* 3 years service assistant
21	40 F	Nil	* 6 years secretary / personal assistant * 4 years geoscience technical assistant

22	20 F	Nil	* 5 years pharmacy assistant
23	22 F	* 2½ years AIN * 1 year RN	* 3 years food service * 2 years swim coach
24	23 F	* 3 years catering assistant * 1 year AIN * 1 year RN	* sales assistant & voluntary work with aged persons

NB: All participants mentioned nursing experience within their undergraduate nursing program.

Appendix D

Clinical Scenario

You are working on a twenty-five-bed urology unit in a major teaching hospital. You are on night duty with a staff consisting of a registered nurse (RN) with seven years experience in urology and an enrolled nurse (EN) who has work in the unit for three years. You have been working on the ward for two weeks and this is your first night on night duty. In addition, the unit has been sent a RN from the "pool" to assist with the post-operative patients; he has relieved on the unit on two or three other occasions. Twelve patients have been to surgery in the last twenty-four hours. Six of the patients have had major surgery and the others have had minor surgery, for example cystoscopy and other diagnostic investigations.

You are responsible for the patients in two four-bed wards. The first ward includes Mr. W, 74 years, who is twelve hours post-operative from a trans-urethral resection (TUR). The other patients have all undergone surgery: Mr. X, 83 years, who returned to the ward at 2030 hours, following a TUR and has required a blood transfusion which is in progress; Mr. Y, 49 years, who returned to the ward at 1100 hours following a cystoscopy with no complications; Mr. F, 63 years, who is 4 days post TUR and is for discharge in the morning. The men in the second room are sleeping soundly and are all due for discharge within the next twenty-four hours. The RN in charge of the unit is busy with a transfer from A & E, the EN is taking observations and the "pool" RN is checking the other post-operative patients.

Mr. W's TUR was under a spinal anaesthetic. He has an indwelling catheter in situ with continuous bladder irrigation as well as an IV infusion running into his left forearm. His current treatment regime is as follows: -

- * IV infusion normal saline to keep vein open.
- * No. 20g 3-way indwelling catheter on continuous bladder irrigation and drainage.
- * Analgesia:- Pethidine 50mg - 75mg IMI 3 to 4 hourly prn; Panadine forte x 2 4th hourly prn.
- * Digoxin 62.5mcg oral daily, Lasix 40mg oral daily, and Slow K x 1 oral daily.
- * Push oral fluids.
- * Diet as tolerated.

2300 HOURS

At "hand-over" you are told that post-operatively Mr. W has experienced no problems. He ate a light supper at 1800 hours and is tolerating oral fluids. He had IMI Pethidine 50mg at 1830 hours for cramping pain, which was effective. At 2000 hours his vital signs were temperature 37.7 C; pulse 90bpm; BP 130/90mmHg. The bladder irrigation is running well and the drainage is blood stained with no evidence of clots.

Mr. W., a widower, is a publican who is actively involved in running his own business. He is anxious to return to work as soon as possible to help his son who he believes will not cope with the responsibility. Mr. W has a wide circle of friends, which he meets through work and through the local bowls club. He informs you that he has been fit all his life and that this is the first time he has been in hospital.

0100 HOURS

While you are in the room with Mr X taking post-operative observations, you notice that Mr. W is restless and pulling at his catheter. As you walk pass you tell him "Don't pull on that, you'll hurt yourself". You ask him "Is anything wrong?" and he says "No". You re-explain why the catheter is there and that it is important that he not pull on it. He appears to accept the explanation and settles down. An hour later you are back in Mr. W's room taking further observations of Mr. X when you notice that Mr. W is again restless and pulling on the catheter. When you talk to him he says, "I ache down there" and points to his bladder. You examine the urinary drainage system to check for patency. On examination, the drainage system is running slowly, and there are numerous small clots in the tube, though the drainage is only pink in colour. Mr. W describes the "Ache" as being "Cramping and comes and goes". He feels the catheter is the problem as asked you to "change it or remove it altogether". Whilst talking to him you notice he is sweaty and pale.

What action would you take? Tell me all of your reasons for your actions.

What was important in all that for your?

Is there any other information you would like to have had?

Appendix E

Example of Questions at an Interview

Specific questions

- Describe for me a patient you have recently nursed who was in pain. Why does this patient stick in your mind?
- Explain your thoughts and actions, including the factors and incidences that influenced you in nursing this patient.
- Evaluate the management of this patient's pain including your own actions.
- Describe factors in you professional and personal life that you believe have influenced your professional development.

Examples of probing/clarifying questions

- What do you mean?
- Can you explain that further?
- Why is that?
- Can you give me an example?
- Why?
- Why not?

General questions

- How has your clinical decision-making changed since we last talked?
- How has your clinical decision-making changed since you started practicing as a nurse one-year/two-years ago?

