Science and Mathematics Education Centre

Assessing Nursing Students' Perceptions of Hospital Learning Environment

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ABSTRACT

Nursing is essentially a practical discipline and as such, clinical practice plays an important part in the nursing curriculum. Clinical education is a vital component in the curricula of pre-registration nursing courses and provides student nurses with the opportunity to combine cognitive, psychomotor, and affective skills. Clinical field placement is an integral element in the overall pre-registration nursing program. Clinical practice enables the student to develop competencies in the application of knowledge, skills, and attitudes to clinical field situations. However, the time allocation for the clinical component of pre-registration nursing courses can be rather limited. It is, therefore, vital that the short but valuable clinical time be utilised effectively and productively.

One of the objectives of this study was to develop and validate an instrument, the Clinical Learning Environment Inventory (CLEI), to assess nursing students' perceptions of hospital learning environment during clinical practice. Data were collected from 138 second year nursing students in a major university school of nursing in South Australia. Both quantitative and qualitative data were collected. The study confirmed the reliability and validity of the CLEI for use in the hospital learning environment.

A second objective was to investigate associations of the CLEI with outcomes. Students' perceptions of the outcome of their clinical placement were found to be strongly associated with all five scales of the CLEI namely; Individualisation, Innovation, Involvement, Personalisation, and Task Orientation. The quantitative and qualitative findings reinforced each other. A third objective was to determine whether there were any differences in students' perceptions of the actual learning environment provided and that preferred by students. It was found that there were significant differences in students' perceptions of the actual clinical learning environment and their preferred clinical learning environment. Findings from the study suggested that students preferred a more positive and favourable clinical environment than they perceived as being actually present.

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CHAPTER 1

INTRODUCTION

Clinical education is a vital component in the curricula of pre-registration nursing courses which provide student nurses with the opportunity to develop competencies in the application of knowledge, skills, and attitudes to clinical field situations. Clinical is defined as "pertaining to the bed side" (Miller & Keane, 1978, p. 225). In contrast to traditional classroom settings, clinical education takes place in a complex social context. This research project focuses on the development and validation of an instrument that may be used to assess nursing students' perceptions of hospital learning environments. The other purpose of this study was to explore and identify attributes that define the effective clinical environment as perceived by student nurses. Moos (1987) asserted that an understanding of social climate can provide insight into people's actions and feelings, and can be a resource for helping people to improve their lives. The identification of factors of the social climate that characterise a hospital learning environment could lead to strategies that foster those factors most predictive of desirable student learning outcomes. It is expected that this research project will assist nurse clinicians and nurse academics to facilitate and maximise the learning process of student nurses in hospital settings during their clinical field placement.

1.1 Background to the Study

Nursing as a profession has evolved in response to societal needs for well-prepared, caring practitioners who function in episodes of illness and promote health among all age groups. Originally, nursing was taught at the bedside by skilled practitioners and the majority of nurses in Australia had, up to 1974, received their education from hospital based training programmes. This form of preparation is similar to an

apprenticeship wherein student nurses during their training receive salaries and in return provide a service for the hospital. Nursing students were partly employees and partly learners. During the three-year apprenticeship, a student was on the job as a junior nurse, much of the time participating in the giving of care. In this situation, the service needs of the hospital took priority over the educational needs of the students. Each student nurse was taking his/her full share of the day's work and learning was achieved chiefly by trial and error (Stewart, 1943).

The nursing profession had for some time argued that this type of preparation was unable to satisfy the educational requirement of the beginning nurse practitioner. Nursing supported the view that providing service was the primary objective of hospitals. However, they proposed that as the educational needs of the student nurse could not be catered for adequately without prejudicing this objective, then the responsibility for student education must be located elsewhere (Jenkins, King, & Gray, 1982). Strong lobbying and negotiation by nurse practitioners over a lengthy period finally persuaded the Australian Federal Government to transfer pre-registration nursing education programmes from their traditional hospital base to the tertiary education sector. In August 1984, the Commonwealth Government announced its support for the full transfer of basic nursing to Colleges of Advanced Education and Universities. The transfer began in 1985 and was completed in 1994.

Although pre-registration nurse education in Australia now has been transferred to higher education institutions, student nurses continue to acquire the majority of their clinical experiences in hospitals. However, the focus on this clinical learning has changed from doing to knowing and understanding (Wong & Wong, 1987, p. 505). Most importantly, the role of the student nurse has been reinstated from worker to learner. The drive to prepare nurses capable of doing, as well as knowing, has meant that clinical education has been maintained as a significant component of the pre-registration nursing curriculum.

Nursing is essentially a practice-based profession and as such clinical field placement is a vital and integral component in the curricula of pre-registration nursing courses. McCabe (1985) described clinical learning experience as the "heart" of professional education, as it provides students with an opportunity for

consolidating knowledge, socialising into the professional role, and acquiring professional values. Clinical field placement allows student nurses to combine cognitive, psychomotor and affective skills which enable them to develop competencies in the application of knowledge, skills, attitudes and values to clinical situations. Hart and Rotem (1995) defined the clinical learning environment as the attributes of the clinical work setting which nurses perceive to influence their professional development. In contrast to the typical classroom environment, clinical education takes place in a rather different and complex social context. A few of these differences are: one has little control of environmental conditions; students must combine the use of cognitive, psychomotor, and affective skills to respond to individual client needs; client safety must be maintained while he or she is cared for by a novice practitioner; and nurse educators must monitor client needs as well as student needs.

Thorell-Ekstrand and Bjorvell (1995) suggested that clinical placement provides the student optimal opportunities to observe role models, to practise by one's self and to reflect upon what is seen, heard, sensed and done. This is in accordance with Benner's (1984) description of how expertise developed. Benner emphasised that learning becomes integrated into personality to create a holistic way of seeing and relating. Windsor (1987) asserted that the major categories of learning from clinical experience are nursing skills, time management, and professional socialisation. Davis (1990) argued that the social and physical structures between and within the classroom and the clinical setting have potential influences on the nursing students learning process. Many aspects of the clinical environment affect the quality of the students' learning. Windsor (1987) suggested that the quality of learning is affected by the quality of the student's preparation, characteristics of the instructor/teacher, and the variety of clinical opportunities to which students were exposed. Campbell, Larrivee, Field, Day, and Reutter (1994) went further and suggested two major factors which influenced the students' learning in the complex clinical environment: the first was the clinical teacher, the second peer support. Moreover, these two factors seem to be closely inter-related. Thus, it is apparent that effective learning in a clinical setting is influenced, to a great extent, by competent clinical teachers.

1.2 Theoretical Framework

From the students' perspective, all educational environments provide an important vehicle for learning. On the other hand, educational environments can be a powerful teaching instrument at the disposal of the teacher. Fraser (1994) suggested that educational environments can be considered as the social-psychological contexts or determinants of learning. Thus, in the process of teaching and learning, the classroom environment has two functions. It provides the setting for learning and at the same time acts as a part of teaching and learning.

Fraser and Fisher (1983a) asserted that the strongest tradition in past classroom environment research has involved investigation of the predictability of students' cognitive and attitudinal outcomes from their perceptions of classroom learning environment. Student learning was found positively related to the levels of cohesiveness, satisfaction, and task orientation in the classroom, and negatively related to the levels of friction and disorganisation (Fraser & Fisher, 1983a). This suggests that student outcomes might be improved by adjusting classroom environments. Evidently, this is supported by Byrne, Hattie, and Fraser (1986) who asserted that the ideal classroom or school environment is that which is conducive to maximum learning and achievement. Furthermore, past research into classroom environments has indicated that student perception accounts for appreciable amounts of variance in learning outcomes (Fraser & Walberg, 1991).

In addition to the formal classroom contact time, student nurses spend an enormous amount of time in clinical practice. The period of clinical practice has been designed as a period of transition which allows the student to consolidate the knowledge and practise skills acquired during fieldwork practice in a working situation. During clinical field placement, the students are expected to develop competencies in the application of knowledge, skills, attitudes and values inherent in the nursing profession. Arguably, the clinical environment is equivalent to a classroom for student nurses during their clinical field placement. In accordance with Fraser and Fisher's (1983b) suggestions, student outcomes during their clinical field experience might be improved by adjusting the clinical environment. Hence there is a need to

assess the students' perceptions of the clinical learning environment in order to facilitate and maximise student nurses field placement.

The question now becomes one of how to assess this learning environment. Fraser (1982) identified three distinctive methods for assessing and studying classroom environments. First, the use of case studies, involving ethnography, participant observation, and application of techniques of naturalistic inquiry, is one of the methods used for studying classroom environment. The second method used for studying classroom environment is interaction analysis which involves observation and systematic coding of classroom communication. However, this approach involves the expense of trained observers and extensive coding. The third method for studying a classroom environment, which is growing quickly in popularity, focuses on student and/or teacher perceptions of psychosocial characteristics of the classroom. Paper-and-pencil perceptual measures are clearly more economical than classroom interaction analysis. Furthermore, these perceptual measures are based on experiences over many lessons, and usually involve the pooled judgements of all students in a class. Fraser (1994) suggested that students have a good vantage point to make judgements about classrooms because they have encountered many different learning environments and have enough time in a class to form accurate impressions.

This research utilised the third method as outlined above to assess student nurses' perceptions of psychosocial characteristics of the clinical learning environment during their clinical field placements. To complement the quantitative approach, qualitative data were collected in conjunction with the quantitative data. For many years, researchers in various areas of educational studies, especially educational evaluation, have claimed that there are merits in moving beyond the customary practice of choosing either quantitative or qualitative methods and, instead, combine quantitative and qualitative methods (Fraser, 1994). In the field of classroom environment, research involving qualitative case study methods (Rutter, Maughan, Mortimore, Ouston, & Smith, 1979; Stake & Easley, 1978) has provided rich insights into classroom life and the use of both quantitative and qualitative approaches, involving assessment of student and teacher perceptions as described, has undoubtedly advanced the understanding of classroom learning environments.

Furthermore, the benefit of using a multiple-research method lies in the assumption that complementary insights can lead to the identification of new problems and possible solutions to new and persistent problems. Hence both quantitative and qualitative methods were utilised in this study to assess nursing students' perceptions of the clinical learning environment. Quantitative data were obtained with a specifically designed questionnaire; and qualitative data were collected through interviewing randomly selected nursing students during their clinical field placements.

Although there are numerous instruments available for assessing classroom learning environments at various levels, not one validated instrument has been specifically designed for measuring the learning environment while students are on field placement (Hart & Rotem, 1995). It is the researcher's aim to develop an instrument, the *Clinical Learning Environment Inventory (CLEI)*, to assess the psychosocial characteristics of clinical learning environments where student nurses, clients, clinicians and clinical teachers co-exist, each with their own objectives.

Fraser, Treagust, and Dennis (1986) suggested that classroom environment instruments would be useful for research involving the effects of the classroom psychosocial environment on students' cognitive and affective outcomes, the determinants of classroom environment, differences between students and their teachers in perceptions of actual and preferred classroom environment, and person-environment fit studies of whether students achieve better in their preferred classroom environment. Fraser (1994) suggested that whereas past research has concentrated on investigations of associations between student outcomes and the nature of the actual environment, having both actual and preferred forms of educational environment instruments permits exploration of whether students achieve better when there is higher similarity between the actual classroom environment and that preferred by students. The preferred forms are concerned with goals and value orientations and measure perceptions of the classroom environment ideally liked or preferred. Moos (1987) asserted that the preferred form gives people the opportunity to describe what they consider to be an ideal setting. Furthermore, by comparing the actual and preferred forms, which provides a more complete picture

of a setting and better insight into problem areas, one can interpret how well the current environment matches the preferred environment.

> Having actual and preferred forms of classroom environment instruments makes it possible to use data on actual-preferred discrepancies as a practical basis for planning environmental changes that will align the actual environment with students' or teachers' preferred environment.
>
> (Fraser, 1982, p. 518)

This is reinforced by Fraser (1982, 1986b), Fisher and Fraser (1983a), and Hofstein and Lazarowitz (1986) who suggested that in previous studies in classroom learning environment, students tended to prefer a different learning environment from which actually existed in their classrooms.

Accordingly, the CLEI is developed in two versions, the Actual and Preferred forms. The Actual form is used to measure perceptions of actual clinical environment while the Preferred form is designed to measure perceptions of preferred clinical environment. Items in the two questionnaires are almost identical with a slight change of wording. Assessments of student perceptions of both their actual and preferred clinical environment can be used to identify differences between the actual clinical environment and that preferred by students, and most importantly, strategies aimed at reducing these differences could be implemented.

1.3 Objective of the Study

Thus there are four major objectives of this study:

1. To develop and validate the instrument, The Clinical Learning Environment Inventory, CLEI, for assessing pre-registration nursing students' perceptions of their clinical learning environments during clinical field placements.

2. To assess pre-registration nursing students' perceptions of hospital learning environments during their clinical field placement.

3. To examine differences between student nurses' perceptions of the actual clinical learning environment and their preferred clinical learning environment.

4. To investigate associations between nursing students' satisfaction with their clinical placements and their perceptions of the clinical learning environment.

1.4 Significance of the Study

Nursing education takes place in many different settings. Apart from variation in different classroom environments, a lot of learning takes place during clinical practice. Nursing is essentially a practice discipline and as such, clinical practice plays an important part in the nursing curriculum. Through clinical field placement, student nurses are provided with the opportunity to apply the previously acquired knowledge to patient care situations and to acquire the kinds of professional and personal skills, attitudes and values thought essential for entering the health care system. Clinical education is a vital component of the curricula of pre-registration nursing courses, which provides student nurses with the opportunity to combine cognitive, psychomotor and affective skills. If producing the knowledgeable and competent reflective practitioner is the goal of nurse education, every effort is necessary to facilitate clinical education as well as classroom education.

This research project aims at assessing student nurses' perceptions of the clinical learning environment. It is envisaged that the result of the project will assist the nursing profession, nurse educators in particular, to explore, facilitate and maximise the learning process of student nurses in clinical settings. Consequently, the scarce but valuable clinical time will be utilised effectively, efficiently and beneficially during students' clinical placement.

It is evident from the past research examined that there is a considerable lack of hospital learning environment studies from a psychosocial educational perspective. Hence this study, which involves assessment of nursing students' perceptions of the psychosocial perspective of the hospital learning environment, is necessary. The

development of a new instrument also contributes to the knowledge of learning environment.

1.5 Overview of the Thesis

This chapter describes how and why the purposes of this study were formulated, provides pertinent background information to set the context of the study, highlights the significance of the study, and gives a brief overview of the theoretical framework of the study.

Chapter 2 contains a literature review focusing on the theoretical framework on which classroom environment research is based, along with a brief description of the development and validation of some classroom environment instruments. This is followed by a review of past research using educational environment instruments at various levels of education.

Chapter 3 contains a description of the methodology used in this study which includes both quantitative and qualitative approaches. The chapter gives an account of the development of the instrument, the Clinical Learning Environment Inventory (CLEI) which was used to collect quantitative data. Following a description of the quantitative method, the chapter concludes with a description of how qualitative data were collected through interviewing randomly selected students.

Chapter 4 reports on the descriptive statistics, based on the sample, used to confirm the validity and reliability for the CLEI. This chapter also explores and reports on the findings of the analyses of the quantitative data. Nursing students' perceptions of their hospital learning environment during hospital placement are reported, along with the associations between student outcomes and clinical learning environment. Also, differences between students' perceptions of actual and preferred (ideal) clinical learning environment are examined and discussed.

Chapter 5 includes an analysis and interpretation of the qualitative data collected through interviews with the selected sample of nursing students. This chapter also contains a comparison of qualitative data with the quantitative findings in Chapter 4.

Chapter 6 reports the major findings of the study by integrating the quantitative and the qualitative findings. The chapter and thesis concludes with an account of the limitations of this study and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter contains a review of the literature related to the subject of this thesis. The chapter begins with a review of historical perspectives and conceptual framework for learning environment research. Three general categories of dimensions for conceptualising human environment are introduced as they form essential elements in most learning environment instruments. Some classroom environment instruments commonly used in prior research for assessing perceptions of classroom learning environments are discussed. Past research using educational environment instruments at various levels of education is explored. This is followed by a review of the literature into recent research in the study of hospital learning environments.

> The social climate is the "personality" of a setting or environment, such as a family, an office, or a classroom. ...each setting has a unique "personality" that gives it unity and coherence. Like some people, some social environments are friendlier than others. Just as some people are very task oriented and competitive, some environments encourage achievement and competition. Environments, like people, also differ in how rigid and controlling they are.
>
> (Moos, 1987, p. 2)

Social climate can have a strong influence on people in a particular setting. Clinicians and researchers have evidence to show how it affects each person's behaviour, feelings, and growth (Moos, 1987). In the process of teaching and learning, the learning environment has a dual function. From the teacher's point of view, educational environments can be a powerful teaching instrument at the disposal of the teacher; from the student's perspective, educational environments provide an important vehicle for learning.

2.2 Hospital Learning Environment

Nursing education takes place in many different settings and formats. Like most other tertiary disciplines; lecture, tutorial, workshop, seminar and laboratory are the most common variations of classroom environments that a student nurse encounters. In addition, clinical field placement is yet another important and essential part in the nursing curriculum. Clinical education is a vital component in the curriculum of pre-registration nursing courses. Clinical practice can be conducted initially in laboratory under simulated conditions where students learn and practice skills. This ensures the students work under a less threatening situation and has been designed as a period of transition which allows the student to consolidate knowledge and practise skills acquired during fieldwork practice in a working situation. This is then followed by fieldwork practice in hospitals. During clinical field placement, the students are expected to develop competencies in the application of knowledge, skills, attitudes and values inherent in the nursing profession. Arguably, the clinical learning environment is equivalent to a classroom for student nurses during their clinical field placement.