Appendix F

Significant Statements

THE PLACE OF THE PATIENT IN CLINICAL DECISION-MAKING

FIRST INTERVIEWS

When I've got spare time I spend it with the patients and talk to them so, I spent a lot of time there talking to him. (1:10)

We had rapport and that made me want to make things right for him ... I was highly motivated to get it right for him. (2:9)

I think just knowing the man a little bit more. I think basically that's important. (5:13)

... so with anybody I'm looking after I try and develop some sort of relationship with him and I find myself getting very involved with my patients. (15:7)

I worked the night duty and looked after her for a period on night duty which (sic) I got to know her quite well because I had time to spend with her. (22:3)

You've got to not sympathise but empathise with them and put yourself maybe in their position and try and understand more on a level how they're thinking. (19:12)

... and I found it very hard not being able to do anything for him (1:8)

At that point I can't do anything further for her because I've got another 40 residents to do the rounds with (3:8)

... and there was just nothing you could do (6:6)

... but there was nothing you could do. Just sit there and talk to her (15:4)

I mean as nursing staff we were trying to push analgesia as much as possible but you can only do so much (18:6)

SECOND INTERVIEWS

... the nursing care I've given him, I suppose it's more than perhaps what other people would do but (sub 1:3)

Oh well, to be there at any time he wants, as soon as he calls out, to drop everything and go to him and, and give him a luxurious bed bath and rub cream into his feet and sit down and chat, and do extra things that you know other people may decide aren't worth it (sub 1:4)

So I tend to listen to a patient more than the rest of the staff (8:4)

... whereas this ward is long term nursing and I prefer that a lot more because you get to know the kids a lot more (19:3)

I have a close relationship with her [the patient] ... as a result I felt like she could call on me a lot more than what she could call on someone else and she felt comfortable with me (19:4)

... but I think I can get too attached sometimes (19:5)

If I tread on their [other RNs] toes, well that's it. I'm here for the residents (3:9)

I think I just become a little more assertive (4:6)

I feel more in control as an RN now (4:13)

I don't have to go and ask someone what to do, I can go off and take the initiative (7:12)

I was a bit more hesitant about going above the intern level [on the first ward], but now I go and wake the Registrar up and say "come and look at him now!" (8:12)

I feel that I'm confident and I've got enough experience to make a lot of decisions on my own regarding my patients (15:9)

I think I'm questioning a lot more the rationale behind what's done as opposed to just doing it because it's the way I was shown and you know, not really understanding it (20:10)

I find I'm making more decisions on my own and I feel more confident when I make decisions (4:10)

THIRD INTERVIEWS

Being on the evening shift and the night shift, doing evenings and nights gave me a view than .. [adding] the day shifts was giving me a twenty-four hour picture of her [the patient's] management (3:7)

You could come home and read all about bowel cancer and all about dying and try and put the two together but when you actually get the patient there I mean that, you know, that all goes by the wayside (7:8)

See In ICU you never know if they're in pain or not because half the time they're unconscious ... it's a lot harder to assess whether they're in pain or not (8:2)

So it's really hard to be the third person who's actually got contact with the patients eight hours straight for the day to say, "no I think maybe this and this should happen today" (8:5)

My own view I suppose, that I'm learning to do, is to try and approach each patient as an individual as a person without a history according to their behaviour (14:10)

I was trying to connect up with them [the patient and relative] (17:6)

So probably when I look after her next time I'll be a little more understanding of that. (17:6)

I think if you know them [children as patients] it's a lot easier but if you don't you've got to look at how they're reacting to the whole situation (19:5)

... and then you would notice discomfort and grimacing of the face, crying, clenching of the fists, guarding of the area. And there were really specific cues that you could see (20:6)

I noticed the change in character because it made me think there was maybe something wrong (24:4)

I know she trusts me. We've built up a good rapport. That's incredibly important to me and I know that she thinks that when I come in that I know what I'm doing, that she likes me and I haven't told her any lies. Whatever I've said has actually come to pass and we have a huge level of trust between us I think. (2;4)

She [the patient] likes me, I know she likes me; and if I sit with her, I can calm her down. I can clam her down better than any oxygen. I can get her to stop hyperventilating. I can do it. (sub 2;3)

The patients stay in for longer. I get much better picture of where people are at so I've got a better ground to make a decision for them and that's what I wanted. (sub 2;16)

Q: What's the main thing that influenced you?

A: to see what she came in like and her deterioration. I wouldn't say knowing her personally but knowing her and meeting her family, observing

her activities and what she could do for herself and what she wanted when she was first admitted to her inability towards the end. (sub 3;9)

Her observations didn't tell me she had a lot of pain but it seemed to be her nervousness at waiting for the pathology to come back, that's what I thought. Once she got the pathology [results] she didn't have any pain.. (sub 4;6)

And you could tell she was uncomfortable but with her obsessiveness [about her looks] you couldn't sort of differentiate between (sic) whether she was being really in pain or not in pain. (sub 5;1)

You've got to know your patients, you really do. You've got to know their little foibles. (sub 5;6)

If I hadn't known her pre-operatively I'd have just thought that that was her natural state. (sub 6:3)

I try to treat them [patients] all the same but each one's sort of special, if you know what I mean. I try not to give them extra – well I do give some of them extra special treatment – what I try not to do is neglect the other children. (sub 11;9)

I find my assessment of pain is different. I really listen to what they're saying. Sometimes I get them to scale it from one to ten, to how severe it is, but usually I know. I can – just from what they're telling me and what they've had. (sub 17;6)

I mean people [other staff] go in and they're into the machinery and they're counting his respiratory rate but they're not really talking to him and looking at him as a person or about him. (sub 13;8)

I'm thinking about what pain relief is best for them. I'll talk with them about it ... I involve the patient much more [now]. (sub 17;6)

I really find myself getting quite attached to some of these clients which in some way can be good. In other ways it may not be so good. I find that I start really feeling for them and reacting in a way that I want to be this big rescuer and I know I can't be. (sub 23:4:3)

Just like teachers have teacher's pets, I've got a pet patient and I really want to work with her. See, where I'm going to learn and she's going to benefit. (sub 23:4:7)

FOURTH INTERVIEWS

Q: Since your father was diagnosed with cancer, do you think your barrier is less at work or not or do you think it's just the same?

A: *I think I have more empathy with families. When families are reacting I remember – I'm not living the moment again – but I remember how much I was affected by something that was much less fear than they're going through. So I think it's actually increased my capacity to empathise. (sub 2;4)*

Q: How do you think your grandmother dying] influenced you?

A: To take more time and care for the people you do come across. I think if that was me I'd want someone to say "this is what's happening, this is what might happen". (sub 8;9)

I think I'm lucky in that I have an insight into the type of problems and the low times that children from working class families have. So I bring that into it. (sub 11;10)

Sometimes I sit down and go "oh, wait a minute, suppose this was my child or my sister" You tend to forget. (sub 13;16)

But because she comes across as being the weak and weary patient, she gets a lot of flack [from other patients] and I really feel for her and really want to try and sort of do something. (sub 23;2)

FIFTH INTERVIEWS

I can remember feeling really bad because I was going against the patient's wishes. (sub 2-5;3)

In the end, it seemed like the right thing to do but it sticks in my mind because I hate doing things against the patient's wishes. (sub 2-5;4)

Now my thing for somebody's pain - if it's emotional pain or needing to be secure when they're dying, all this sort of thing – is to fit in with them as much as I can and the mental health contingent [RNs] would say that I'm colluding with this patient ... and making them institutionalised. (sub 2-5;5)

I think my priority is very much patients rather than staff, It has to be. (sub 2-5;15)

I've always maintained you can't define anyone else's pain. The norm might be happy with fourth hourly Panadol or two Panadine Forte every six hours. That doesn't mean it will work for everyone. You can't argue with some of the other nurses because they say "no, no he shouldn't have any pain now". So perhaps it wasn't managed – it was managed for the norm and not individually. (sub 4-5;4)

Sometimes it was very frustrating because you thought you were doing the right thing by her but in actual fact, you were going against what she [the patient] wanted. (sub 5-5;6)

So, one day I said to [the baby's] mum "look sometimes you have to be cruel to be kind". And we forced him to have his Codeine, his Panadol and although that afternoon he still didn't have anything to eat or drink, mum said that he was not as irritable, he was not as restless as he had been previously. (sub 12-5;5)

I was new to the areas and I didn't really know about the Morphine [parents request that the baby not have morphine]. I did agree that the Panadol wasn't keeping the baby as pain free possible ... I thought possibly she could have started on Morphine but I did respect the parents wishes to be involved. (sub 24-5;8)

I see a lot of decisions that aren't being made for the benefit of the patient or, you know, just general protect yourself. (sub 8-5;6)

Q: If you think back to the parents now, how would you evaluate the management of that pain?

A: I suppose it wasn't very good but only because we were, we weren't in tune with the, we didn't believe, we didn't believe in, have the same beliefs as they did. And even though you try not to be judgmental and all, when the particular belief [blood transfusion Jehovah Witnesses] impacts on the life of the baby. (sub 1-5;6)

THE ROLE OF OTHER HEALTH PROFESSIONAL IN CLINICAL DECISION-MAKING

FIRST INTERVIEWS

Actually I always had somebody to consult with, the person who was in charge. (1:11)

I haven't needed to yet [*call the pain management team*] but I'd have no hesitation about calling them. (8:11)

If not, call the intern, he'll tell me. (8:12)

I thought I was doing OK but I thought I'll just check up with the others ... I pretty much check everything. (5:15)

But I'd ask it anyway because I felt really comfortable asking her .. [which] has helped me to make my decisions. (20:7)

Because I'm inexperienced I use [other staff] as a resource to get more information about things. (21:5)

I'm not great at making decisions for myself so I like to check with someone. (22:6)

And you can't, you can't go against that, you can't change it, you can't change the orders so I just, I find it disappointing to see this happening (4:7)

I've found that's the hardest thing so far. The inconsistency [when speaking to others]. (21:6)

Everyone's not meant to be subjective but everyone's being subjective, you know. I mean you know yourself, you start yourself doing it (7:4)

SECOND INTERVIEWS

I still feel very much like a student because you, I mean you may not be mirroring someone and walking around behind them but you're very much, you know, you're asking people continuously (7:12)

I've got belief in what I'm doing but to get a second opinion just to make sure that I haven't overlooked anything, other than that I implement it [a decision/action] (3:11)

But it would be nice to get everyone together and saying "right we've got a problem with her, what are we going to do" ... (8:5)

I still refer to other people. I still call upon anyone ... [to] reconfirm in my mind that what I'm doing or what I'm saying or what I'm deciding is right (8:13)

I like to sort of be left on my own to do my work and if I've got a problem then I'll go and ask somebody (15:2)