Hospitals traditionally have provided restorative care to the ill and injured. Although hospitals are chiefly viewed as institutions that provide care, they have other functions, such as providing resources for health-related research and teaching. On the other hand, hospitals are also organisations where a number of health deliverers provide care and treatment for those in need. Furthermore, hospitals are venues where students from various health disciplines acquire and practise their knowledge and skills. The complexity of the working environment of health care deliverers in hospitals has been acknowledged. It is apparent that hospital working environment are stressful for some staff especially with the increasing tightness in the health budget. Staff members in the health care teams are employed by the institution as health care deliverers. Their first priority is the welfare of their clients and they are not necessarily, expected to be involved with teaching students in the hospital environment. The clinical learning environment has been defined as an interactive

network of forces within the clinical setting which influence the students' clinical learning outcomes (Dunn & Burnett, 1995).

The evaluation of clinical teaching and learning has been of interest for many years. Of particular concern is the perceived demand for high-quality, cost-effective clinical education experiences that facilitate student learning in the clinical environment. The clinical learning environment is the interactive network of forces within the clinical setting that influences the students' learning outcomes. Central to many studies of nursing in the clinical setting is the concept of ward learning environments. The concept of learning climate also emphasises the importance of the physical, human, interpersonal and organisational properties, mutual respect and trust among teachers and students (Knowles, 1990).

Of the 15 highest priorities for nursing research identified by Tanner and Lindeman (1987), ten focused on clinical education. Clinical field experience provides student nurses with the opportunity to combine cognitive, psychomotor and affective skills and problem solving abilities which enables them to develop competencies in the application of knowledge, skills, attitudes and values to clinical situations. Thorell-Ekstrand and Bjorvell (1995) suggested that clinical placement provides the student optimal opportunities to observe role models, to practise and to reflect upon what is seen, heard, sensed and done. In order to practise safe, beginning-level nursing care, new graduates must have developed the theoretical knowledge on which to base their care as well as the practical application skills required to implement that knowledge (Dunn & Hansford, 1997).

In contrast to classroom teaching, clinical education takes place in a complex social context where a teacher monitors both clients', students' and clinicians' needs. Unlike classroom learning in which student activities are structured, students in the clinical areas are frequently thrown into unplanned activities with patients and other health discipline deliverers. It is not surprising that learning in the clinical area presents a bigger threat to students than learning in the classroom. Many nursing students perceive clinical experience as anxiety-provoking (Kushnir, 1986). Windsor (1987) suggested that student anxiety in the clinical setting was an area of concern for nurse educators. She argued that the student's relationship with instructor, staff

nurses, other students and patient was important in students' clinical experience. She added that these people helped to provide a pleasant working environment as well as assisting the student to learn.

During clinical placement, nursing students frequently felt vulnerable in the clinical environment (Campbell, Larrivee, Field, Day, & Reutter, 1994). This may be because they were learning to provide care but they may also be concerned with the reaction of nursing staff to their efforts. Melia (1987) suggested that student nurses had difficulty differentiating between their roles of both learner and worker. Evidently, student nurses were thrust into the clinical area as short-term members of the patient care team, thus their position was anomalous and the motive for involvement in patient care was usually different from that of permanent employees (Ashworth & Morrison, 1989).

Knowles (1990) suggested that a supportive learning climate was a critical element of human resource development. He asserted that there was a need for both the direct facilitation of the development of individuals and the indirect facilitation of the development through improving the educative quality of their environments. Windsor (1987) asserted that the major categories of learning from clinical experience were nursing skills, time management, and professional socialisation. Furthermore, the quality of learning was affected by the quality of the students' preparation, characteristics of the instructor/teacher/facilitator, and the variety of clinical opportunities to which students were exposed. Betz (1985) suggested that supportive aspects in an optimum clinical placement would include experiences to strengthen students' independent professional growth, and encouragement of peer level interactions with other care professionals. Hart and Rotem (1995) further substantiated Betz's (1985) suggestions in their recent survey study of nurses' perceptions of professional development in clinical settings. They identified six independent variables which characterise the clinical learning environments. These independent variables were: autonomy and recognition, role clarity, job satisfaction, quality of supervision, peer support and opportunity for learning.

Many aspects of the clinical environment affect the quality of the students' learning. Windsor (1987) claimed that the quality of learning was affected by the quality of

the student's preparation, characteristics of the instructor/teacher and the variety of clinical opportunities to which students were exposed. Baillie (1993) identified the student's own approach, how the student felt about his/her role in the placement, the student's relationship with the mentor and the student's prior experience of the placement setting, as important factors affecting student nurses' learning in clinical placement. Davis (1990) suggested that the choice of placements for the learner and the timing of the placements in relation to theoretical aspects of study was crucial. Davis asserted that other aspects should be considered in the study of how nurses learn. These include the models of nursing being implemented, the staffing mix, and management strategies for the delivery of care. Campbell, Larrivee, Field, Day, and Reutter (1994) substantiated Davis' (1990) assertions and suggested two major factors which influenced the student's learning in the complex clinical environment: the first was the clinical teacher, the second peer support. Moreover, these two factors seemed to be closely inter-related. It is apparent that effective learning in a clinical setting is influenced, to a great extent, by competent clinical teachers.

In a study of the characteristics of best and worst clinical teachers as perceived by nursing faculty and students in 1990, Virginia Nehring concluded that being a good role model is the most important characteristic distinguishing "best" from "worst" clinical teachers (p. 940).

Nehring's (1990) finding is consistent with other research previously conducted in this area by Rauen (1974), O'Shea and Parson (1979), and Knox and Morgan (1987). These researchers have collected data from students and/or faculty regarding effective or ineffective behaviours of clinical teachers. In these samples, the characteristics seen as descriptive of the "best" clinical teachers include being a good model, enjoys nursing, enjoys teaching, takes responsibilities for own actions, and demonstrates clinical skills and judgement. On the other hand, the "worst" clinical teacher was perceived as only rarely being characterised by being a good role model, using self-criticism constructively, encouraging mutual respect or providing support and encouragement (Nehring, 1990, p.939). It is apparent that effective learning in a clinical setting is influenced, to a great extent, by competent clinical teacher. Baillie (1993) argued that to be a good role model, a clinical teacher was one who enjoyed teaching and demonstrated good clinical skills and sound judgement.

There are a few different approaches to how clinical teachers/facilitators are incorporated currently in clinical teaching in nursing programs. These include the traditional model of clinical instruction, the shared or joint appointment model, and the preceptor model (Baird, Bopp, Kruckenberg-Schofer, Langenberg, & Matheis-Kraft, 1994). In the traditional model, a faculty member is directly responsible for the supervision of a group of students. However, the group of students are usually scattered in different ward areas of the hospital. Consequently, it becomes difficult if not impossible for all students to maintain immediate and continuous access to the clinical teacher.

An alternative arrangement to this traditional model is secondment of a clinician from the clinical venue to provide supervision of a group of students. The shared or joint appointment model combines employment between an educational institution and a health care agency. This provides the faculty member the opportunity to experience teaching while maintaining clinical practice at the same time. Such partnerships contribute to the link between a university and health agency. They created environments in which mutual recognition of practice and education were seen as essential, equal contributors to nursing and the basis for a practice educational model (Kirkpatrick, Byrne, Martin, & Roth, 1991).

The preceptor model utilises clinicians as mentors and facilitators for the students usually in the final year of the curriculum. It is the responsibility of the faculty member to provide crucial communication link between the educational and practice settings.

In addition to the above models, a "cluster" model of clinical teaching in which the nurse educator and a group of nursing students undertake to provide total nursing care to an allocated group of patients in a specified ward area was introduced in 1989 in South Australia. This model was designed to give nursing students continuous access to their nurse teacher and to maximise opportunities to apply theory to practice (Greenwood & Winifreyda, 1995).

Nursing students perceive the practice setting as the most influential context when it comes to acquiring nursing skills and knowledge. Clinical placement provides the student optimal opportunities to observe role models, to practice by self and to reflect upon what is seen, heard, sensed and done (Thorell-Ekstrand & Bjorvell, 1995). Furthermore, the professional socialisation of nurse learners occurs largely in the practice setting (Windsor, 1987; Lee & French, 1997). All in all, the clinical learning environment is a multidimensional entity which has a direct impact on the outcomes of students' clinical placement.

2.3 Historical Perspectives and Conceptual Framework of Learning Environment Research

Classroom environment studies originated three decades ago with the work of Herbert Walberg and Rudolf Moss. Walberg began developing earlier versions of the widely used *Learning Environment Inventory* as part of the research and evaluation activities of Harvard Project Physics (Anderson & Walberg, 1968; Walberg, 1968; Walberg & Anderson, 1968a, 1968b). Almost at the same time, Moos began developing the first of his social climate scales, including those for use in psychiatric hospitals (Moos & Houts, 1968) and correctional institutions (Moos, 1968), which resulted in the development of the widely known *Classroom Environment Scale* (Moos & Trickett, 1974, 1987).

Classroom environment research builds on and has been influenced by two areas of earlier work. Firstly, the influence of the theoretical, conceptual, and measurement foundations laid half a century ago by pioneers like Lewin and Murray, and their followers such as Pace and Stern (Fraser, 1994). Secondly, research involving assessments of perceptions of classroom environment such as the work of Walberg and Moos, was also influenced by prior work involving low-inference, direct observational methods of measuring classroom climate (Chavez, 1984).

Lewin recognised that both the environment and its interaction with personal characteristics of the individual are potent determinants of human behaviour (von Saldern, 1984). He proposed a formula, the familiar Lewinian formula, to stimulate

new human behaviour research strategies. Lewin suggested that human behaviour (B) was a function of both the person (P) and the environment (E), that is, $B = f(P,E)$ (Lewin, 1936).

Murray (1938) followed Lewin's approach by proposing a "needs-press" model, which allows the analogous representation of person and environment in common terms. He defined "needs" as those specific innate personal requirements of an individual, as well the individual's desire to achieve these, as being determinants of an individual's personality. He defined "press" as those factors outside the individual (environment) that either facilitated or impeded the individual's attainment of these personal needs. Furthermore, Murray also suggested that the environment could be perceived by an external observer or by those inhabiting the environment. He used "alpha press" to describe the environment as perceived by an external observer and "beta press" to describe the environment as perceived by its milieu inhabitants.

Pace and Stern (1958) applied Murray's needs-press theory in their studies of college environments and provided the first examples of rigorous high-inference measures of educational environments. The difference between low-inference and high-inference measures was highlighted by Rosenshine (1970) who recognised that low-inference measures involved an observer in a classroom, recognising and recording the occurrence of a set of predetermined events/actions/behaviours, while high-inference measures involved a judgement or interpretation as to the extent or degree certain events/actions/behaviours occurred. Naturally, the high-inference measures could be best described by an environment's milieu inhabitants. This research project which assesses nursing students' perceptions of hospital learning environment is an example of a high-inference measure of educational environment.

Murray's distinction between alpha press and beta press was extended by Stern, Stein, and Bloom (1956), who distinguished between the idiosyncratic view that each person has of the environment (private beta press) and the shared view that members of a group hold about the environment (consensual beta press). Private and consensual beta press could differ from each other, and both could differ from the detached view of alpha press of a trained non-participant observer. It is important that researchers, in designing classroom environment studies, decide whether the

analyses will involve perception scores from individual students (private press) or whether these will be combined to obtain the average of the environment scores of all students in the same class (consensual press). These are regarded as two units of analyses in statistical terms which is referred to repeatedly in the next section regarding validation of learning environment instruments.

The work of Moos (1974) in conceptualising the environment in an organisational framework provides a means of putting the classroom environment within context. Like people, environments have unique personalities. For instance, some people are supportive; likewise, some environments are supportive. Some people feel the need to control others; similarly, some environments are extremely controlling. Order and structure are important to many people; correspondingly, many environments emphasise regularity, system and order. Accordingly, Moos (1974) identified three basic types of dimensions that are characteristic of all human environments. The scales of the questionnaires developed to assess learning environments can be classified into one of Moos' three dimensions, and this provides a convenient framework for the comparison of perceptions of learning environments assessed using different questionnaires.

1. Relationship Dimensions identify the nature and intensity of personal relationships within the environment. They include such aspects as involvement, student cohesion, supervision support, peer cohesion, and expressiveness. These dimensions assess the extent to which people are involved in the environment, the extent to which they support and help each other, the amount of friendship and loyalty within the environment and the extent to which there is spontaneity and free and open expression among them.

2. Personal Development (Goal Orientation) Dimensions as indicating opportunities for self-enhancement and development of self-esteem. They include such aspects as task orientation and competition. The domains assess the basic directions along which personal growth and self-enhancement tend to occur in the particular environment.

3. System Maintenance and System Change Dimensions assess the extent to which the environment is orderly, clear in its expectations, maintains control and is responsive to change; these elements are relatively similar across all environments. The basic factors are order and organisation, clarity, control and innovation.

Moos (1974) suggested that Relationship Dimensions, Personal Dimensions, and System Maintenance and System Change Dimensions must all be assessed to provide an adequate and reasonably complete picture of an environment. These three dimensions were found to characterise and discriminate across a wide variety of human environments including psychiatric wards, military basic training companies and family environments (Moos, 1974). Specific reference to the three dimensions in a classroom environment instrument is first seen in the Classroom Environment Scale (CES) (Trickett & Moos, 1973).

Moos began developing the first of his social climate scales, The *Ward Atmosphere Scale*, for use in psychiatric hospitals (Moos & Houts, 1968) for assessing ward treatment environments. The Ward Atmosphere Scale was developed to measure the social climates of hospital-based programs by asking patients and staff individually about the usual patterns of behaviour in their program. Moos (1974) asserted that human behaviour is shaped and directed by the environment as subjectively perceived by the people in it and that, patients and staff members often perceived the same environment quite differently. He suggested that an individual who needed a high degree of support should function better in a highly supportive environment; an individual who needed little support might find such an environment over-controlling and stifling.

Based on Moos' theoretical perspectives, a number of questionnaires have been developed for assessing classroom learning environments. For example; the *Learning Environment Inventory* (Anderson, & Walberg, 1968); the *My Class Inventory* (Fisher & Fraser, 1981); *Classroom Environment Scale* (Moos & Trickett, 1974); *Individualized Classroom Environment Questionnaire* (Rentoul & Fraser, 1979); *College and University Classroom Environment Inventory* (Fraser, Treagust,

& Dennis, 1986); and numerous other instruments designed for assessing classroom learning environments at a variety of school levels. The next section will highlight details of these contemporary environment instruments.

2.4 Development of Instruments for Assessing Classroom Learning Environments

This section introduces some historically important and contemporary environment instruments used in learning environment studies at various levels. It is important to examine these learning environment instruments in order to determine their potential suitability for use in the clinical learning environment. A brief account of the development and validation of each instrument, details of its scales and items, and its previous use in learning environment research are included:

2.4.1 *The Learning Environment Inventory (LEI)*

The Learning Environment Inventory (LEI), associated with the evaluation and research related to Harvard Project Physics course (Anderson & Walberg, 1968; Walberg, 1976; Fraser, Anderson & Walberg, 1982), has been used extensively in classroom research, especially at secondary school level. The LEI is an expansion and improvement of the 18-scale *Classroom Climate Questionnaire* developed by Walberg (1968). The selection of the 15 scales that were included in the LEI was based on the following concepts. Concepts had to be previously identified as good predictors of learning, concepts had to be relevant to social psychological theory and research, concepts had to have been intuitively judged relevant to the social psychology of the classroom and concepts had to be similar to those found useful in theory and education research. (Fraser & Walberg, 1991). Table 2.1 provides an overview of the 15 scales contained in the LEI with respect to Moos' scheme:

The final version of the LEI contains a total of 105 statements, with seven items per scale, describing typical school classroom environments. Respondents indicated their degree of disagreement or agreement with each statement on a four-point scale ranging from strongly disagree to strongly agree. The scoring direction was reversed for some items.

Table 2.1
Overview of Scales contained in LEI with respect to Moos' Scheme

Moos' Scheme	LEI Scales
Relationship Dimensions	Cohesiveness Friction Favoritism Cliqueness Satisfaction Apathy
Personal Development Dimensions	Speed Difficulty Competitiveness
System Maintenance and Change Dimensions	Diversity Formality Material environment Goal direction Disorganisation Democracy

Assessing student perceptions and measuring class-group perceptions of the classroom learning environment are two distinct uses of the LEI (Fraser, Anderson, & Walberg, 1982). It was recommended that the individual as the unit of analysis should be used when studying variables such as pupil gender or self-concept, and that the class mean was the appropriate unit of analysis when studying variables such as curriculum or teacher characteristics.

The instrument was validated in a North American study in 1969 when the LEI was administered to 1048 high schools students in a variety of subjects in Montreal. Cronbach alpha coefficients were calculated to determine scale reliabilities, values ranged from 0.54 to 0.85 using the individual as the unit of analysis. Cronbach alpha, a commonly used reliability coefficient, is based on the average correlation of items within a test if the items are standardised. If the items are not standardised, it is based on the average covariance among the items (Cronbach, 1982). Cronbach's alpha

ranges in value from 0 to 1; zero indicates no reliability and one means perfect reliability (Coakes & Steed, 1997). A Cronbach alpha coefficient of 0.6 is considered an acceptable level in questionnaires like the learning environment instruments (Nunnally, 1978, p.230).

Another method for determining reliability is the test-retest method in which the same test is given to the same people after a period of time (Nunnally, 1978). Accordingly, test-retest reliability, using the individual as the unit of analysis with a sample of 139 North American students in 1970, ranged from 0.43 to 0.73. Each scale's mean correlation with the other scales, using a 1967 North American study of 149 physics classes, was reported to range form 0.08 to 0.40. These results confirmed the validity and reliability of the LEI.

The LEI has been widely used in many past learning environment studies (Randhawa & Fu, 1973; Anderson & Walberg, 1974; Walberg, 1976, 1979; Walberg & Haertel, 1980; Fraser & Walberg, 1981; Haertel, Walberg, & Haertel, 1981). However, the strongest tradition in prior research with the LEI has involved investigation of associations between student outcomes and their perceptions of classroom environment in various part of the world, for example, in the U.S.A. (Walberg, 1969a, b, 1972; Lawrenz, 1976; Cort, 1979), Canada (Walberg & Anderson, 1972; O'Reilly, 1975), Australia (Fraser, 1979; Power & Tisher, 1979), Israel (Hofstein, Gluzman, Ben-Zvi, & Samuel, 1979) and India (Walberg, Singh, & Rasher, 1977). The LEI has also been used for curriculum evaluation purposes (Anderson, Walberg, & Welch, 1969; Fraser, 1979; Levin, 1980), and to relate classroom environment to other variables such as teacher personality (Walberg, 1968), class size (Walberg, 1969c; Anderson & Walberg, 1972), grade level (Welch, 1979), subject matter (Anderson, 1971; Kuert, 1979) and type of school (Hofstein, Gluzman, Ben-Zvi, & Samuel, 1980).

Furthermore, measures of the learning environment in the LEI have been used in the development of other instruments, such as the *Inventory of Affective Aspects of Schooling (IAAS)*, which was developed specially for research into students' attitudes toward science (Haladyna, Olsen, & Shaughnessy, 1982).

2.4.2 *The My Class Inventory (MCI)*

A simplified version of the LEI, the *My Class Inventory* (MCI), was produced for use in primary schools (Fisher & Fraser, 1981; Fraser, Anderson, & Walberg, 1982). The MCI was developed because children between eight and twelve years old experienced fatigue in answering the numerous items of the LEI. Furthermore, the terminology used in many items of the LEI were beyond the comprehension of most primary school children.

The MCI contains only five scales with a total of 38 items and a two-point (yes-no) response format per item. The five scales of the MCI are named Cohesiveness with 6 items, Friction with 8 items, Satisfaction with 9 items, Difficulty with 8 items, and Competitiveness with 7 items. The simplicity in the level of reading and the ease of response makes the MCI well suited to students at the elementary school level.

Validity and reliability statistics reported by Fraser, Anderson, and Walberg (1982) based on data collected from a sample of 2305 students in 100 seventh grade classes in 30 schools in Australia, indicated that the MCI was a valid and reliable instrument that could be used with confidence in measuring the students' perceptions of classroom environment, at the elementary school level.

The number of published studies using the MCI is relatively small compared with the volume of published research involving the LEI. Nevertheless, the MCI was used in investigations of relationships between outcomes and environment (Talmage & Walberg, 1978; Boulanger, 1980; Fraser & Fisher, 1982a), a curriculum evaluation study (Talmage & Hart, 1977) and a practical attempt to improve classroom environments (Fraser & Deer, 1983).

2.4.3 *The Classroom Environment Inventory (CES)*

The Classroom Environment Scale (CES) was developed by Rudolf Moos at Stanford University (Moos & Trickett, 1974). The original version of the CES consisted of 242 items representing 13 conceptual dimensions (Fraser, 1994) and grew out of a comprehensive program of research involving perceptual measures of a variety of human environments, including psychiatric hospitals, prisons, university residences, and work milieus (Moos, 1974). After extensive trials and analysis in

classroom settings, the final published version of the CES has nine scales with 10 items per scale and uses a True-False response format.

The selection of the nine scales that were included in the CES was guided by the following process. A literature review was conducted of conceptual and empirical literature in educational and organisational psychology, descriptions of classroom environments from popular literature and prior educational research was reviewed, structured interviews were conducted with teachers and students in several different schools. The selection, development and organisation of the scales to be evaluated were based on a conceptual framework which reflected the previous work of Moos (1974). Table 2.2 represents an overview of the nine scales of the CES, with respect to the three basic types of human environmental dimensions identified by Moos.

Table 2.2
Overview of Scales contained in CES with respect to Moos' Scheme

Moos' Scheme	CES Scales
Relationship Dimensions	Involvement
	Affiliation
	Teacher Support
Personal Development Dimensions	Task Orientation
	Competition
System Maintenance and Change Dimensions	Order & Organisation
	Rule Clarity
	Teacher Control
	Innovation

Trickett and Moos (1974) collected data from 465 students in 22 classes in the United States. Cronbach alpha reliabilities, using the class mean as the unit of analysis, ranged form 0.67 to 0.86, each scale's mean correlation with the other

scales ranged from 0.20 to 0.31 and the ANOVA eta^2 values, representing each scale's ability to discriminate between classrooms, ranged from 0.21 to 0.48. Test-retest reliabilities, after a six week interval, with 52 students in four classes ranged from 0.72 to 0.90. These results confirmed the reliability and validity of the CES.

Analysis of variance, ANOVA, is a parametric procedure used to test the significance of mean group differences (Polit & Hungler, 1997). The means of two or more groups can be compared using ANOVA. The basic procedure is to derive two or more different estimates of population variance from the data and calculate a statistic from the ratio of these estimates (Coakes & Steed, 1997). Furthermore, ANOVA can also be used to test the effect of two or more independent variables on a dependent variable.

Several studies have established association between students' outcomes and their perceptions of classroom environment as measured by the CES (Trickett & Moos, 1974; Moos & Moos, 1978; Moos, 1979; Fisher & Fraser, 1983a). Other studies have used the CES to investigate differences between students and teachers in their perceptions of classroom environment (Fisher & Fraser, 1983b), relationships between subject matter and classroom environment (Hearn & Moos, 1978), differences in the classroom environment of different types of schools (Trickett, 1978), and whether students achieve better when in their preferred classroom environment (Fraser & Fisher, 1983b). Other uses of the CES include investigations of the classroom environments of exemplary science teachers (Tobin & Fraser, 1990), relationships between students' perceptions of the classroom environment and affective outcomes among university students (DeYoung, 1977), and cognitive and affective outcomes among high school students (Fraser & Fisher, 1982b, 1982c).

2.4.4 *The Individualised Classroom Environment Questionnaire (ICEQ)*

For more individualised classroom settings, the Individualised Classroom Environment Questionnaire (ICEQ) was developed (Rentoul & Fraser, 1979). The ICEQ differs from other classroom environment scales in that it assesses dimensions that distinguish individualised classrooms from conventional ones.

The initial version of the ICEQ developed by Rentoul and Fraser (1979) had five scales with some 15 items per scale. Following field testing the number of items were reduced and were evenly distributed across the five scales. The final version of the ICEQ has five scales with 10 items per scale and a total of 50 items (Fraser, 1990). Each item is responded to on a five-point scale with the alternatives of almost never, seldom, sometimes, often, and very often. Like other classroom environment instruments, the five scales of the ICEQ cover Moos' scheme of environment classification as shown in Table 2.3. Four forms of the questionnaire exist, two for the measurement of teacher perceptions of classroom environment, and two for the measurement of student perceptions of classroom environment. One of the two student perception forms and one of the two teacher perception forms measures actual classroom environment, while the other measures preferred classroom environment.

Table 2.3
Overview of Scales contained in the ICEQ with respect to Moos' Scheme

Moos' Scheme	ICEQ Scales
Relationship Dimensions	Personalisation
	Participation
Personal Development	Independence
Dimensions	Investigation
System Maintenance and	Differentiation
Change Dimensions	

Reliability and validity statistics reported by Fraser (1986a) were based on data collected from 1,849 grades 7, 8 and 9 students in 150 classes in Australia. Using the individual as the unit of analysis, Cronbach alpha reliabilities ranged from 0.68 to 0.79, each scale's mean correlation with the other scales ranged from 0.07 to 0.28 and the eta^2 values, ranged from 0.21 to 0.43. These measures confirmed the validity and reliability of the ICEQ.

A short form of the ICEQ was also constructed (Fraser, 1990) which retained all five scales of the long form along with its balance of positively and negatively scored items within each scale. The short form consists of 25 items evenly divided amongst the five scales.

Several studies have established association between students' outcomes and their perceptions of classroom environment as measured by the ICEQ (Rentoul & Fraser, 1980; Fraser, 1981; Fraser & Butts, 1982; Fraser & Fisher, 1982b; Fraser, Pearse, & Azmi, 1982). The ICEQ has also been used in environment research such as, person-environment fit studies (Hunt, 1975; Fraser & Rentoul, 1980; Rentoul & Fraser, 1980; Fraser & Fisher, 1983c), use of environment perceptions as criterion variables (Fraser, 1980), and studies on differences between scores on various forms of the ICEQ (Fraser, 1982; Fisher & Fraser, 1983b).

2.4.5 *The College and University Classroom Environment Inventory (CUCEI)*

Owing to the lack of a suitable, reliable and practical instrument to assess perceptions of tertiary education classrooms, the *College and University Classroom Environment Inventory* (CUCEI) was developed in the early 1980s for use in small classes in college and universities (Fraser & Treagust, 1986; Fraser, Treagust, & Dennis, 1986). The initial development of the CUCEI involved an examination of the scales of the LEI, CES, and ICEQ to identify concepts and ideas relevant to higher-education settings. Furthermore, dimensions were chosen to provide coverage of the three general categories of dimensions identified by Moos (1974).

In order to achieve economy in answering and processing, the CUCEI contains only 49 items, with an equal number of items belonging to each of the seven scales. During the development of the instrument, a number of tertiary teachers and students were interviewed and were asked to comment on draft versions of sets of items to ensure that the CUCEI's dimensions and individual items were considered salient by teachers and students.

Table 2.4
Descriptive Information for each Scale of the CUCEI

Scale Name	Moos' Category	Scale Description	Sample Item
Personalisation	R	Emphasis on opportunities for individual students to interact with the instructor and on concern for students' personal welfare	The instructor goes out of his/her way to help students. (+)
Involvement	R	Extent to which students participate actively in class discussions and activities	The instructor dominates class discussions. (-)
Students Cohesiveness	R	Extent to which students know, help and are friendly toward each other	Students in this class get to know each other well. (+)
Satisfaction	R	Extent of enjoyment of classes	Classes are boring. (-)
Task Orientation	P	Extent to which class activities are clear and well organised	Students know exactly what has to be done in our class. (+)
Innovation	S	Extent to which the instructor plans new, unusual class activities, teaching techniques, and assignments	New and different ways of teaching are seldom used in this class. (-)
Individualisation	S	Extend to which students are allowed to make decisions and are treated differentially according to ability, interest, of rate of working	Students are allowed to choose activities and how they will work. (+)

R: Relationship Dimension,
P: Personal Development Dimension,
S: System Maintenance and System Change Dimension.
Items designated (+) are scored 5, 4, 2 and 1 respectively, for the responses Strongly Agree, Agree, Disagree, and Strongly Disagree. Items designated (-) are scored in the reverse manner. Omitted or invalid responses are scored 3.

(Fraser & Treagust, 1986, p. 42)

The validity and reliability of the CUCEI was confirmed and reported by Fraser, Treagust, Williamson, and Tobin (1987). Data were collected from 307 students in 30 postgraduate and undergraduate classes in a variety of disciplines in two multi-purpose higher education institution in Australia and 65 students in four postgraduate

and undergraduate education classes in a university in the USA. Reported Cronbach alpha reliabilities ranged from 0.70 to 0.90, each scale's mean correlation with the other scales ranged form 0.34 to 0.47 and the eta^2 values, ranged from 0.32 to 0.47. The CUCEI assesses students' or instructors' perceptions of the seven psychosocial scales, shown in Table 2.4, of actual or preferred classroom environment.

Validation statistics for all four forms of the CUCEI confirmed its validity and reliability, thus indicating that the CUCEI could be used with confidence in classroom environment studies with higher education classes commonly known as seminars or tutorials.

A research application of the CUCEI involving associations between student outcomes and classroom environment suggested that the nature of the classroom environment affects outcomes. Another research application suggested that both students and instructors preferred a more favourable classroom environment than the one actually present, and that instructors viewed classroom environments more positively than did their students in the same classrooms.

The instrument, Clinical Learning Environment Inventory (CLEI), used in this research project is developed from and based on the format of the CUCEI with some modifications and adjustments to suit the hospital learning environment. The Actual form of the CUCEI is included in Appendix A of this thesis. The development of the CLEI is detailed in the next chapter.

2.4.6 *The Questionnaire on Teacher Interaction (QTI)*

The *Questionnaire on Teacher Interaction* (QTI) which was originated in The Netherlands which focuses on the nature and quality of interpersonal relationships between teachers and students in the learning environment (Wubbels, Creton, & Hooymayers, 1985; Creton, Hermans, & Wubbels, 1990; Wubbels, Brekelmans, & Hooymayers, 1991; Wubbels & Levy, 1993). Based on a theoretical model of proximity (cooperation-opposition) and influence (dominance-submission), the QTI was developed to assess student perceptions of eight behaviours. These eight behaviours became the scales of the QTI and assess Leadership, Helping/Friendly behaviour, Student Responsibility/Freedom, Uncertain, Dissatisfied, Admonishing and Strict.

The QTI was initially used at the senior high school level in The Netherlands. Wubbels (1993) used the QTI with a sample of 792 students and 46 teachers in Western Australia and Tasmania. The results of this research were similar to previous studies in that, generally, teachers did not reach their ideal and differ from the best teachers as perceived by students. The best teachers, according to students, are strong leaders, more friendly and understanding, and less uncertain, dissatisfied and admonishing than teachers on average. Teachers tended to perceive the learning environment a little more favourably than did their students.

Another use of the QTI in the Netherlands involved investigation of relationships between perceptions on the QTI scales and student outcomes Wubbels, Brekelmans, & Hooymayers, 1991). With reference to students' cognitive outcomes, the more that teachers demonstrated strict leadership, and helpful/friendly behaviour, the higher were cognitive outcomes scores. Conversely, student responsibility and freedom, uncertain and dissatisfied behaviour were related negatively to achievement.

Cross-validation and comparative work has been completed at various levels in the USA (Wubbels & Levy, 1993), Australia (Fisher, Henderson, & Fraser, 1995), Singapore (Goh & Fraser, 1996) and Brunei (Riah, Fraser & Rickards, 1997).

A 48-item version designed for elementary level has been developed and validated in Australia (Goh & Fraser, 1996). This version has six items in each of the eight scales. This short version of the QTI was validated with a sample of 792 grade 11 students and their 46 teachers. Cronbach alpha coefficients for QTI scales ranged from 0.80 to 0.95 for students and from 0.60 to 0.82 for teachers, indicating that each QTI scale displays satisfactory consistency for scales containing only six items each.

2.4.7 *The Constructivist Learning Environment Survey (CLES)*

In the constructivist view, meaningful learning is a cognitive process in which individuals make sense of the world in relation to the knowledge which they already have constructed, and this sense-making process involves active negotiation and consensus building. The *Constructivist Learning Environment Survey (CLES)* instrument was developed to assist teachers and researchers to assess the degree to

which a particular classroom's environment is consistent with a constructivist epistemology, and to assist teachers to reflect on their epistemological assumptions and reshape their approaches to teaching (Taylor & Fraser, 1991). The instrument has five scales (Personal Relevance, Critical Voice, Shared Control, Uncertainty and Student Negotiation) with 8 items per scale. Each item is responded to on a five-point scale with the alternatives of almost never, seldom, sometimes, often, and almost always.

Recent studies completed with this instrument have proved the questionnaire to be a valuable tool in the assessment of learning environments in constructivist-type classrooms. Analyses of the data in a number of different studies of mathematics and science classrooms found the instrument to be psychometrically sound (Dryden & Fraser, 1996; Roth & Roychoudhury, 1993, 1994; Taylor, Dawson, & Fraser, 1995; Taylor, Fraser, & Fisher, 1997; Watters & Ginns, 1994). The usual statistical analyses by computing the Cronbach alpha reliabilities and the mean correlations of each scale, have indicated that the CLES is a suitable instrument for use in learning environment studies.

2.4.8 *The Science Laboratory Environment Inventory (SLEI)*

The traditional classroom setting is fairly different from the laboratory environment in science education. The uniqueness of laboratory settings in science education prompted the development of the *Science Laboratory Environment Inventory* (SLEI), specially suited to assess the environment of science laboratory classes at the senior high school or higher-education levels (Fraser, McRobbie, & Giddings, 1993).

The SLEI contains five scales with seven items assessing each of the five scales, namely, Student Cohesiveness, Open-endedness, Integration, Rule Clarity, and Material Environment. The instrument consists of 35 items, each item is responded to on a 5-point scale with the alternatives of almost never, seldom, sometimes, often, and very often.