I don't constantly have to get verification ... but if I'm unsure I still check obviously but I do a lot more on my own, I just go ahead and do things (18:11)

I don't quite feel I need to reassure (sic) all my actions or justify everything I do (20;21)

I don't feel I need as much reassurance as I did before so I'm more confident to go ahead and make the decision (20:14)

I you feel as though they are in pain you try and do something about it or try and convince the doctor to do something about it (5:3)

THIRD INTERVIEWS

How am I supposed to help make decisions and how am I supposed to grow as a nurse when I see these ghastly things [bad practice] happening from a more senior person” (8:8)

... but like I’m still relying on people like all the time (10:9)

I still ask, “Am I doing the right thing?” you know “is this the right way to do it?” (12:14)

... sometimes my decisions making, you know, I’m still double checking with everything I do (13:9)

... just to get reassurance I’ll get someone to double check that with me, which doesn’t need to be double checked but I feel happier doing that (12:11)

I’m learning that my nursing decision making is enhanced by discussions with dietitians, physiotherapists etc. (14:20)

So I went and had a chat to one of the other girls [RNs] who was more senior to me (15:5)

I don’t feel inadequate when I feel I have to ask somebody (21:11)

... when I do go and get advice or get the person reviewed or whatever I can sit there and say “well this is happening (19:9)

I try to think myself first and then when I can’t think of any other options I go and ask them [others RNs] (12:15)

I just didn’t feel right about it and I kept getting – I got the doctor up (14:15)

I get some difficult ones [decisions] where I still go and consult someone more senior but most of the time I can make decisions on my own (15:7)

I... if you feel there is something to worry about you can go over his [the resident doctor’s] head and there’s nothing wrong about that, you can actually do it (1:9)

I get the person [doctor] on call but I would go above them and I wouldn’t have a problem with going above them if I didn’t think that they were doing a thorough enough examination (14:6)

I don’t run around in circles and I know I can depend on my won knowledge a lot more than I can from other people (19:8)

I don't sort of ask. I just sort of say "I'm going to give such and such" (23:6)

FIFTH INTERVIEWS

I listen to my own inner voice and on my shift I give them the care that I like to give (sub 2-5;9)

I just sort of threw in suggestions, but I didn't really question her authority or her experience because she's not the type of nurse who appreciates that sort of thing. (sub 11;6)

As a nursing team, we all got together and discussed [the case]; we got to say what we thought would be best for him and we were well represented in that case. We were given the opportunity to speak and say what we thought. (sub 13;11)

I'm much more assertive with the doctors when I think that somebody's pain [relief] hasn't been adequate. (sub 17;7)

A couple of times I had to be in charge and team leader so I've had to make decisions and people come to you and ask you how to do things and you have to make the decision and run the ward. (sub 24;7)

I haven't got the authority to turn around and implement something outright and say "Hey what's been going on is not working, let's do it this way". (sub 3;15)

You've got to think on your feet. You've to think; every now and again you want to go away and hide in a cupboard and say, "I don't want to know any more". (sub 5;11)

I make decisions on my own because I know a lot more now. And I'm more confident in making my own decisions without having to run to someone else to say, "do you think this is right or do you think this is wrong?" I just make the decision and if it ends up being wrong, I learn from it. If it's right, well thank God for that. Just make the decision and if it's wrong face the consequences. (sub 8-5:10:11)

Before I would have been more influenced by people around me... now I'm trying to be myself with the staff as well as the patients that's the next step. (sub 2:5:14)

I had to watch my standing at the Nursing Home that I was only there as the Educator, not as a Nursing Unit Manager [charge nurse]. But I was also RN to advocate for the resident. (sub 3-5;6)

I kept standing there saying "you can't touch her", you know, "wait for the local [anaesthetic] to work. Wait for this, just wait a minute." But of course, you know, they [doctors] don't always listen. (sub 8-5;5)

I'm supposed to be the patient advocate so I'm not, you know, I've got to stand up for them [patients]. (sub 8-5;6)

Q: What do you think influenced you the most to respond the way you did?

A: Well no one else was responding to her [the patient's] cries. (sub 8-5;7)

THE PLACE OF PREVIOUS EXPERIENCE IN CLINICAL DECISION-MAKING

FIRST INTERVIEWS

.. I got into a situation where I didn't know how to make a decision because half and hour before his four hourly medications he asked for PRN [*as necessary*] and I thought "what do I do?" (2:8)

But it's not in my knowledge at this stage what, what better they could do or I could do that could help. (6:5)

I'm feeling like I'm not informed enough in the medical side of things as to why she's been taken of certain drugs. (14:11)

But then I haven't got enough [*experience*] to compare yet, maybe in twelve months when I've worked different places I can see. (4:10)

I've got no ideas. I've never been in this situation before. (6:12)

I'm not aware of what can be done ... because I've had no experience in that sort of setting. I just don't have the knowledge, the background. (15:6)

I think just from having that experience of being the patient yourself, it has made a great influence on the way I will react with my own patients now. (19:11)

What I've learnt, ahem, patient's pain is very very real and I have to alleviate that somehow. (4:10)

I've found through nursing that in, with children, I've found that babies, coming out of theatre, react a whole different way to how an adult would coming out of pain. (19:1)