Using the actual form, Fraser and McRobbie (1995) validated the SLEI. Data were collected from 3727 school students and 1720 university students in six countries.

The usual statistical analyses have indicated that the SLEI is a suitable instrument for use in learning environment studies.

With the SLEI, associations with students' cognitive and affective outcomes have been established in numerous very recent studies at senior high school level in Australia (Fisher, Henderson & Fraser, 1997; Fraser & McRobbie, 1995) and in Singapore (Wong & Fraser, 1996; Wong, Young & Fraser, 1997).

A version of the SLEI named the *Science Outdoor Learning Environment Inventory (SOLEI)* was developed and content-validated in high schools in Israel (Orion, Hofstein, Tamir, & Giddings, 1997). As the name implies, the instrument is specially suited for assessing students' perceptions of the psychosocial environment of the outdoors, ie. field trips.

2.4.9 *Other learning environment instruments*

Increasingly, like the SOLEI, many newly developed learning environment instruments has been used in various studies. These instruments are based on existing questionnaires discussed so far, and has been modified to suit specific research purposes and situations. Just to name a few; Wong (1993) developed a questionnaire with reference to the CES to assess the actual and preferred environment of classes in Hong Kong. The instrument consists of eight scales namely; Enjoyment, Order, Involvement, Achievement Orientation, Teacher Led, Teacher Involvement, Teacher Support and Collaborativeness. Maor and Fraser (1996) developed a five-scale classroom environment instrument suited for the evaluation of computer-assisted learning based upon existing scales of the LEI, ICEQ and SLEI. The five dimensions of the instrument include Investigation, Open-Endedness, Organisation, Material Environment and Satisfaction. Dorman, Fraser, and McRobbie (1977) developed a seven-scale (Student Application, Interactions, Co-operation, Task Orientation, Order and Organisation, Individualisation and Teacher Control) questionnaire for assessing the classroom environment of Catholic schools. The instrument was based on the existing scales of the CES, CUCEI, and ICEQ.

Of the learning environment instruments reviewed in the literature, it is apparent that none of these is designed specially for use in hospital environment. Nevertheless, the CUCEI is probably the closest to what could be modified for use in assessing nursing students' perceptions of the clinical learning environment. The instrument, the Clinical Learning Environment Inventory (CLEI), used in this research project is subsequently developed from and based on the format of the CUCEI with some modification and adjustment to suit the hospital learning environment. Details of the development of the CLEI is discussed in the next chapter.

2.5 Other Research Involving Educational Environment Instruments

Much of the traditional classroom environment research has involved investigation of associations between students' cognitive and affective learning outcomes and their perceptions of psychosocial characteristics of their classrooms. Student learning was found to be positively related to the levels of cohesiveness, satisfaction, and task orientation in the classroom, and negatively related to the levels of friction and disorganisation (Fraser & Fisher, 1983c).

Four types of past research considered in the following section include associations between student outcomes and environment, second, use of environment dimensions as criterion variables, and third, investigations of whether students achieve better when in their preferred environments. The fourth section focuses on combining quantitative and qualitative methods in studies of the educational environment.

2.5.1 *Associations Between Student Outcomes and Environment*

Studies involved investigation of associations between students' cognitive and affective learning outcomes and their perceptions of psychosocial characteristics of their classrooms have dominated past classroom environment research (Fraser & Fisher, 1982b; Haertel, Walberg, & Haertel, 1981; McRobbie & Fraser, 1993). Numerous learning environment studies have indicated that student perceptions account for appreciable amount of variance in learning outcomes, often beyond that attributable to background student characteristics. For instance, Fraser's (1994, p.507-508) tabulation of 40 past studies in science education shows that associations

between outcome measures and classroom environment perceptions have been replicated for a variety of cognitive and affective outcome measures, a variety of classroom environment instruments and a variety of samples. The practical implication of this type of research is that student outcomes might be improved by creating classroom environments found empirically to be conductive to learning (Fraser, 1994).

For example, in one study the associations between student outcomes and classroom learning environment were assessed, using the College and University Classroom Environment Inventory (CUCEI) with 373 students in 34 classes in Australia. Associations between two outcomes measure (Satisfaction and Locus of Control) and six classroom climate dimensions measured by the CUCEI were investigated using both univariate and multivariate statistical tests (Fraser & Treagust, 1986).

Simple correlational analyses indicated that a significant univariate association emerged between Satisfaction and all six environment variables and between Locus of Control and the two environment variables of Student Cohesiveness and Task Orientation. The findings suggested that classroom Satisfaction was higher in classes characterised by greater Personalisation, Involvement, Student Cohesiveness, Task Orientation, Innovation, and Individualisation. The multiple correlation (R) between an outcome measure and the set of six environment scales was 0.86 for Satisfaction (74% of variance accounted for) and 0.59 for Locus of Control (35% of variance accounted for) suggesting that these amounts of variance were statistically significant only for the Satisfaction outcome for the sample size of 34 classes. The beta weights (β) provide an estimate of the influence of any specific environment variable on an outcome when the remaining five environment variables are held constant. In other words, the climate variables whose regression weights are significantly different from zero are those which account for a significant increment in outcome variance over and above that attributable to the other five environment variables combined. Fraser and Treagust (1986) reported that, with other climate variables fixed, classroom Satisfaction was significantly greater in more cohesive and task orientated classes. However, none of the environment scales uniquely explained a significant amount of the variance in Locus of Control scores. Fraser and

Treagust's (1986) findings of associations between student outcomes and the nature of the psychosocial environment of higher education classrooms are important since they replicate considerable prior research at the elementary and secondary school levels.

With the SLEI, associations with students' cognitive and affective outcomes have been established in numerous studies at senior high school level in Australia (Fisher, Henderson, & Fraser, 1997; Fraser & McRobbie, 1995) and in Singapore (Wong & Fraser, 1996; Wong, Young, & Fraser, 1997). Similarly, using the Questionnaire on Teacher Interaction (QTI), associations between student outcomes and perceived patterns of teacher-student interaction were reported in some recent studies at high school level in Australia (Fisher, Henderson, & Fraser, 1995; Fisher, Fraser, & Rickards, 1997), and at primary school level in Singapore (Goh, Young, & Fraser, 1995).

One of the objectives of this research project, as stated in Chapter 1, was to investigate associations between student nurses' outcomes arising from their clinical placement and their perceptions of clinical learning environment. Similar to Fraser and Treagust's (1986) approach, both univariate and multivariate statistical analyses were applied in investigating the associations between nursing students' perceptions of the outcome of their clinical placement and the clinical learning environment measured by the CLEI, details of which are discussed in Chapter 4 of this thesis.

2.5.2 *Use of Environment Perceptions as Criterion Variables*

Classroom environments have also been used as a source of process criterion variables in the evaluation of educational innovations (Fraser, Williamson, & Tobin, 1987; Walberg, 1974). In the evaluation of a project aimed at promoting individualised learning approaches using the ICEQ, it was found that students using the individualised curriculum perceived their classes as significantly more individualised on a number of ICEQ scales than did a comparison group of students (Fraser, 1980). Another study involving an evaluation of the Australian Science Education Project (ASEP) revealed that, in comparison with a control group, ASEP students perceived their classroom as being more satisfying and individualised and having a better material environment (Fraser, 1979). The significance of these

studies is that classroom environment variables differentiated revealingly between curricula.

A recent study with a classroom learning environment instrument, involving an evaluation of the use of a computerised data base revealed that students perceived that their classes became more inquiry oriented during the use of the innovation (Maor & Fraser, 1996). Moreover, in two recent studies in Singapore, classroom environment measures were used as dependent variables in evaluations of computer-assisted learning (Teh & Fraser, 1994) and computer application courses for adults (Khoo & Fraser, 1997).

2.5.3 *Person-Environment Fit Research of Whether Students Achieve Better in Their Preferred Environment*

Having both actual and preferred forms of educational environment instruments allows exploration of whether students achieve better when there is higher similarity between the actual classroom environment and that preferred by students. This educational research is referred to as person-environment fit research (Hunt, 1975).

An important feature of most recent classroom environment instruments is that they have distinctive versions which measure student perceptions of the classroom environment ideally liked or preferred. The preferred or ideal forms are concerned with goals and value orientations and measure perceptions of the classroom environment ideally liked or preferred. Although item wording is similar for actual and preferred forms, instructions for answering them are different. In promising small-scale practical applications, teachers have used assessments of their students' perceptions of their actual and preferred classroom environment as a basis for identification (Fraser & Fisher, 1983c). By using a person-environment interaction framework, it is possible to investigate whether student outcomes depend, not only on the nature of the actual classroom environment, but also on the match between students' preferences and the actual environment (Fraser & Fisher, 1983c; Wong & Watkins 1996).

Fraser and Fisher's (1983c) person-environment fit study used the Individualised Classroom Environment Questionnaire (ICEQ) with a sample of 116 classes in

science education. A total of 29 variables was used in exploring relationships between achievement, actual environment, and actual-preferred interaction. Student achievement was measured at the beginning and end of the same school year using six affective and three cognitive outcome measures. The study measured the person and the environment as sets of commensurate and continuous variables. The research finding suggested that actual-preferred congruence could be as important as actual perception in predicting student achievement of important affective and cognitive aims. The literature asserts that it cannot be assumed that an individual student's achievement would be improved by moving him or her to a classroom that matched his or her preferences. Rather, the practical implication of these findings for teachers is that class achievement of certain outcomes might be enhanced by attempting to change the actual classroom environment in ways that make it more congruent with that preferred by the class (Fraser & Fisher, 1983c).

Byrne, Hattie, and Fraser (1986) assessed student perceptions of preferred classroom learning environment. The study involved administration of several preferred classroom environment measures as well as an actual environment measure on a sample of 1675 students from 18 schools in New South Wales, Australia. Preferred classroom environment was measured with short forms of the My Class Inventory, Classroom Environment Scale, and Individualised Classroom Environment Questionnaire. Actual environment was assessed with the Quality of School Life questionnaire. It was found that the preferred scales that have the highest pattern of correlations with achievement were Cohesiveness, Order and Organisation, Personalisation, Investigation, Participation, and Rule Clarity.

One assumption with this approach is that there is a common learning environment experienced by all students within a classroom. However, recent studies employing classroom learning environment instruments, classroom observations and interviews involving teachers and students suggested that there were groups of students who were involved more extensively in classroom discussion than the other students. These students were found to have more favourable perceptions of the learning environment than those students who were less involved. The findings from these studies suggested that there could be discrete and differently-perceived learning environments within the one classroom (Tobin, 1987; Tobin & Gallagher, 1987;

Tobin & Malone, 1989). It is, therefore, potentially problematic with using the traditional class form of learning environment instruments when studying differences between groups of students in a classroom as these instruments extracted the student's perception of the class as a whole rather than the student's personal perception of his or her role in that classroom (Fraser & Tobin, 1991). Subsequently, a different form of a learning environment instrument which asked students for their personal perception of their role in the environment of the classroom rather than their perception of the learning environment in the class as a whole, namely, the Personal Form and the Class Form, respectively, were proposed (Fraser, Giddings, & McRobbie, 1992). Recent research in science laboratory classroom environments involving the use of Class and Personal Forms include the studies by Fraser, Giddings, and McRobbie (1995), and Fraser, Fisher, and McRobbie, (1996).

2.5.4 *Combining Quantitative and Qualitative Methods in Studies of Educational Environments*

For many years, researchers in education have argued that there are merits in moving beyond the customary practice of choosing either quantitative or qualitative method (Cook & Reichardt, 1979; Firestone, 1987; Fraser, 1988, 1989; Howe, 1988; Smith & Fraser, 1980). In learning environment research, considerable progress has been made in acknowledging the benefits of combining quantitative and qualitative methods (Dorman, Fraser, & McRobbie, 1994; Fraser & Tobin 1991; Maor & Fraser 1996; Tobin, Kahle, & Fraser, 1990). The benefit of using multiple research methods lies in the assumptions that complementary insights can lead to the identification of new problems and possible solutions to new and persistent problems.

An example of this learning environment research can be found in a recent multilevel study of the learning environment of a science class in Western Australia. The study commenced with an interpretative study of a grade 10 science teacher's classroom learning environment (Tobin & Fraser, 1998). Six university-based researchers collaborated with a teacher-researcher and were involved in collecting extensive qualitative data through interviews, classroom observations, video recordings, and student diaries. Interviews were conducted with the teacher-researcher, students, school administrators and parents.

The qualitative component of the study was complemented by a quantitative component involving the use of a learning environment questionnaire based mainly on the Constructivist Learning Environment Survey (CLES). The questionnaire linked three levels: the class in which the interpretative study was undertaken; selected classes from within the school; and classes distributed throughout Western Australia. The learning environment questionnaire provided several windows into the classroom and was a source of quantitative data. Moreover, the extensive classroom observations carried out by the researchers revealed other aspects of the environment, that were not covered by the quantitative approach, but were also considered salient to the study. The researchers studied those aspects intensively and developed detailed descriptions and grounded theory from the research. This learning environment study demonstrated the complementary roles of qualitative and quantitative data.

Once a study using quantitative methods has been completed, its main findings can be contextualised with more detailed description consisting of observations and verbal accounts from participants. On the other hand, interpretative studies can be enhanced with the inclusion of quantitative information. Thus quantitative data can be a significant component of the evidence for or against a particular assertion. Most importantly, the credibility of claims about patterns or relationships can be strengthened by a variety of qualitative and quantitative data sources. (Erickson, 1986; Tobin & Fraser, 1998).

With reference to the study described in this thesis, both quantitative and qualitative methods were applied in assessing nursing students' perceptions of their clinical learning environment. Quantitative data were obtained with the CLEI, and qualitative data were collected through interviewing the randomly selected nursing students during their clinical field placement.

2.6 Research Involving Hospital Learning Environment

Much of the early research on hospital learning environment took place in Britain in the 1980s. Fretwell (1980) utilised questionnaires, interviews and non-participant

observation in a study seeking to identify the characteristics of an ideal clinical learning environment. Eighty seven student nurses on 15 wards of three hospitals completed the questionnaires on three to four wards in which they had worked during the previous 18 months. Ward sisters on 11 of the wards also completed a similar questionnaire. Following data analysis, six wards from three specialties were paired as being "good" and "less good" clinical learning environment. Fretwell (1980) found that total patient care promotes learning and that task allocation leads to automatic functioning and inhibition of discovery learning. The study concluded that highly structured wards with rigid task allocation, and wards in which a strict hierarchical system exists, are unlikely to meet the learning needs of the students.

Pembrey (1980) utilised questionnaires, semi-structured interviews and checklists in a study which assesses the influence of the ward sister in establishing the environment of the clinical ward. She concluded that the ward sister was the key to the organisation and attitudes of the ward, not only for the learning environment and the patient-care environment. Pembrey (1980) suggested that the flexibility to implement individual discretion within prescribed boundaries may be a crucial factor in achieving optimum effective outcomes for the ward staff and students. Both Fretwell (1980) and Pembrey (1980) suggested that the ward sister was a key figure in establishing and maintaining a ward atmosphere conducive to learning.

Orton (1981) conducted a comparative descriptive survey to explore the existence and key characteristics of a ward learning climate. Orton's (1981) study was carried out in 21 wards of three English metropolitan hospitals using a sample of 325 student nurses, 27 clinical teachers and 44 ward sisters. Respondents rated 124 items on a Likert scale and from the resulting data three wards were identified as having extremely "high student orientation" and three as extremely "low student orientation". Responses to the open-ended survey questions graphically illustrated the characteristics of the "good" ward which provides the ideal clinical learning environment. These, Orton (1981) concluded, were that students did not feel they were caught in the worker-learner dichotomy, and the ward possessed a high degree of staff support and morale. Patient care was given a high priority, and the learning needs of the students were met through well-planned opportunities for teaching and an attitude that placed a high priority on teaching.

A study of ward sisters and their influence upon nurse learners was carried out by Ogier (1981). Ogier (1981) developed and used the *Learner's Perception of Ward Climate Questionnaire* to collect data from student nurses. The *Fleishman Leadership Opinion Questionnaire* was used to collect data from ward sisters in Ogier's (1981) study. The ward sisters' verbal interactions were observed during a one week period and percentages of total interaction time were allocated to various groups such as learners and doctors. The study suggested that the ward sister occupied a key role in creating and controlling the ward learning environment. However, it was not just the ward sister's own commitment to teaching and the amount of teaching she did, but her organisation of the ward work and her leadership style and patterns of interaction which contributed to this environment.

Sellek (1982) used the critical incident technique to identify satisfying and anxiety-creating incidents for 65 learners at different stages of training. Data were collected during group interviews, and categories were identified by three independent categorisers. Sellek (1982) found that interpersonal relationships and evaluation processes are significant sources of both satisfaction and anxiety, depending on whether they are positive or negative.

Smith (1988) applied participant observation, interviews and questionnaires to collect data for her study into the quality of nursing and the ward as a learning environment. Similar to Sellek's (1982) report, Smith (1988) found that the ward sister's management style and interpersonal skills, including approachability, were of prime importance and that the provision of learning opportunities was more important than formal teaching. Interestingly one ward with a reputation for high standards of nursing care and teaching was not highly rated by learners because they felt they were being checked upon rather than supported (Smith, 1988).

These British studies recognised the existence of a clinical learning environment. However, the setting for and nature of nursing education in Britain was one where hospital-based training dominated in the 1980s and was largely an apprenticeship-style scheme where the service needs of the hospital takes priority over the educational needs of the student. This system of training nurses in the United

Kingdom is significantly different from that found in many parts of the world more than a decade later. In Australia, nursing education is now undertaken outside hospital-based schools of nursing, and the students are usually supernumerary to the clinical setting.

In Australia, Hart and Rotem (1994) conducted a study which aimed at exploring students' perceptions of learning opportunities in the clinical setting. 30 third year nursing students were interviewed by the chief researcher using a semi-structured interview format. Students were asked to describe their best clinical learning experience. Then they were invited to describe their worst clinical learning experience. Each interview lasted about 30 minutes. Data from interviews were categorised using the conceptual framework developed to describe the clinical learning environment. Hart and Rotem (1994) found that students valued positive relations with ward staff and appreciated recognition for their contribution to patient care. The need to belong and be accepted by the ward staff was a common theme. Students enjoyed being busy and having an appropriate level of autonomy but found this difficult to achieve unless their role as student was clear to ward staff.

Following the above project, Hart and Rotem (1995) carried out a survey study to identify nurses' perceptions of professional development in clinical settings. The aim of the study was to identify the attributes that define a good clinical learning environment for registered nurses. 516 registered nurses from five metropolitan hospitals in New South Wales returned the questionnaires. The study found a significant and positive correlation between professional development and six independent variables: Autonomy and Recognition, Role Clarity, Job Satisfaction, Quality of Supervision, Peer Support and Opportunities for Learning. Although Hart and Rotem's (1995) study targeted registered nurses, the conceptual framework may have broad application within nursing practice as a means of predicting professional development. Most importantly, it offers a perspective which supports close co-operation between educational and clinical facilities in the planning and evaluation of clinical learning experiences at undergraduate level.

Dunn and Hansford (1997) surveyed 229 undergraduate students to assess their perceptions of their clinical learning environment. Quantitative data from five

subscales of the *Clinical Learning Environment Scale*, Staff-student Relationships, Nurse Manager Commitment, Patient Relationships, Student Satisfaction, and Hierarchy and Ritual, were supported by qualitative data obtained from student interviews. The study concluded that interpersonal relationships between the participants in the clinical learning environment were crucial to the development of a positive learning environment. Student satisfaction with the clinical learning environment was both a result of, and influential in creating, a positive learning environment.

Despite all the past research examined, the researcher has not found specific studies on hospital learning environments from the psychosocial educational perspective. Although there are numerous instruments available for assessing classroom learning environments at various levels, there is however, not one instrument specifically designed for measuring the hospital learning environment while nursing students are on clinical field placement. Subsequently, the researcher has developed the Clinical Learning Environment Inventory (CLEI) to provide one missing link in the study of the hospital learning environment. It is envisaged the instrument will assist researchers to assess student nurses' perceptions of the psychosocial characteristics of the clinical learning environments where student nurses, clients, clinicians, clinical teachers, and other health care deliverers coexist, each with their own objectives.

2.7 Summary

The literature reviewed in this chapter covered four main areas, the historical and conceptual framework of learning environment research; the development and validation of the various classroom environment questionnaires; an overview of studies involving educational environment instruments; and past research associated with hospital learning environment.

The literature suggests that a supportive learning climate is a critical element of human resource development. It is apparent that there is a need for both the direct facilitation of the development of individuals and the indirect facilitation of their

development through improving the educative quality of their environments. A supportive clinical learning environment is of paramount importance in securing the required teaching and learning process. Many aspects of the clinical environment affects the quality of the student nurses' learning. The quality of learning is affected by the quality of the student's preparation, characteristics of the instructor/teacher and ward staff, peer support and the variety of clinical opportunities to which students have been exposed.

Various studies have indicated that not all practice settings are able to provide student nurses with a positive learning environment (Ogier, 1980; Orton, 1981). Other studies have shown clearly that student nurses perceive that the practice setting is the most influential context when it comes to acquiring nursing knowledge and skills. Clinical education is a vital component in the curricula of pre-registration nursing courses which provides student nurses with the opportunity to combine cognitive, psychomotor and affective skills. Clinical field experiences enable the student to develop competencies in the application of knowledge, skills, and attitudes to clinical situations. As the time allocation for the clinical component of pre-registration nurse education is limited, it is important that the scarce but valuable time be utilised effectively.

Despite all the past research examined, the researcher has not found specific studies on hospital learning environments from the psychosocial educational perspective. From the learning environment instruments and their applications reviewed so far, the CUCEI, which was developed for use in small classes in college and universities, appears to be the most suitable for use to assess tertiary nursing students' perceptions of classroom environment in tutorial settings. Similarly, the SLEI, which is specially suited to assess the environment of science laboratory classes at the senior high school or higher-education levels (Fraser, McRobbie, & Giddings, 1993) could be suitable for assessing tertiary nursing students' perceptions of the laboratory learning environment in applied science and nursing laboratory settings.

The hospital learning environment is an unique and complex setting. Unlike classroom learning in which student activities are structured, nursing students in field experience environments are frequently thrown into unplanned activities with

patients and other health care discipline deliverers. Nevertheless, as in classroom environments, many aspects of the clinical environment affect the quality of nursing students' learning.

However, not even the CUCEI was designed specifically for assessing nursing students' perceptions of the hospital learning environment during their clinical placement. Therefore it has been seen as appropriate to develop and validate an inventory, the Clinical Learning Environment Inventory (CLEI), which will provide one missing link in the study of the hospital learning environment.

The next chapter, Chapter 3, contains a description of the research method used in this study which includes both quantitative and qualitative approaches. The chapter gives an account of the development of the instrument, the Clinical Learning Environment Inventory (CLEI) which was used to collect quantitative data. This is followed by a description of how the qualitative data were collected through interviews with randomly selected students.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

In learning environment research, considerable progress has been made with the benefits of combining qualitative and quantitative methods (Fraser, 1994; Fraser & Tobin, 1991; Maor & Fraser 1996; Tobin, Kahle, & Fraser 1990). Upon completion of a quantitative study, its main findings can be contextualised with more detailed description of observations and verbal accounts from participants (Tobin & Fraser, 1998). This multi-method design serves dual purposes. Firstly, a process called triangulation, which validates the findings through the use of methods with differing biases to investigate the same concepts with convergent approaches. Secondly, complementarity, using the differing research approaches to provide a more complete picture of the study than that which could be obtained by using either method alone. Accordingly, this research project combines quantitative and qualitative approaches in the study of nursing students' perceptions of hospital learning environment.

This chapter outlines the overall methodological approach. It presents the objectives of the study, a description of the sample of participants and a description of the data collection methods. It includes a description of how the information gathering strategies are directly linked to the specific objectives of the study. It details the development and validation of the learning environment instrument used in the quantitative method in this study, the Clinical Learning Environment Inventory (CLEI). There is a description of how, the two versions of the CLEI, the actual and ideal (preferred) forms, were administered. Finally, the chapter concludes with a description of how qualitative data were collected through interviewing randomly

selected nursing students. Attention is also given to ethical considerations and issues of trustworthiness.

3.2 Objectives of the study

There are four major objectives of this study:

1. To develop and validate the instrument, The Clinical Learning Environment Inventory, CLEI, for assessing pre-registration nursing students' perceptions of their clinical learning environments during clinical field placements.

2. To assess pre-registration nursing students' perceptions of hospital learning environments during their clinical field placement.

3. To examine differences between student nurses' perceptions of the actual clinical learning environment and their preferred clinical learning environment.

4. To investigate associations between nursing students' satisfaction with their clinical placements and their perceptions of the clinical learning environment.

3.3 Quantitative Method

This study utilised the Clinical Learning Environment Inventory (CLEI) to assess student nurses' perceptions of psychosocial characteristics of the clinical learning environment during their hospital field placements. Although there are numerous instruments available for assessing classroom learning environments at various levels, no instrument has been designed to specifically measure the clinical learning environment while nursing students are on hospital field placement. Subsequently, the researcher has developed the Clinical Learning Environment Inventory (CLEI) to assess student nurses' perceptions of the psychosocial characteristics of the clinical learning environments.

3.3.1 Sample

The researcher teaches in a major university School of Nursing in South Australia. The first-year students of the pre-registration program spent their clinical placement mainly in nursing homes, which stressed the assisting the client to meet the needs of their activities of living. The focus of the second-year of the program is directed towards illness and diseases processes and clinical placement took place in acute hospitals. In the third and final year of the program, clinical placement took place in diverse clinical settings where the students rotated through a variety of short placements. These included community clinics, child and maternal health, mental health, pain clinics, and many other specialty areas.

The two weeks of nursing home placement in the first year of the pre-registration program was relatively short. Although the third-year students spent a relatively longer period in clinical placement, the rotation between different venues made each field placement short lived. In the second year of the pre-registration program, student nurses spend some eight hours a day for six full weeks in clinical field placement in various metropolitan and country hospitals. The relatively long and continuing placement in the same clinical venue made the second-year group an ideal sample considered for the study. The target group consisted of all the second-year pre-registration nursing students at the major university School of Nursing in South Australia in 1997. There were a total of 160 second-year nursing students enrolled in the course at the time.

A workshop was conducted to provide information to all participating students, clinical facilitators, and clinicians, so that all personnel involved had a clear understanding of the objectives and process of the research project. Thirteen government and private hospitals within the metropolitan and country areas around Adelaide which were utilised as venues for the students' clinical placement were included in the study.

3.3.2 Administration of CLEI

The CLEI was administered during the academic year 1997. The actual form of the CLEI was delivered to all students by their relevant clinical teachers at the beginning of the second week of the clinical placement. Students were informed orally and in writing that their responses would be used for further development and planning of hospital placements. Students spent some 15 minutes answering the questionnaires. 131 (72.8%) completed copies of the actual form were returned to the researcher. Towards the end of the clinical placement, the preferred version of the CLEI was distributed to each student. 108 (60%) completed copies were returned. The low percentage in participation with the preferred version may be a result of the high incidence of student absence towards the end of the placement period.

3.4 Development of the Survey Instrument, the Clinical Learning Environment Inventory (CLEI)

The Clinical Learning Environment Inventory was developed following an in-depth literature review on classroom learning environments, clinical learning environments, and discussion with experts in the field of nurse education and clinical nursing. Of all the classroom environment instruments examined, the College and University Classroom Environment Inventory (CUCEI), which was designed for use in the tertiary settings, seemed to be the instrument most suitable for use in tertiary nursing. However, it appeared that none of the classroom environment instruments available for research would, if used in their original form, provide the data necessary to meet the aims of this study. The construction of this specific questionnaire, the CLEI, using only scales perceived to be salient for the clinical learning environment was developed by modifying the CUCEI. The development of the CLEI was guided by the following four criteria:

1. Consistency with Tertiary Instruments:

The development of the CLEI was based on the existing scales of the College and University Classroom Environment Inventory (CUCEI) which was designed for use in a tertiary setting. However, some modifications and additions both in the scales

and items had to be made to modify the new inventory and make it specific to the unique hospital environment.

In order to avoid overloading clinicians with supervising nursing students during their busy ward hours, only one student would be placed in a particular ward during any shift of their clinical placement. Consequently, there is little opportunity for individual student to interact with each other while on ward placement. Thus the "Student Cohesiveness" scale in the CUCEI which reflected the relationship dimensions between individual became inappropriate and was excluded in the CLEI.

Adjustment to some questions in the CUCEI was necessary when modifying the CLEI to suit the hospital learning environment. For example:

Q.1 of the CUCEI, "The instructor considers students' feelings," was reworded in the CLEI as Q.1, "The preceptor/clinician considers students' feelings." This question measures the students' perceptions of Personalisation in the clinical learning environments. During clinical field placement, each student is allocated to work with a ward registered nurse who serves dual functions, as a clinician as well as an instructor for the student.

Q.21 of the CUCEI, "Students have a say in how class time is spent," was reworded in the CLEI as Q.18, "Students have a say in how the shift is spent." This question measures the students' perceptions of Individualisation. A shift is usually eight hours long in most hospitals.

Q.30 of the CUCEI "Students seldom present their work to the class", was reworded in the CLEI as Q.26, "Students are seldom involved with the process of handing over to the ward staff for the next shift". This question measures students' perceptions of Task Orientation. At the change of shift, the leaving clinician usually passes on verbal messages to the on-coming staff. This process of passing on this information is traditionally referred to as "hand over". This process not only allows the leaving staff to report and summarise the care of the clients within their shift, it also provides the on-coming clinicians opportunities to clarify any concerns regarding the welfair of the clients.

Q.34 of the CUCEI, "The seating in this class is arranged in the same way each week," was reworded in the CLEI as Q.29, "The same staff member works with the students for most of this placement." This question assesses students' perceptions of Innovation in teaching strategies.

Table 3.1

Descriptive Information For Each Scale In CLEI.

Scale Name	Moos' category	Scale Description	Sample Item
Individualisation	S	Extent to which students are allowed to make decisions and are treated differentially according to ability or interest.	Students are generally allowed to work at their own pace (+)
Innovation	S	Extent to which clinical teacher /clinician plans new, interesting and productive ward experiences, teaching techniques, learning activities and patient allocations.	New ideas are seldom tried out in this ward (-)
Involvement	R	Extent to which students participate actively and attentively in hospital ward activities.	There are opportunities for students to express opinions in this ward (+)
Personalisation	R	Emphasis on opportunities for individual student to interact with clinical teacher/clinician and on concern for student's personal welfare.	The preceptor/clinician considers student's feelings (+)
Task Orientation	P	Extent to which ward activities are clear and well organised.	This is a disorganised clinical placement (-)

Moos Category:
R = Relationship Dimension,
P = Personal Development Dimension,
S = System Maintenance and System Change Dimension

Items designated (+) are scored 5, 4, 2 and 1 respectively, for the responses Strongly Agree, Agree, Disagree and Strongly Disagree. Items (-) are scored in the reverse manner. Omitted or invalid responses are scored 3.

2. Coverage of Moos' general Categories:

The Clinical Learning Environment Inventory (CLEI) provides coverage of the three general categories of dimensions identified by Moos (1974) for conceptualising all human environments. Details of these three categories are discussed in Chapter 2 of this thesis and is summarised in Table 3.1.

3. Salience to nurse educators, nurse clinicians, and nursing students:

An attempt was made to ensure that contents of the CLEI are considered salient by the nursing profession. The researcher carried out interviews with numerous nurse educators, clinicians and student nurses to seek comments on draft versions of the CLEI during the development stages of the instrument. A pilot study with some twenty students was carried out before the draft version of the CLEI was finalised.

4. Economy

In order to achieve economy in answering and processing, the CLEI was designed to have a relatively small number of reliable scales, each containing a fairly small number of items. The final version of the instrument contains 35 items, with 7 items assessing each of five scales, namely, Personalisation, Student Involvement, Task Orientation, Innovation, and Individualisation.

The instrument has been designed so that students answer the questions directly on the questionnaire. Each item in the CLEI is responded to on a four-point, Likert-type scale ranging with the alternatives of Strongly Agree, Agree, Disagree, and Strongly Disagree. To facilitate the process of hand scoring, items are arranged in blocks and in cyclic order so that all items from the same scale representing a specific psychosocial dimension are found in the same position in each block. Underlining of an item number together with the inclusion of the letter "R" in the Researcher Use

Only column identifies those items which need to be scored in the reverse direction. This is also to assist the researcher with ease in scoring the CLEI. Items not underlined or without the letter "R" are scored by allocating the circled number (ie. by scoring 5, 4, 2 and 1, respectively, for the responses Strongly Agree, Agree, Disagree, and Strongly Disagree). Underlined items with the letter "R" are scored in the reverse manner. The scoring direction is reversed for approximately half of the items. Omitted or invalidly answered items are scored 3. The Actual and Preferred forms of the CLEI are included in Appendix B and Appendix C, respectively, of this thesis.

The following table indicates the items included in each scale of the questionnaire.

Table 3.2

Itemised layout in each scale of the CLEI.

Scale	Questionnaire number
Personalisation	1, 7, 13, 19, 15, 31, 37
Student Involvement	2, 8, 14, 20, 26, 32, 38
Task Orientation	4, 10, 16, 22, 28, 34, 40
Innovation	5, 11, 17, 23, 29, 35, 41
Individualization	6, 12, 18, 24, 30, 36, 42

Along with the CLEI, an additional seven item scale, Student Satisfaction, which is again modified from the CUCEI, was used to assess the students' levels of satisfaction arising from their clinical placements. This scale which reflected the relationship dimensions in Moos' (1974) general categories, was used in the CUCEI to assess the extent of enjoyment in classes. In this study which assesses nursing students' perceptions of hospital learning environment, Student Satisfaction was used as an outcome measure of the clinical placement. This additional scale, however, was used for investigation about the associations between student outcomes and hospital learning environment.

The seven items on Student Satisfaction in the Actual form of the CLEI are:

Q.3. Students look forward to coming to clinical placement.

Q.9. Students are dissatisfied with what is done in the ward.

Q.15. After the shift, the students have a sense of satisfaction.

Q.21. This clinical placement is a waste of time.

Q.27. This clinical placement is boring.

Q.33. Students enjoy coming to this ward.

Q.39. This clinical placement is interesting.

Again, the SPSS was used to perform simple correlation and mutliple regression analyses to interpret the association between nursing students' satisfaction with their clinical placements and their perceptions of the clinical learning environment.