SECOND INTERVIEWS

I'm more able to look at sign and symptoms, things that are going on with the patients, and to make decisions of what it could be (1:10)

I find that when I'm given the responsibility of being in charge or having to run things I can (sub 1:15)

Rather than just being task orientated I'm getting more of an ideas of how systems interact (sub 2:7)

... it's all experience based I think and just familiarity with the way things work (14:10)

Well I guess I'm prioritising better. I'm able to work out where things are more important in the eyes of the hospital (16:22)

You can walk into a room and see the family and you can, you can look at it and it' the whole picture and you can see that there's something wrong and [see] further into things and that's why my decision making is probably changing (19:10)

You're starting to broaden your horizons and look at everything that's going on instead of just what you have to do (21:5)

I'm much more present, I can find out what they normally do, I know, I think ahead (sub 2:11)

... I know through my own, from personal experience of other people (sub 1:7)

I think it [decision making] takes time and confidence, assertiveness and experience (sub 1:11)

But now I'm not scared of cardiac patients, where a lot if people are who haven't had that experience (sub 1:12)

But you always worry when you go to the next ward that you know, you're going to go back tot he beginning and you don't, it's quite amazing (sub 1:13)

I've got more experience to go on and that helps a lot (sub 2:11)

What I see as good pain relief for most people isn't didn't work with her and that surprised me (sub 4:3)

I mean all these things have been experience that I've learnt from, I mean they've [the experiences] taught me something (4:14)

I mean professionally what I can draw on of course is I think just a holistic approach to care, you know, that I've learnt through university and again through work experience (14:9)

... you can't reason with a toddler. I have learned that over and over again (15:5)

... it's a different type of understanding of pain that's all (19:7)

I've gained so much more confidence ... (19:7)

I know what needs to be done ... and that's only through experience that you gain things like that (19:13)

... you can definitely distinguish the difference between her cry because she's uncomfortable or whatever (20:6)

THIRD INTERVIEWS

Q: Do you consciously think of previous situations?

A: No because I think every situation's different. The resident is different, it's a different personality, it's a different relative that you're dealing with. It's entirely different every time (5:15)

I try to make decisions faster than I did when I was first starting off because I have a little bit of experience ... you've now seen similar cases and that sort of thing ... helps me make decisions bases on my experience and based on my greater knowledge (12:12)

... well the factors [that influenced me], of course my own experience of people in pain (14:8)

But I knew, you know how you know ... because obviously you have these intuitions (14:16)

Well I guess because I've had more experience in nursing I've been able to make better judgments on things (16:7)

It was something I'd never dealt with before and maybe if I was in the same situation I may have dealt with it differently (20:9)

But now I've got more of an idea of the system. I also know what the ward routine is and what's expected and I have a lot more experience in dealing with similar situations, to be able to make a judgment . (23:6)

... just knowing what's going on in the ward and knowing how to go about making a decision, how to instigate things without having to ask (7:9)

I plan in my head what I'm going to do, I get it done and I always seem to have time afterwards, unless there's some situation that I haven't planned for (13:10)

I can usually actually work out why it's wrong but I can't predict when it's going to happen. that's been, I guess, Murphy's Law (16:7)

It's just knowing how to prioritise what needs to be done and that's how I've changed (19:8)

... a lot of things become sort of intuition I guess. A lot of things you know (20:3)

I've been through enough [cardiac] arrests to know what will happen so I don't panic (2:12)

I mean it's a real buzz when you finally can go off, you go off and do things and they become like second nature to you (7:9)

It [the current ward] was so different from kids [ward] and outpatients [clinic] that I may as well have been brand new all over again ... which you are I think every time you change ward (7:10)

I didn't feel I'd been there enough or had enough knowledge to sort of question the [the doctors] about their actions or anything like that (8:4)

It's just really hard being a new person in a unit ... to know the boundaries of what you can and can't do (8:7)

I [was] judging that this particular patient was experiencing pain based on the fact that those people [dying of cancer] had the same diagnosis, to her than the mental illness, and they were experiencing pain (23:6)

I had to fight for the pethidine to be given (1:7)

In the last year I wouldn't have know what to do, last year I wouldn't have been so strong (1:8)

I'm doing the right thing, making the right decisions (7:10)

I get disappointed that I'm not doing as well as I should be or that I should know more than I do (8:11)

I doubt my abilities less now than I did in the beginning (12:16)

I have more clarity in the way I act according to the information I have in front of me (14:18)

FOURTH INTERVIEWS

... even though I went in [to neonatal intensive care] not knowing anything about babies I still knew all the paperwork and how you page somebody and the way the doctors work.

Q: So you didn't go right back to the beginning?

A: No (sub 1;12)

I know if I just ease myself into it, think of my basics, I really can't go wrong. I think it's so good to do that because you get over that fear, that hurdle. (sub 4;2)

I mean it's really hard to sort of jump backwards again and moving up again and you sort of, the less decisions to me bade as such but you sort of – it's getting back into your old time management and forward thinking of what you have to have organised ... (sub 8;10)

I know nothing [about Motor Neuron Disease] like the nursing management, so it's just experience and being able to put hands on the books and read up what's expected, what's going to happen, what should you be doing for people. (sub 3;12)

I was back to where I started again, but I think it was a lot easier to pick up skills and the knowledge because I'd already had that basis that I'd got from the other ward and from general stuff that I'd learned at university. (sub 10;6)

I listen. I'm still learning so I listen to everything they [more senior nurses] have to say. (sub 8;7)

You don't sort of have to make too many decisions at my stage because there's always someone above me who's making the bigger decisions of what's really happening. So go along with the flow. (sub 8;11)

When I do ask questions I just tend to already know what the answer is (sic) and I just need confirmation of that. I don't need to do that often. (sub 11;1)

I know what I'm doing. I'm more comfortable in my job. Like I've got a lot more knowledge and I sort of know. (sub 11;12)

Before I used to just do things because that's the way you did them, but now I know why I'm doing them; more so than what I know before. I'm building up my knowledge base ... (sub 10;12)

I have an even better understanding of how the hospital works and how the medical system works and this sort of thing. I know at what stage I need to talk to the doctor about something or at what stage I need to speak to a parent about a development. (sub 11;11)

I've been learning through the course [counselling] I've been doing and the readings I've been doing and that has really played a big part in how I relate to them and I think I'm getting different responses from a lot of them now than I was when I first started nursing in this area [psychiatry]. (sub 23;4)

The nurse that I'm working with who's the Nursing Unit Manager [charge nurse] is really supportive and always interested in what I've got to say in terms of my opinions on things and my questions. That's been tremendous help because that's also been really encouraging to me to just keep going and keep learning. (sub 23;5)

I think of things more medically now. Like the reason why things are and what medically you'll do to relieve [pain, comfort]. (sub 6;4)

I now know more about the ins and outs of different parts of nursing. Like it's not just all sort of patient nurse relationships. It's, you know, you've got to look at all the other different things. The safety aspects, the paperwork. (sub 23;9)

As a nurse in psychiatric nursing, it's really my job to be supportive and to guide her in some way that's going to be of benefit in terms of her growth. Her social interaction with people. (sub 23;2)

I think doctors are learning more and we're learning more so it's becoming more a team effort [managing pain]. It has to be because if it isn't, if one person says "no, I'm not going to give that" then it all falls apart. (sub 5;5)

This is what nursing is. That nothing works out as well as what you think or goes as smoothly as it should; and not to take it on themselves. This is nursing; this is real nursing that we're looking at here. (sub 17;16)

You have to rethink everything; each time you go on duty you go and have a look at them [the residents] and see what they're doing and then you've got to reassess and think 'oh well, I've got to handle you this way instead of that way'. Which does make it quite challenging and quite tiring, emotionally draining. (sub 5;10)

I was glad I didn't have to give that high dose [of morphine] because I hadn't seen that or given that to anyone and we look after a few Palliative Care patients. (sub 4:6)

What influenced me? I guess it was.... When I went to a palliative care course and a lot of the things that they spoke to us about would have influenced me. I felt I could speak to him more openly. (sub 4;7)

Oh I take back everything I take on board [when doing agency work], I take back to where I work [Monday to Friday] and I can always use something from what I've learned on a weekend. (sub 4;10)

Q: Anything in your personal life that you think influenced you at work?

A: I think sort of think like living in the bush and doing that sort of think.

Q: What do you mean by that?

A: Well, you had to sort of fend (sic) for yourself down there and you had to pull on all resources. I think that sort of comes across when you're dealing with people. (sub 5;11)

Q: Was she like that beforehand?

A: Yes she was. So the alarm bells were going off before she actually got home. (sub 7;10)

He discusses very openly his disease and the fact that he's dying and I haven't experienced that with a patient and to be able to experience that with someone that's so open about it, has helped me in my nursing practice (7:4:4)

Just knowing how pain can be when you're getting things done so I guess that influences me a lot. But mainly other reactions of other kids that I've had or friends, you, outside; seeing other people in pain. (sub 10;5)

I suppose you get to know, like you know when a baby's in pain – you can tell by when it's crying or you can tell by the way it's acting that you know; you've seen it before. (sub 11;9)

Q: Why do you think nurses have these [intuitive] experiences?

A: Because they're dealing with people. Because your nursing. You can nurse the same baby for, like every day for five or six days; you're not dealing with just that baby, you're dealing with the parents as well. It's that contract and it's quite intimate. You're dealing with the same thing everyday or you're – different baby but it's a similar scenario, so you've got that. (sub 11;11)

I think I learned a lot from that situation. (sub 13;6)

Q: What is it that leads you towards that decision to actually do that sort of thing?

A: I think it's all because of how we were taught at university. It is something that pervaded through the whole course in terms of explaining things to people. (sub 1;8)

But it's very different to what they teach. Like you're learning it all from a book but when you actually get out there the usual story, it's just so different. I mean, sitting there trying to teach a mum how to breastfeed. You just can't read it and learn it from a book. (sub 7;2)

I can't really remember what I've done at university and what I've learnt on the job. (sub 10;5)

Looking at other peoples mistakes and then putting myself in their shoes and thinking "well what would I have done? Would I have made the same

mistake had I been in that situation or would I have done something differently?” (sub 12-5;15)

Even though I’m not as confident in neonatal as I was in vascular.

Q: So you still don’t feel confident?