Table 3.1 is a summary of the CLEI showing the five scales of the inventory with respect to Moos' scheme, a description of each scale, and a sample item associated from each scale.

3.5 Data Entry

Quantitative Data:

Students' responses to both the actual and preferred forms of the CLEI were hand-scored by the researcher, with periodic checks for errors, and entered student-by-student in a Microsoft Excel 5.0 spreadsheet.

3.6 Qualitative Method

Qualitative data were collected by means of semi-structured interviews with randomly selected participants from the same cohort of second-year nursing students during their clinical placement in 1997. Two students were randomly selected from each of the thirteen hospitals which participated in the clinical placement. Written consent was obtained from these students involved prior to their interviews.

Of the 26 students selected, two students were away sick, another three missed their interviews due to unexpected learning opportunities outside their ward areas on the day of their scheduled interviews. Thus, a total of 21 students participated in the interviews. All interviews were conducted by the researcher away from the ward area at the end of the student's shift. With the consent of the students, the interviews were audio-taped and transcribed. The students were assured of confidentiality and anonymity and were encouraged to tell of their experience in clinical practice. Each interview took approximately 20 minutes. The questions asked to students explored their feelings and perceptions about their clinical placement and were designed to address the five scales of ward learning environments covered by the CLEI.

Questions on individualisation in the ward learning environment:
Do you believe the ward atmosphere allows you much autonomy?
For instance, have you been involved with decision making regarding your work?
Or have you been treated differently according to your ability and interest? What would you prefer the ward atmosphere to be regarding this area (autonomy and democracy)?

Question on innovation of teaching strategies:
Do you believe your preceptor/clinical teacher has provided you with innovative teaching/learning strategies?

Question on student involvement within the hospital learning environment:
Do you believe the ward environment provided you with opportunities to be involved with learning experiences?

Questions on personalisation in the hospital environment:
Do you believe your preceptor/clinical teacher has provided adequate support to your learning needs in the hospital?
How do you perceive your relationship with preceptor/clinical teacher ?

Questions on task orientation:
Do you believe the ward activities with which you were involved were well structured and of benefit to you?

Other questions:

Who do you consider were the most influential participant(s) in the clinical environment that facilitated your learning? Why?

What do you like most about this clinical placement?

If you could change the ward environment, what would you prefer the ward environment to be in order to maximise your learning?

All in all, the above questions generated relevant qualitative data in assessing the cohort's perceptions of their hospital learning environments.

3.7 Linking information gathering strategies to specific research objectives

This section summarises the information gathering strategies that were used to address each of the four research objectives.

Objective 1

To develop and validate the instrument, The Clinical Learning Environment Inventory, CLEI, for assessing pre-registration nursing students' perceptions of their clinical learning environments during clinical field placements.

Research Strategies

- Historical perspectives and conceptual framework of classroom learning environment research were reviewed and examined.
- Various instruments used for assessing classroom learning environment were considered.
- The CUCEI, developed from various learning environment instruments, designed for use in tertiary education settings was modified to be suitable for use in hospital learning environments.
- The draft form of the CLEI was developed and field tested following consultation with experts in nurse education and clinical nursing.
- The final version of the CLEI was administered to all second year nursing students of the University of South Australia during their clinical field placement

in 1997. Quantitative data were collected from the 131 students. To validate the CLEI, the Statistical Package for Social Science (SPSS) version 6.1 (Coakes & Steed, 1997) was used to perform statistical analyses in computing the values of internal consistency and discriminant validity of each scale of the CLEI.

Objective 2

To assess pre-registration nursing students' perceptions of hospital learning environments during their clinical field placement.

Research Strategies

- Data were collected from a group of pre-registration nursing students about their views of their clinical placement using both quantitative and qualitative methods.
- Quantitative method: The Actual form of the CLEI, was administered to all second year nursing students of the University of South Australia during their clinical field placement in 1997. A total of 131 students participated in this survey. The Statistical Package for Social Science (SPSS) version 6.1 (Coakes & Steed, 1997) was used to perform statistical analyses.
- Qualitative method: Qualitative data were collected by means of semi-structured interviews with randomly selected participants from the same cohort of the second year nursing students concurrently with the survey study.

Objective 3

To examine differences between nursing students' perceptions of the actual clinical learning environment and their preferred clinical leaning environment.

Research Strategies

- The Preferred form of the CLEI was administered to the same cohort of second year nursing students towards the end of their clinical field placement in 1997. The quantitative data collected were utilised for comparison with the data from the application of the Actual form. In interpreting the differences between nursing students' perceptions of the actual clinical learning environment and their preferred clinical learning environment the SPSS was used to perform statistical

analyses in computing the differences in the mean scores of each scale and their relevant standard deviation values of the two forms.

- Qualitative data collected in semi-structured interviews with randomly selected participants from the same cohort of the second year nursing students were used to explore, explain, and reinforce the findings from the quantitative data. Specific questions such as "What would you prefer the ward environment be if you can change it in order to maximise your learning?" to guide students to provide information of the perceptions of their preferred clinical environments.

Objective 4

To investigate associations between nursing students' satisfaction with their clinical placements and their perceptions of the clinical learning environment.

Research Strategies

- A seven-item scale, Satisfaction, was included in both versions of the CLEI to assess students' perceptions of the outcomes of their clinical placement.
- Again qualitative data collected in semi-structured interviews with randomly selected participants from the same cohort of the second year nursing students are used to explore, explain, and support the findings from the quantitative data.

3.8 Issues of Trustworthiness

This study was designed and conducted to ensure that it was a trustworthy study of nursing students' perceptions of hospital learning environments. Lincoln and Guba (1985) have suggested four criteria for establishing the trustworthiness of research data and the ensuing analysis: credibility, dependability, confirmability, and transferability.

The criteria of credibility refers to the confidence in the truth of the data. The credibility of an inquiry involves two aspects: first carrying out the investigation in such a way that the believability of the findings is enhanced and, second, taking steps to demonstrate credibility (Lincoln & Guba, 1985). One of the recommended

activities to produce credible data and interpretations is through prolonged engagement (Polit & Hungler, 1997). As the course co-ordinator for the year, the researcher had the advantage of developing trust and rapport with the participating students through prolonged engagement in classroom contact throughout the semester as well as by providing support to the students in the clinical environment. Another technique recommended by Polit and Hungler (1997) to improve credibility of the research process is through member check. This was achieved by providing feedback to the students regarding the data and the researcher's emerging findings and interpretations and securing the students' reactions. In other words, the interview transcripts, the completed questionnaires and the interpretations of the collected data were offered to the students for validation. Furthermore, the technique of triangulation that was used in this study improves the likelihood of the credibility of the research findings.

The criteria for dependability refers to the stability of data over time and conditions. It might be said that credibility is to validity and dependability is to reliability in the trustworthiness of the research process. This study engaged multiple data collection techniques over the period of a full academic semester.

The criteria for confirmability refers to the objectivity or neutrality of the data, such that there would be agreement between two or more independent people about the data's relevance or meaning. In this regard, the theoretical orientation and philosophical assumptions were made clear in reporting the findings of the study. By doing so, the decisions made by the researcher throughout the research process were visible and justifiable.

The criteria for transferability refers to the generalization of the data. The researcher has provided adequate descriptive data in this report so that someone else can evaluate the applicability of the data to other contexts if necessary. All the information gathering methods, frequency data and descriptive statistics for questionnaire items are detailed in the next chapter.

analyses in computing the differences in the mean scores of each scale and their relevant standard deviation values of the two forms.

- Qualitative data collected in semi-structured interviews with randomly selected participants from the same cohort of the second year nursing students were used to explore, explain, and reinforce the findings from the quantitative data. Specific questions such as "What would you prefer the ward environment be if you can change it in order to maximise your learning?" to guide students to provide information of the perceptions of their preferred clinical environments.

Objective 4

To investigate associations between nursing students' satisfaction with their clinical placements and their perceptions of the clinical learning environment.

Research Strategies

- A seven-item scale, Satisfaction, was included in both versions of the CLEI to assess students' perceptions of the outcomes of their clinical placement.
- Again qualitative data collected in semi-structured interviews with randomly selected participants from the same cohort of the second year nursing students are used to explore, explain, and support the findings from the quantitative data.

3.8 Issues of Trustworthiness

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3.9 Summary

This chapter has described the methodology adopted in the study. It has provided a rationale for the collection of both quantitative and qualitative data. A detailed description of the survey instrument, the CLEI, and its development was included. The chapter also detailed the sample selection and data collection processes in both quantitative and qualitative approaches.

The next chapter contains a description of the validation of the CLEI and the quantitative data analysis. This is followed by an analysis and interpretation of the qualitative data collected through student interview in Chapter 5.

CHAPTER 4

RESULTS AND DATA ANALYSIS

4.1 Introduction

This chapter includes a description of the quantitative analysis used to confirm the reliability and validity of the CLEI. The data used for the statistics and analysis were those collected from the sample of second year nursing students of a university nursing school in South Australia. The Statistical Package for Social Science (SPSS) version 6.1 (Coakes & Steed, 1997) was used to perform statistical analyses. Analyses and interpretation of quantitative data from students' perceptions of their clinical placement are discussed. The associations between student outcomes and clinical learning environment are examined. The chapter concludes with an analysis of differences between students' perceptions of actual and preferred (ideal) clinical learning environment.

4.2 Reliability and Validity of the CLEI

Reliability and validity are two crucial aspects in the critical appraisal of a measurement instrument. Reliability of a research instrument is the extent to which the instrument yields the same results on repeated measures. A reliable instrument is one that can produce the same results if the behaviour is measured again by the same scale. Reliability, therefore, refers to the proportion of consistency to inconsistency in measurement. That is to say, if one uses the same or comparable instruments on more than one occasion to measure a set of behaviours that ordinarily remain relatively constant, one would expect similar results if the tools are reliable. Validity refers to whether a measurement instrument accurately measures what it is supposed to measure. When an instrument is valid, it truly reflects the concept it is supposed to measure.

As discussed and demonstrated in Chapter 2, traditionally two indicators of reliability and validity have been used in learning environment research. These indicators are scale reliability and discriminant validity:

4.2.1 Scale Reliability

Ideally, scales designed to measure an attribute are composed of a set of items that are all measuring the critical attribute and nothing else. Internal consistency reflects the extent to which items in the same scale measure the same dimension. If tests and scales are unreliable, the predictions based on them are invalid. One of the most commonly used reliability coefficients is Cronbach's alpha (Cronbach, 1982) which is based on the average correlation of items within a test if the items are standardised. If the items are not standardised, it is based on the average covariance among the items. Cronbach's alpha ranges in value from 0 to 1; zero indicates no reliability and one means perfect reliability (Coakes & Steed, 1997). A Cronbach alpha coefficient of 0.6 is considered as an acceptable level in questionnaires like the learning environment instruments (Nunnally, 1978, p. 230).

Thus, in keeping with learning environment research traditions, in this study, estimates of the internal consistency of the actual and preferred forms of each CLEI scale were calculated using Cronbach's alpha coefficient. Data are reported separately for the two forms using the individual student as the unit of analysis. Table 4.1 indicates that the values obtained for Cronbach's alpha coefficient for the Actual form ranged between 0.73 to 0.84 and for the Preferred form from 0.66 to 0.80. These reliabilities are generally fairly high which suggests that each CLEI scale has adequate internal consistency for scales containing seven items each, in both actual and preferred forms. As the development of the CLEI was based on the existing scales of the CUCEI, it would be appropriate to compare the CLEI coefficients with those previously published for the CUCEI. Indeed, the values of the alpha coefficients for the CLEI obtained from the cohort are comparable with that of the CUCEI reported by Fraser and others (1987) which ranged from 0.70 to 0.90 as discussed in Chapter 2 of this thesis.

Table 4.1
Internal Consistency (Cronbach Alpha Reliability) and Discriminant Validity (Mean Correlation with other scales) for Actual and Preferred Versions using the Individual student as Unit of Analysis.

Scale	Alpha Reliability		Mean Correlation with other scales	
	Actual N=138	Preferred N=108	Actual N=138	Preferred N=108
Individualisation	0.84	0.80	0.39	0.23
Innovation	0.73	0.66	0.39	0.34
Involvement	0.74	0.69	0.45	0.42
Personalisation	0.75	0.74	0.47	0.40
Task Orientation	0.73	0.68	0.41	0.37

4.2.2 Discriminant Validity

The second important criterion by which the quality of a quantitative instrument is evaluated is its validity. Validity refers to the degree to which an instrument measures what it is supposed to be measuring. The discriminant validity of an instrument can be assessed by calculating the mean correlation with the other scales. A low mean correlation implies that each scale is measuring a distinct aspect of the learning environment. Table 4.1 shows that, for the actual version, the value obtained for the mean correlation of a scale with other scales ranged between 0.39 to 0.45 using the individual student as unit of analysis. For the preferred version, the figures ranged from 0.23 to 0.42. Generally, these figures indicate that the CLEI measures distinct (although somewhat overlapping) aspects of the hospital learning environment. Again, the values of the discriminant validity for the CLEI obtained from the cohort are comparable with that of the CUCEI of 0.32 to 0.47 reported by Fraser and others (1987) as discussed in Chapter 2 of this thesis.

Overall, the values of scale reliability and discriminant validity of all five scales of the Actual form are comparatively higher than that of the Preferred form. It is interesting to see the lower values in the mean correlation of the preferred form. This implies that the preferred form measures each scale more distinctly than that of the actual form.

4.3 Associations Between Student Outcomes and Clinical Learning Environment

As indicated in Chapter 3, the students' perception of "satisfaction towards clinical placement" is used as an outcome measure. Use of this dimension as a dependent variable provided some useful information about what other aspects of the clinical learning environment tend to be linked with student satisfaction arising from their clinical placement. Associations between the outcome measure (Satisfaction) and the other five scales measured by the CLEI were investigated.

To examine the nature of the relationships between the outcome measure (Satisfaction) and each scale of the CLEI (Actual version), simple bivariate correlations *(r)* were used as a measurement of each linear relationship. This coefficient has a range of possible values from -1 to +1, the value indicates the strength of the relationship, while the sign (+ or -) indicates the direction.

To examine the relationship between the outcome measure (Satisfaction) and a combination of all other scales in the CLEI simultaneously, the multiple correlation coefficient R was computed. Multiple regression analysis, a more conservative approach, is used when independent variables are correlated with one another and with the dependant variable. The R value is based on inter-correlations between variables, so that the highest possible relationship, as in the case of *r*, is 1.00 (Popham & Sirotnik, 1973).

The results of the simple correlation analyses, *(r)*, reported in Table 4.2 are that significant associations emerged between Satisfaction and all five scales of the CLEI. The values of the simple correlation coefficients, ranged from 0.50 to 0.62.

These figures suggest that there are close associations between students' perceptions of all scales of the CLEI and their satisfaction of their clinical placement.

The results of the multiple regression analyses reported in Table 4.2 show that the multiple correlation (R) between the outcome measure, Satisfaction, and the set of five environment scales is 0.75 ($p<0.01$). The figure suggests that associations are strong between students' perceptions of the clinical learning environment and their level of satisfaction.

Table 4.2
Association between CLEI (Actual Form) Scales and Satisfaction as an outcomes measures in terms of Simple Correlations (r), and Standardised Regression Coefficients (β).

	Satisfaction	
Scale	r	β
Individualisation	0.51**	0.19**
Innovation	0.50**	0.17**
Involvement	0.56**	0.24*
Personalisation	0.51**	0.04
Task Orientation	0.62**	0.37***
Multiple Correlation, R	0.75**	
R^2 Coefficient	0.57	

*$p<0.05$ **$p<0.01$ ***$p<0.001$ N=108

Rennie (1998) argued that statistical significance may not necessarily imply practical significance in research findings and she urged researchers to address the issue of practical significance in their reports. Rennie (1998) suggested that effect magnitude (size) provides a quantitative estimate of practical significance. Cohen (1988) defines effect size as the degree to which the phenomenon is present in the population or the degree to which the null hypothesis is false. The most frequently

reported measure of effect magnitude (size) is a squared correlation coefficient, R^2, r^2, or eta-squared (Rennie, 1998). These measures give the proportion of variance in the scores of the dependent or criterion variable which can be predicted by the independent or predictor variable(s). If $R^2 = 0.5$, this implies that half or 50% of the variance in one variable is shared with the other. In terms of effect magnitude (size), this is described as a large effect (Kirk, 1996).

With reference to Table 4.2, the R^2 statistic of 0.57 indicates that 57% of the variance in students' level of satisfaction (outcomes measure) of their clinical experience was shared with all five scales of the CLEI. This suggests that, satisfaction with the clinical learning environment is explained by students' perceptions of all five scales in the CLEI. The large effect magnitude is highly indicative of the practical significance of the findings.

The beta weights β (i.e., the standard regression weights) in Table 4.2 provide an estimate of the influence of any specific environment variable on the outcome when the remaining four environment variables are held constant. In other words, the variables whose regression weights are significantly different from zero are those which account for a significant increment in outcome variance over and above that attributable to the other four environment variables combined. This more conservative analysis as indicated in Table 4.2 shows that, with the other variables fixed, Student satisfaction was significantly greater in students who highly valued task orientation, involvement, individualisation, and innovation in their clinical placement (β values ranged from 0.17 to 0.37). The relatively high value of the beta weight for Task Orientation ($\beta = 0.37$) indicates that there is a strong association between students' perceptions of task orientation and their satisfaction during their clinical placement.

Why should task orientation be so important from the students' perspectives? As discussed in Chapter 2, it is apparent that many nursing students perceive clinical experience as anxiety-provoking (Kushnir, 1986; Melia, 1987; Windsor, 1987; Campbell et.al, 1994). Students often express the opinion that they become less nervous in the clinical environment soon after they are involved with the ward

activities. As one possible way to reduce and control their anxiety, the student might choose to occupy themselves with carrying out tasks in the clinical environment. Most nursing students are novice in the clinical environment. To implement nursing procedures in the clinical environment which might have only been practised in simulated situations in skills laboratory by the students, it is only fair to expect that the students required clear and detail instructions from the clinician/facilitators. Most importantly, these nursing tasks may have direct impact on the welfare of the client. To further complicate the issue, individual clinicians may have specific preference in the way a procedure is performed. That is to say, each clinician may perform the very same nursing procedure differently. This certainly makes it confusing for the students who are trying to learn to implement nursing procedures in the clinical environment.

4.4 Differences between students' perceptions of Actual and Preferred (Ideal) Clinical Learning Environment

Previous research, reviewed in Chapter 2 of this thesis, has indicated differences in students' perceptions of their actual and their preferred environment. Generally, students have been found to prefer a more positive learning environment than they perceive to be present (Fraser, 1994).

To enable a comparison between students' actual and preferred perceptions of the hospital learning environment to be made, mean scores for each scale were calculated. As indicated in Chapter 3, scores of each scale range from 1 to 5. Each scale has seven items, thus the maximum score for each scale is 35.

The mean score is a measure of the central tendency for each scale. The standard deviation is a number that is calculated from the data to show the amount of dispersion of the data. With reference to Table 4.3, the mean scores for the Actual form range from 22.01 (Innovation) to 27.72 (Personalisation) with standard deviations of 4.01 and 4.38 respectively. The scale means for each scale reveal that students perceived that Personalisation as the most important domain in the hospital learning environment, followed closely by Student Involvement, and then Task

Orientation. The least important scale as perceived by the cohort lies in Innovation of teaching strategies with a mean score of only 22.01. The overall mean scores for all scales in the Preferred form are significantly higher than the Actual form. The mean scores for the Preferred from range from 26.01 (Innovation) to 31.39 (Personalisation) with standard deviations of 2.49 to 3.80 respectively. Interestingly that Personalisation scored the highest mean and Innovation scored the lowest mean in both versions of the CLEI. It is apparent that students recognised Personalisation as the most important requirement in the hospital learning environment. These data indicate students generally prefer a more positive hospital learning environment to the actual environment.

The differences between students' perceptions of actual and preferred clinical learning environment were explored in two ways. The first involved determining if the differences between the scale means for the actual and preferred (ideal) clinical environment were statistically significant. The second involved calculating effect sizes for each of the scales of the CLEI. Effect sizes provide a more unrestricted representation of the differences in students' perceptions, without the caveat of whether the calculated statistic is significant or not.

The difference in scale means for each scale was calculated by subtracting the actual mean from the preferred mean for each scale. Therefore, a positive difference indicates that the scale mean for the preferred clinical learning environment was higher than for the actual. A similar procedure was employed in the calculation of effect sizes, where the actual mean was subtracted from the preferred mean and the difference was divided by the pooled standard deviation for that scale (Cohen, 1988).

With reference to Table 4.3, the difference in scale means for each scale ranged from 2.36 to 4.29. These data suggest that, in comparison with the actual hospital environment, students prefer an environment with higher levels of individualisation, innovation in teaching/learning strategies, student involvement, personalisation, and task orientation.

Personalisation scored the highest mean in both versions of the CLEI. This scale emphasises on opportunities for individual student to interact with clinical

teacher/clinician and on concern for student's personal welfare. Nursing students spend only a few weeks of hospital placement in each semester of their course of studies. During clinical placement, nursing students frequently felt vulnerable in the clinical environment (Campbell et.al, 1994). It seems natural that students are seeking respects, support and recognition from clinical teachers/clinicians during clinical placement. This explains the high mean score in the Actual form for Persoanlisation. The yet higher score for Personalisation in the Preferred form suggests that, generally, nursing students demand for more support, respect and recognition from clinical teacher/clinician in the hospital learning environment.

Table 4.3
Scale Means and Standard Deviations for Actual and Preferred Versions of the CLEI.

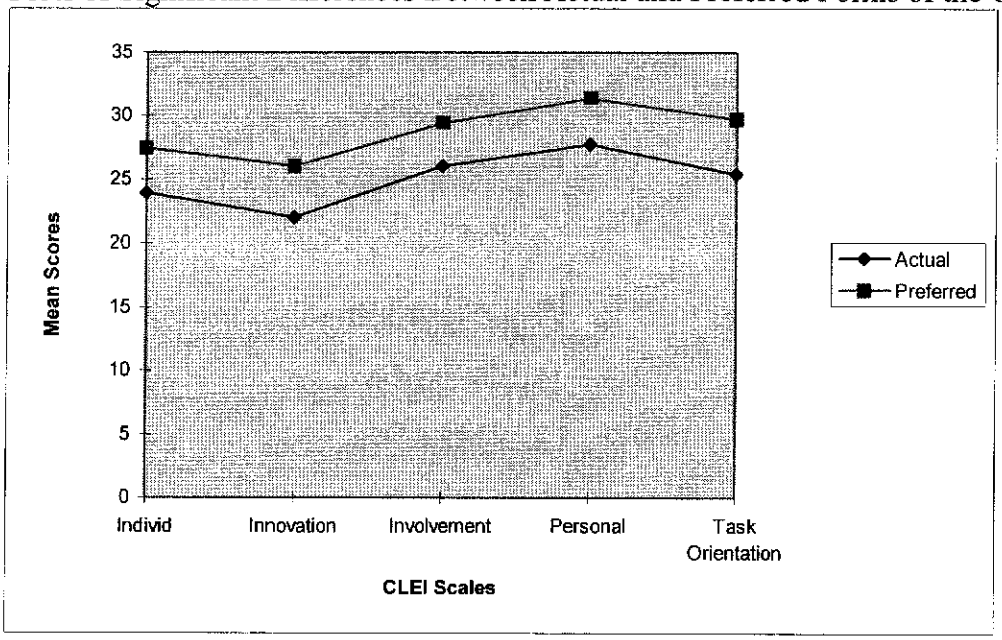
	Scale Mean		Standard Deviation		Mean Difference	t-Value
Scale	Actual (N=138)	Preferred (N=108)	Actual (N=138)	Preferred (N=108)		
Individualisation	23.91	27.45	4.35	3.40	3.54	6.40*
Innovation	22.01	26.01	4.01	3.80	4.00	7.10*
Involvement	26.04	29.40	3.87	2.89	2.36	7.10*
Personalisation	27.72	31.39	4.38	2.49	3.67	7.90*
Task Orientation	25.42	29.71	3.58	2.88	4.29	9.74*

*$p<0.001$

The appropriate analytic procedure for testing the statistical significance of a difference between the means of two groups is the parametric test known as the t-test (Polit & Hungler, 1997, p.344). The formula for computing the t statistic essentially involves using information about the group means, sample size, and variability to generate a value for t. The t-tests for paired samples among the two versions of the CLEI were carried out and the results as shown in the table indicated that the

differences between the two versions of the CLEI were statistically significant. As there were only 108 completed preferred forms collected (N=138 for Actual version), the paired t-test was carried out using only the 108 pairs. The significant differences in students' perceptions of the environment scales in the two versions of CLEI can be depicted graphically as in Figure 4.1.

Figure 4.1
Plots of Significant Differences Between Actual and Preferred Forms of the CLEI.



Interpretations on the magnitude of effect size, are based on Cohen's (1988) operational definitions of 0.20, 0.50 and 0.80 as being small, medium and large effect sizes respectively. Examination of effect size data in Table 4.4 reveals that the effect sizes were "large" for all scales except the Involvement scale with an effect size of 0.54, which was considered as "medium" according to Cohen's definition.

This analysis indicates that nursing students prefer a much better clinical learning environment in comparison with their actual clinical learning environment. Of particular interest is the students' perceptions of their preference in the Task

Orientation scale, with an effect size of 0.98, which is considerably stronger than any other scales in the CLEI.

A comparison of findings, using the two methods of analysing the differences of students' perceptions of the actual clinical learning environment and their preferred clinical learning environment, discloses that effect size calculations provide a more complete picture of the findings. The "effect size" method confirms the findings of the "statistical significance" method, at the individual student unit of analysis, that students preferred a more favourable clinical learning environment than they perceived on all the five dimensions assessed by the CLEI.

Table 4.4
Effect Sizes (ES) for differences in perceptions of Actual and Preferred Clinical Learning Environment as measured by the CLEI

Scale	Mean difference	Effect Sizes - *ES*
Individualisation	3.54	0.81
Innovation	4.00	0.91
Involvement	2.36	0.54
Personalisation	3.67	0.84
Task Orientation	4.29	0.98

ES was calculated by subtracting the actual mean from the preferred mean and dividing the difference by the pooled standard deviation, Cohen's *d* (1988), using individual student as unit of analysis.

4.5 Summary

This chapter has reported on the validation of the CLEI and the findings of the analysis of the quantitative data collected from the cohort of second year nursing students. 138 completed actual forms and 108 ideal (preferred) forms of the CLEI were available for analysis.

Estimates of the internal consistency for each of the five scales of the CLEI were calculated using Cronbach's alpha coefficients. The discriminant validity, using the mean correlation of a scale with the other scales as a convenient index was computed for each scale of the CLEI. Statistical data based on the sample confirmed the reliability and validity of the CLEI for use in hospital learning environments in both actual and ideal (preferred) versions of the instrument.

Students' levels of satisfaction arising from their clinical placement were found to be strongly associated with all five scales of the CLEI namely; Individualisation, Innovation, Involvement, Personalisation and Task Orientation. It is interesting to note that students who perceived the outcome of their clinical placement as greatly positive, have placed high expectations on Task Orientation.

The study also found that there were significant differences between students' perceptions of the actual clinical learning environment with their preferred clinical learning environment. Generally, in terms of all the CLEI scales assessed, students preferred a more positive and favourable clinical environment than they perceived as being actually present.

The next chapter reports on the qualitative data collected through interviews of randomly selected students from the same cohort during their hospital placement. The results of the analysis of these qualitative data are used to enhance the quantitative findings.

CHAPTER 5

QUALITATIVE DATA ANALYSIS AND INTERPRETATION

5.1 Introduction

This chapter contains an analysis and interpretation of the qualitative data collected through interviewing 21 randomly selected second year nursing students. Details on the collection of the qualitative data are provided in Chapter 3 of this thesis.

The analysis and interpretation of the qualitative data is a synthesis of the students' perceptions of hospital learning environment during their clinical placement. Students were asked a series of questions dealing with their ward learning environment. Generally, the questions asked of the students were categorised according to the five scales of the CLEI, ie. Individualisation, Innovation, Involvement, Personalisation, and Task Orientation.

5.2 Qualitative method

As the clinical teacher, the researcher accompanies his nursing students in hospital placement. Naturally participant observation would be an ideal vehicles to access students' perception of the clinical environment. As the name implies, participant observation is about getting involved in the action in a setting, whilst observing the details within it. One major concern with this data collection method is that the researcher can get so caught up in interactions with all the people involved in the study that adequate data collection on the subject under study is not completed. If the researcher is collecting data while surrounded by familiar professionals with whom he typically interacts socially and professionally, it is sometimes difficult to completely focus his attention on the study. This may lead to loss of data (Burns &

Grove, 1987, p.450). Furthermore, the researcher's major role in the clinical environment was to facilitate and provide support to nursing students' learning during their placement. Therefore, interview with students, which took place after the students completed their shift on their ward, was chosen as a mode of collecting data instead of participant observation.

Qualitative interviews are more like conversations than interrogations. They can be structured with a list of set questions to be asked, or they can be relatively unstructured with little more than an invitation being issued by the researcher for the participant to talk about an area of interest. In between both end points is a semi-structured interview, which is a conversation in which the researcher invites the participant to talk, encouraging a free flow of words and ideas, while at the same time keeping the person relatively on track in the conversation.

In order to compare and contrast the findings from the quantitative method, specific questions were designed as guidelines to address each scale of the CLEI. Moreover, the interviews were conducted informally and the participants were encouraged to air their general concerns regarding their clinical experience. Hence semi-structured interview was the chosen as the ideal technique in this instance.

All the 21 students were voluntary and were aware that they could withdraw consent at anytime. Participants were informed that any evaluation report and subsequent publication would respect their confidentiality and anonymity. Following the interview, the participants were provided with their transcriptions of the interview. The students all verified that their transcript was a true and accurate account of their respective interviews.

In order to facilitate the ease of comparison of qualitative data from the quantitative data obtained through the CLEI, information gathered from the transcript of the interview are categorised and presented according to the five scales of the CLEI, ie. Individualisation, Innovation, Involvement, Personalisation, and Task Orientation.

5.3 Questions on Individualisation in Ward Learning Environment

Students were asked the question, "Do you think the ward atmosphere, allows you, the student, much autonomy in the way you function as a learner in the hospital? For example, have you been involved with decision making regarding your work? Or have you been treated differently according to your ability and interest?" They generally responded that they did not perceive a great sense of autonomy while working in the wards:

> *It depends on which staff you are dealing with. Some are very nice and they treat you as an individual. Some are rather difficult, they just give out orders and you are expected to follow them accordingly, no questions asked ....*
>
> *You are expected to do things in their way, or else they are wrong. The worst of all is that, sometimes every staff member shows you a different way of doing a procedure. When asked why things are done in a particular way, their response of "It is always done this way" did not help. It is very difficult for us to know which is the right way .....*
>
> *The first couple of weeks I did not feel if there were any recognition of democracy or autonomy here. I tended to follow my preceptor and carried out the work (patient care) as directed. Coming to a new environment with unknown expectations from people here was an anxiety provoking experience initially. Autonomy would be the last thing I could have thought of any way...*
>
> *The clinical manager runs the ward like an army. There is definitely no sense of democracy at all. All ward routines are set precisely at a particular time of the day. She would go around and check to ensure that they are carried out. (ie. All patients be showered and their beds are made by 10am, no one is permitted to go for morning tea if this is not done!)... I have been allocated in this bay for over a week now, it would be nice to have different patient load and learn something other than just CVA, but I wouldn't have the guts to negotiate with her for a change. It makes me feel very frustrated 'cause all these communication skills and interpersonal relationship that I've learnt simply cannot be applied here!*

Students' comments reflected the frustration they felt in the limitations institutional hierarchy and ritual sometimes imposed on them. However, not all comments were negative. A significant number of students made comments like the following:

Now that I have become familiar with the ward lay out and the routine, I have also proved to the clinician my capability. They seem to have known me better and have entrusted me to a greater extent. It was such a good feeling, a kind of feeling I can't describe, I felt I was so important, that this morning my preceptor actually discussed and seek my opinion regarding the care of Mr. M....

It was excellent today, I feel like I was on top of the world. Kathy (clinician) came up to me and said that she'll let me be the "Registered Nurse" this morning and she'll take on the student's role. I was terrified initially, but Kathy made me think each time and offered assistance only when necessary. I finished this shift feeling confident and great, it is so exciting and rewarding. I can't wait to be back here tomorrow.

The above comments suggest that students' level of satisfaction in the ward area was high when they were treated with respect as individuals especially, when they were included as part of the working team by the clinicians. Students' level of satisfaction arising from their clinical experience is clearly associated with individualisation and task orientation in this instance which reinforces and explains the findings from the quantitative data as indicated in the previous chapter. A follow-up question of, "What would you prefer the ward atmosphere to be regarding this area (autonomy and democracy)?" resulted in the following response:

It would have been nice if I was treated as an individual and with respect. I understand that things can go wrong and sometimes this may affect patients' welfare. It would be difficult to allow autonomy for novice like us who are only here for a few weeks...

I would have liked to be able to choose my patient load in this ward. There is hardly any negotiation regarding my interest as a student in this ward.

It is clear that students were dissatisfied with ward environments with rigid and strict hierarchical systems. Generally, students preferred a democratic environment with a sense of individuality which permitted them to be involved with decision-making processes in their participation in the ward. Again, this explains and reinforces the quantitative findings that students preferred a more positive and favourable clinical

environment than they perceived as being actually present. Furthermore, the findings support previous studies which suggested that highly structured wards with rigid and strict hierarchical systems are unlikely to meet the learning needs of the students. On the other hand, allowing students the flexibility to implement individual discretion within prescribed boundaries may be a crucial factor in achieving optimum effective outcomes for the students.