A: There’s a severe knowledge deficit that’s the problem. (sub 1:15)

But with my lack of experience in palliative care with medication I don’t know whether it is possible to keep the process [of pain management] smoother. (sub 2;7)

FIFTH INTERVIEWS

Q: Did you ever address anything as specific as those sorts of things, or did it not mean so much then until you were confronted with it?

A: It didn’t mean, I think, I feel sure we did do something like that [at university] but it didn’t mean anything really. Well it didn’t really until you actually work in the situation where you’ve seen it. (sub 1-5;7)

A: I can make decisions on things that I feel confident on quite easily.

Q: Why’s that do you think?

A: My knowledge base. I’ve got more experience. I’ve seen, I’ve made mistakes. I’ve looked and I thought “oh goodness that didn’t work very well “ or I’ve lived through tricky situations ... It’s partly experience, partly living with a higher discomfort level sometimes. (sub 2-5;16)

I’m also much more able to withhold from giving medications and giving myself rather than medications if I can, whereas before I would have just followed the medication [regime]. I’ve seen how it works [giving self] and I’ve seen that being there for someone is often as important as the medication or a hot pack is more important than morphine sometimes. (sub 2-5:17)

Q: What factors or incidents have influenced you the most in your approach to nursing this woman?

A: Just previous work with residents that have had similar situations. (sub 3-5;7)

Q: How would you say your decision-making has changed?

A: I think it’s become more accurate.

Q: And why’s that do you think?

A: I think it’s because you’re seeing the same sort of scenarios. You’re getting to know what the different dementias and how they cope with it and then you have to sort of channel your sort of thinking along those lines of what you can do best for that person or that resident. (sub 5-5;10)

Q: Why does he [patient] stick in your mind?

A: Just because I haven’t seen a grown person actually complaining of such obvious discomfort and moving around the bed. (sub 11-5;3)

I'm getting more autonomous with my decisions.

Q: What's enabled you to do that?

A: Experience. Learning what to do in different situations. (sub 17-5;7)

Through experience, you gain knowledge and through the experience, you also gain an idea of what you need to know. So, without the experience, you cannot really get knowledge and be able to use that knowledge but I think also education. Unless you are having experience what is the use of the knowledge and education?(sub 23-5;9)

I still crucify myself for not knowing. But I don't think you can know that all the time and not be there a long time compared to a lot of other people. (sub 1-5;9)

Q: How do you think your decision-making has changed?

A: I can rationalise more now what I'm doing. Well when I started you just did your work but you were never really doing it properly or why you actually did it because you knew that you had to get it done. But now I've got more knowledge and I can rationalise why I'm actually doing things and why I'm putting things I particular priority. (sub 11-5;11)

I think I've still got a lot to learn and we always have a lot to learn especially in the field where I am [mental health]. In any sort of a field really and gradually over time I think I am still going to develop my confidence and ability to make those sort of decisions with further knowledge and experience and through the course [counselling] I am doing. (23-5;9)

I've gone back to square one ... my decision-making, I sort of rely, because I'm back to being a new person, rely a lot on the other people [RNs] and I don't trust what my first instincts are or what I know. So I go to them for support and to double check what I'm thinking is right. (sub 24-5;13)

I don't know, you put it all [various experiences] together and so you understand why that's happening because I learnt that on the wards. This is why I can make that decision without having to check with anyone else.

Q: You can see the whole picture.

A: Yes. (sub 8-5;11)

I think just the added responsibility has really opened me up to looking at everything that's going on rather than just the immediate sort of situation. I think I've now looked at it as a whole. (sub 23-5;7)

I think people start to get a look – he's starting to get, his face is starting to go greyish and starting to be drawn down his cheeks. And I come in – I was away for a week - and I came back and I thought “[Name of patient} looks worse”. I mean he is dying but it's, some people die slowly. (sub 2-5;8)

You'd pick her up [the baby] and she'd just be so uncomfortable. Just her cry just sort of made you think that she was in pain and also because of her condition she probably did have pain. (sub 24-5;6)

I think through the experience and knowledge of how things work and how patients respond to certain things. I think I have more of an idea and quite confident in making those decisions that I do and I think especially now that I will be acting nursing unit manager [charge nurse]. I think I'm pretty confident in that too. (sub 23-5;8)

I think it's very hard to relate to someone in pain, like in labour pain, because I have never experienced it myself. I think you have to keep that, not that you should experience something to empathetic to someone, but I think you keep that in mind. You can improvise as much as possible but if you don't really know exactly how what it feels like... (sub 7-5;5)

Q: What are some of your thoughts and actions when you're looking after women in labour?

A: Well I was actually thinking about this question before you came and I thought it's my own experiences.

Q: You've had children?

A: I've had two children. (sub 17-5;3)

I know very little about babies and that bothers me.

Q: But you've had two of your own?

A: Yes, but I can't really remember. I mean I remember when they're babies but not from a nursing perspective or to look for abnormalities, what to do. (sub 17-5;9)

Q: How would you say your decision-making has changed?

A: It has again got a lot quicker, a lot more confident in what I think. It's a different – it's just a frame of thinking really.

Q: Can you explain that a bit more? Frame of thinking?

A: I look at a situation and try and pick out the... It's hard to explain but if you think in a way that you're looking ahead and you're thinking "well this and this and this could happen" or "this and this and this could cause that to happen". Then you prepare yourself for such a thing. You're thinking in your mind, you're preparing yourself for what could happen and then when it does happen, you're not blown away by it all and you're not caught by surprise, you just think "okay, well that's okay" and go on. (sub 1-5;12)

I think that I can move more straight to the centre of a problem than I could before. (sub 12-5;16)

I think just with the experience that I can more open to other reasons for problems being there and I'm more aware of what the less likely causes for problems are not. (sub 12-5;17)

I'm a lot faster in putting to one side the little things that I consider not to be affecting the situations anymore. (sub 12-5;17)

I think you don't consciously think of it [decision making] as being ... like if you actually drove home from work and thought "what did I do today? – oh I made this and this decision and I decided that this baby did not need this any more" and you would think, "Oh yes I made a decision". But you don't think about it as being decision making during the course of your work. You just do it. It becomes automatic. (sub 7-5;9)

It's changed heaps [decision-making]. It's got quicker, knowing what to look at. What might be ... (sub 1-5;10)

I'm thinking much more logically. I think I'm assessing patients better overall. ... I'm thinking more about why I'm doing what I'm doing. I think I'm getting into more of a system, thinking systematically rather than just doing things. (sub 17-5;6)

THE EFFECTS OF THE CLINICAL ENVIRONMENT ON CLINICAL DECISION-MAKING

FIRST INTERVIEWS

... it was just so fast and there was (sic) so many things happening and I, I like to have a grasp on everything and when I know everything, (1:15)

Yeah, if I knew a bit more about everything I'd be able to handle it a lot better. (1:15)

Probably on reflection, I was probably a bit scared about the whole thing... (5:5)

... the responsibility is too great, there's too much involved and especially when you've got yourself as an RN and a supervisor with you and the rest are AINs [assistants in nursing]. (5:8)

I mean I've walked away a couple of times and think "I could have done that better" or "I could have approached that differently". But because you are in such a hurry you don't have time to think or you just do it on automatic. (7:8)

... I think when you look at patients you can tell if there're in pain. (5:3)

SECOND INTERVIEWS

I was incredibly pressured with lots of other things happening and I was taking, in a way I was taking the easy way out (2::2)

I always feel uneasy about doctors going on my say so when I' busy and their busy (2:4)

... I haven't got time to do anything for them (2:5)

I've got all this emotional flap that has to go down before my knowledge comes up (2:11)

You've got a work load that you're trying your hardest to get through by handover at the end of the day (7:7)

I've found it frustrating that I don't get time to know my patients (16:1)

There's so much to take in isn't there? All the patients to remember and everything that's going on (16:10)

I don't think that's [decision making] developed all that much because it's been so hard to get a grasp of what's going on (16:23)

... we just follow the protocol. You're not making any decisions on your own (16:23)

I felt a bit powerless to do any more for her (14:6)

THIRD INTERVIEWS

It was just very confusing and there was so much going on and it was really hard to sit, to concentrate and keep focused on what you were doing because there was so many things going on ... you just have to be so careful that you just keep focused on what you're doing. (sub 1;11)

In the past I possibly would have taken more time and more care of people than I do now and that's worrying side of it (2:13)

So what do I cut down on? Good nursing care and go home in a state of conflict whereas I didn't used to (2:13)

I did not have the time to push the issue or to sit down with her [the patient] and try and talk her through [the pain] (3:9)

You can't make the decision for them [nursing home residents], you just have to agree with them and I think that's the only way you can treat them (5:5)

... so all I could do was really make him as comfortable as I could the whole time (13:5)

And you're running around and then you realise you're forgetting the whole crux of it [nursing] (14:12)

I told the man that I was actually finding him very irritating and after that we developed a normal relationship and it seemed as though the pain became a side issue because he'd actually been given real attention from me (2:4)

I was more prepared to be the person that I am (2:5)

I find it difficult and I find that as nurses we tend to try to be nice, we tend to be very indirect (2:9)

So all I can do about that for myself is to try to be direct with other nurses and to try and be direct with patients (2:10)

I've become much harder ... I can see that happening with myself (2:12)

I put the nurses face on, I think " I've got nothing to give you, don't ask for any more you're asking for too much (2:17)

I can be me. (16:9)

So my decision making is affected that way because I feel like I'm forced into making those decisions. But they're not mine (16:9)

so I find [because of my own suffering] I have a lot more compassion for people, like I understand people a little bit more when they tell me things (17:9)

Q: And you're not emotionally involve?

A: I am but I still have a mask. I've found how much I had a mask when my father was diagnosed with cancer this year and suddenly I was falling apart inside. I'm not doing it without heart, but I have a huge barrier that protects me and I had no ideas how thick that barrier was. (sub 2;3)

FOURTH INTERVIEWS

I almost prefer to be in charge because there's so many people that actually haven't got much ideas of what they are doing. I actually feel safer when I'm in charge. (sub 2;14)

A: I'm in charge, that's good.

Q: Why's that good?

A: I don't know. I think you have a better control over the situation... it's nice to have a bit of control. (sub 8;3)

I also had my time management skills worked out a bit better so that I could have time to do things that I wanted to do. ... so that gave me more confidence because I felt like I was in control. (sub 10;7)