5.4 Questions on Innovation of Teaching Strategies in the Clinical Learning Environment

When students were asked for their perceptions on whether they thought the preceptor/clinical teacher had provided innovative teaching/learning strategies, students generally were satisfied with the commitments made by the preceptor/clinical teacher:

> *The follow through of the Knee Replacement (surgery) organised by my preceptor was the best learning experience in this placement. Having admitted the patient the day before surgery, followed him through to theatre and witnessed the surgery, accompanied him in the recovery ward, and nursed him in the first few post operative days, have provided me with knowledge and skills far better than information provided by any text book. Most importantly, after seeing what they've done during the surgery, I am more aware of and appreciate how it would feel when the post op patient calls out for pain relief...*

> *Thanks to my preceptor of whom I blamed earlier when I thought I was thrown in the deep end... I have learnt about measuring central venous pressure (CVP) in the university and have practised measuring CVP several times in the skill lab. It seemed so complicated that I got even more confused each time. Seeing how the central line was inserted this morning through assisting the doctor with the procedure, and having the opportunity to carry out the measurement on an hourly base gave me plenty of practice. Mastering the skill is important, but making sense of the meaning of the reading as it reflected the patient's fluid status when we attempted to resuscitate Mr. H (patient) who was in hypovolaemic shock was the best I've learnt...*

> *My clinical facilitator organised me to follow the pathology sister to go around the hospital yesterday. I was rather apprehensive and uncomfortable initially and thought that was unnecessary 'cause I've just settled in my ward area. To go around with a stranger to other unknown*

areas of the hospital would not help... On the contrary, I finished the day feeling that I have learnt so much practical skills in a mere eight hours. Not just the technique and skills in veni-puncture which certainly is a booster to my ego and confidence in taking blood, but the rationale and meaning of many laboratory tests that I've came across in the past are making more sense to me now following yesterday's experience....

I was terrified of seeing Tracy, my clinical facilitator in the first week. She would come and question me regularly. She expected me to know the diagnoses of my patients, their current treatment and worst of all the medication they were on. You know, in a new environment one needs to have time to settle in.... On reflection, Tracy's approach was very effective. I was pushed to do further readings following each shift to be more familiar with the specific conditions of my patients, their current management and medications. Initially I did this for Tracy so that I didn't have to hide away when she calls in the ward... I have realised that I was rather task orientated earlier and have overlooked the true meaning of clinical placement. I think I have tied in my clinical practice with the theory behind....

The above comments suggest that the students perceived most innovative teaching strategies provided by the clinician/clinical teacher were useful, appropriate, and effective. Although some students indicated that they were initially uncomfortable with some of the unusual teaching strategies, they all agreed in the end that these were beneficial and effective strategies which provided them with invaluable learning experiences. These support and reinforce findings from previous studies (Davis, 1990; Campbell, et al., 1994) that the clinical teacher and clinicians are two major factors which influenced the student's learning in the complex clinical environments. It is clear and evident that the students' level of satisfaction with the clinical field placement was closely related to clinician/clinical teacher's innovation in teaching strategies. This does parallel the quantitative findings from the CLEI which suggested that the students were generally satisfied with the clinician/clinical teacher's innovative teaching strategies in the ward environment.

5.5 Questions on Student Involvement within the Hospital Environment

Most students perceived clinical placement as the opportunity for them to put what they had learned in the "classroom setting (theory)" into action (practice). Apart from the initial few days in which most students were trying to become familiar with

the ward environment and to settle in with the ward routine, most students were allocated to direct patient care. Towards the end of the placement period, each student took on a patient load of two to six, depending on the student's capacity as well as the condition of the patients. As far as providing basic care to the patient was concerned, the students were generally satisfied with their involvement in their ward learning environment:

> *Yes, I like to be involved in all ward activities. I believe this is the aim of our clinical placement. It is up to us to be proactive and work actively to take on all learning opportunities in the ward... The more I involved with the more I learnt. I prefer to dive in and do rather than watching....*

> *I hesitated initially because I felt nervous in the new environment. With encouragement from everyone (clinical teacher, clinician, and patients), I believe I have made good use of every learning opportunity in the past two weeks. It feels good to be involved and I learn best from doing....*

> *I am very satisfied with my progress and I believe I have achieved all my objectives in this placement... My time management is so much better and I feel a lot more confident of myself compared with the first week when I arrived here.... I think my willingness to participate and be actively involved with all learning experiences as they arise have benefited me most.*

Evidently, students were satisfied with their hospital learning experiences. However, a few students made the following significant comments:

> *There are a couple of staff in the ward that I prefer not to be allocated to work with. They don't trust us and never let us do anything. We are only allowed to "watch" when they are around. I feel so powerless and useless when "working" with them...*

> *The only thing that I feel uneasy in this ward is that we do not have the opportunity to give hand over to the on coming staff. They say that the overlapping time is so short that if every one does the hand over, we'll all be working over time every shift. The fact is, even the team leader does the hand over for the entire ward, it still goes beyond the 15 minutes period.... I believe the primary nurse knows his/her patients far better than the team leader...*

The above comments suggest that students' levels of satisfaction regarding their learning experience in their ward environment were high when they perceived themselves as actively involved in ward activities. Alternately, students' levels of satisfaction were low when they perceived themselves as passively involved or excluded from ward activities. Again, students' level of satisfaction with their hospital learning experience were clearly related to involvement and task orientation which reinforces the quantitative findings of the CLEI. Evidently, the students perceived that it was most important to be treated as a part of the working team in the clinical settings. In order to achieve this it is apparent that the students needed to show their initiatives and involvement with all ward activities. On the other hand, clinicians' acceptance and recognition of the students' involvement in ward activities were perceived by the students as vital and beneficial to their learning.

5.6 Questions on Personalisation in the Hospital Environment

When students were asked about opportunities for the individual student to interact with the preceptor (clinician) and clinical teacher on concerns for student's personal welfare, students gave the following encouraging responses:

> *My preceptor (clinician) would go out of her way to provide all possible learning experiences for me. Judging from the way she talks to me and the manner she displays, its obvious that she respects and cares about my feelings.*
>
> *I have enjoyed working with my preceptor. She is fantastic and easy to communicate with. I don't feel inferior with her at all. I have learnt a lot from her. She treats me and makes me feel like a member of the team and she is always interested in what I had to say ...*
>
> *My clinical teacher is great, she would come and talk to me regularly to see how I get on in the ward. I like the way she questioned me to make me think of what I need to do and why I do them.*
>
> *Jill (clinical teacher) is very approachable, she always takes time to listen and offers opinion and suggestions. She is genuinely interested in how we are feeling....*

The Clinical Nurse Consultant (Charge Nurse) is always busy but she is willing to listen and discuss matters with us when she is there...

However, not all the students responses were positive. A few significant comments were noted as the following:

I feel rather uncomfortable with my clinical teacher because she was very intimidating ... in fact I often feel threatened by her.

Some clinicians are terrible and anti-uni students and claimed that they don't believe in the uni system of nurses' training. They ignored my presence and made me feel like I am always in their way. Its difficult if not impossible to be able to learn anything in this atmosphere...

I don't think that I've learnt anything from my clinical teacher. Honestly, I often attempted to avoid her. I got very nervous in her presence 'cause she would pick on you at everything and would criticise you in front of the patient and other staff...

As indicated in Chapter 4, the mean scores for each scale of the CLEI reveal that students perceived that Personalisation as the most important domain in the hospital learning environment. Parallel to the quantitative findings, the above comments suggest that the student's relationship with the clinical teacher and/or clinicians play an important part in a student's clinical experience. Clearly, these people have the power to influence the hospital learning environment. Consequently, this has strong and direct impact on the student's learning. This is in accordance with Dunn and Hansford's (1997) recent findings which suggested that interpersonal relationships between the participants in the clinical learning environment were crucial to the development of a positive learning environment.

The findings from this research project also reinforces previous studies which suggested that clinicians' management style and interpersonal skills, including approachability, were of prime importance in facilitating the students' learning in the clinical environment (Sellek, 1982; Smith, 1988). Furthermore, the findings suggested that students valued positive relations with clinicians and clinical facilitators and appreciate recognition for their contribution to patient care.

5.7 Questions on Task Orientation

Task Orientation in the CLEI assesses students' perceptions of the extent to which their ward activities were clear and well organised. Analysis of the quantitative data suggested that there was a strong statistically significant association between students' perceptions of Task Orientation and Satisfaction during their clinical placement. A variety of questions was asked of students. In reply to the question, "Do you think the ward activities you've involved with were well structured and benefited you?" Comments such as the following supported the quantitative data findings.

> *The staff in this ward are very helpful to students. They are prepared to give us students a go with every opportunity. In the past few weeks, I have virtually done everything that we've learnt in the uni. I've given so many injections that I have loss count now. I've inserted two Folleys and have also removed a few. Taken wound drains out, removed stitches, put up IV, taken blood, and even inserted a nasogastric tube. You name it, I've done it. It is rewarding and it feels so good that I can do all these proficiently...*

> *Jean, my preceptor is an excellent role model. She is always very well organised with her patient care.... With Jean's guidance, I have learnt to master my time management quite well over the past few weeks. I can now manage up to four patients on my own and I even have time to spare to offer help to other staff around the ward... Its an excellent placement, I feel so much more confident about myself now.*

To the question, "Do you believe this clinical placement is well organised ?" The students gave responses like the following :

> *Its as well organised as it can be. The staff were well informed about our placement in day one. The hospital and ward orientations were very informative but overwhelming 'cause there were so much to absorb. I was allocated a preceptor from day one and this has certainly helped me a lot in settling in a new environment...*

> *I think the facilitator should have communicated better with the ward staff to clarify our role as a student in the ward. They (clinician) don't seem to have much ideas of what we are allowed to do...*

Most staff in the ward are not aware of our capacity as students. I believe this is the main reason for their reluctance to allocate tasks or responsibilities to us...

I found the pre-clinical workshop very useful. Meeting our clinical teacher before the clinical was good. The clinical teacher gave us a run down of each ward we were going to. The most useful information was about the type of patient (diagnosis) we were likely to see and the common procedure involved in the ward. This allowed me time to prepare myself before the clinical and has proved to be invaluable...

I think the debriefing session at the end of each day could have been organised better. You know we are usually both physically and mentally exhausted towards the end of the day. I don't think I can sit down and be actively involved with any group discussion. To me, this is a waste of time...

These comments provide considerable support for the quantitative findings. It is evident that students' level of satisfaction with respect to their clinical placement was high when they perceived the extent to which ward activities were clear and well organised. It is also apparent and interesting to note that the students rated the outcomes of their clinical experience according to their opportunity and ability to perform tasks in the clinical setting.

The question of, "Who do you consider as the most influential participant(s) in the clinical environment that facilitated your learning? Why?" The students made comments like the following:

Its got to be myself. I believe it is up to us to make the effort to achieve our objectives...others can only assist, you know.

I think most of the registered nurses (clinician) here have facilitated my learning. Because they work here, they know what needs to be done and how to go about doing it.... They know that we are here to learn and they are prepared to provide us with learning opportunities as well as guidance... They are the people we have most contact with...

Everyone. Registered nurses, enrolled nurse, clinical facilitators, physio, pharmacists, patients, all of them have facilitated my learning... The

most influential has to be Emma (preceptor) because she does not mind putting up with me all these weeks. I have learnt so much from her...

Clients in the ward have major impacts on my learning here. They are most friendly with us. Most importantly their willingness to allow us to practise on them and their encouraging and constructive feed back made me feel confident....

When asked, "What do you like most about this clinical placement?" Students made comments like following:

The best thing about this placement is that I can practice the skills that I've learnt in this semester plus learning some new skills that I've never been taught in the Uni...

The best of this placement is that I have proved to the staff (clinician), my clinical teacher, and most importantly myself, that I can be a real nurse. I took on a full load of six patients throughout the shift by myself and I survived. I managed without being told to do this or do that! Both staff and patients commented what a good job I have done...

I have enjoyed practising the skills we learnt at the Uni. My communication and interpersonal skills were put on the test and I believe I have passed with flying colours. It's a very enjoyable experience.

It feels good to be able to apply what we've learnt at the uni to the real world. Dealing with real people is far better than handling dummies in the skills lab. It's rewarding to receive compliment from patients and staff....

The dedication of staffs' attitudes to patient care at this hospital has definitely influenced my view to nursing. Being included as part of the working team is the most rewarding thing. I feel as though my effort is worthwhile ...

Again, these comments explain and reinforce the idea suggested from the quantitative data that students perceive task orientation as an important factor that influences the outcomes of their clinical placement. The students perceived the opportunities for them to be directly involved with hands-on skills are often controlled by clinicians and clinical teachers. It is apparent that the students have enjoyed putting the skills they have learned to practice in the clinical environment.

Most importantly, the compliment from clients and clinicians for a job well done are both encouraging and rewarding. This supports the findings from Hart and Rotem's (1984) study which suggested that students enjoyed being busy and having an appropriate level of autonomy but found this difficult to achieve unless their role as student was clear to ward staff.

5.8 Students' Perceptions of an Ideal (Preferred) Clinical Learning Environment

When the group of nursing students interviewed as part of this study were asked "What would you prefer the ward environment to be if you could change it in order to maximise your learning ?" Students commented that :

It would benefit me more if I could negotiate my patient load with the staff. They tend to assign the same heavy load to me every shift... I feel as though they (clinicians) treat me like an extra pair of hands rather than as a student....

I would have preferred the ward staff to consider and recognise my contribution in the ward. Patients often expressed their appreciation of my work here. Unfortunately words of recognition from the staff here are very scarce... I may be here to learn, but I have also relieved a far amount of workload for the staff here.

I would prefer the ward staff to be more acceptive to us as students, some staff are very difficult to get along with... It would be nice if they were more open and communicate with me directly. Its most disappointing to hear bad things about myself through a second person... Sometimes I feel like an alien and don't belong here.

It will benefit us most if all the ward staff have clear picture of what level we are at and what we as students can and cannot do in the ward...

The idea of working with the same staff as a preceptor is good. Unfortunately that is just an ideology because I have only worked with the same staff for less than three days over the last few week...

I believe we should be given the opportunity to choose the type of ward we are going for our placement. My interest is in surgery but I have not had the opportunity to work in any surgical ward so far...

I would prefer the clinical teacher to come and talk to me more often. We need support from her especially the first week when we were left in this totally new environment. Sometimes I wonder if she might have forgotten me....

I wish they (clinician) would let me perform more new skills. Its most disappointing to find out retrospectively that someone have just received an IM injection and I have missed out the opportunity again!

Clinical is good, I wish if we could have spent more time here, it makes me feel like a real nurse.... It takes me sometime to settle in the ward, I have just felt comfortable with the environment and the ward routine, but the clinical block is finishing...

The above comments cover a fairly broad area which have already been addressed earlier. It would be appropriate to sum up that, generally students preferred a more positive and favourable clinical environment than they perceived as being actually present. It is apparent that the students preferred to be involved and to be recognised as an active member of the working team in the clinical environment.

5.9 Summary

Going to a new environment with unknown expectations from personnel involved can be an anxiety-provoking experience. This uneasy feeling of anxiety was commonly shared among nursing students, especially during the early period of their hospital field placement. The students' main concerns were the reactions of staff and clients to their efforts. Furthermore, unlike the laboratory simulated situations where students can afford to make mistakes while practising, the same mistake made in hospital situation may jeopardise clients' welfare. Added to these was the shock to the body system of the nurses' shift work, both physically and mentally.

Findings from the qualitative data collected through interviewing 21 randomly selected nursing students support and provide explanation to the quantitative results reported in Chapter 4. Students welcomed and preferred hospital wards which recognised their individuality and allowed them some degree of flexibility within sensible limits as compared with highly structured wards with rigid and strict

hierarchical system. Students' level of satisfaction was high when they were treated with respect especially when they were included as part of the working team. Students were generally satisfied with clinicians/clinical teachers' innovative teaching strategies and found them productive and effective.

The findings from the students' interviews also reinforced previous studies which suggested that clinicians' management style and interpersonal skills, including approachability, were of prime importance and that the provision of learning opportunities was more important than formal teaching. Some comments from the students reflected the frustration they felt in the limitations institutional hierarchy and ritual sometimes imposed on their learning. Students valued positive relations with clinicians and clinical facilitators and appreciate recognition for their contribution to patient care. It is evident that students' perceptions of the outcomes of their clinical experience were rated according to their opportunity and ability to perform tasks in the clinical setting. Echoing the quantitative data, findings from students interview confirmed that students perceived task orientation as an important factor that influenced the outcomes of their clinical placement. Moreover, students preferred a more positive and favourable clinical environment than they perceived as being actually present.

CHAPTER 6

CONCLUSION

6.1 Introduction

This thesis reports on the findings of a study of nursing students' perceptions of hospital learning environment in a sample of 138 second-year undergraduate nursing students at a major university school of nursing in South Australia in 1997. The study included the development of the research instrument, the Clinical Environment Inventory (CLEI). Both versions of the CLEI, the actual and preferred forms, were validated using the sample of nursing students during their second year clinical field placement. Associations between students' satisfaction of their clinical field placement and their perceptions of hospital learning environment based on the CLEI were computed and interpreted. Comparisons were also made between the students' perceptions of the actual hospital learning environment and their preferred (ideal) hospital learning environments in the areas of individualisation, innovation, student involvement, and task orientation. Both quantitative and qualitative data were collected, analysed and interpreted in the study.

This study has been distinctive in its contribution to nursing education, especially in the understanding of the effects of ward environments on nursing students' learning. More specifically, this study is unique in the following ways.

Firstly, it makes a significant contribution to the study of hospital learning environments through the development and validation of the Clinical Learning Environment Inventory (CLEI). As indicated in Chapter 2 of this thesis, despite all the past research examined, there is a lack of specific studies on hospital learning environment from the psychosocial educational perspective. Although there are numerous instruments available for assessing classroom learning environment at various levels, there was however, not one instrument specifically designed for

assessing the hospital learning environment from the psychosocial educational perspective. It is envisaged that the development of the CLEI will improve this situation. Thus, a significant contribution has been made to the study of learning environments.

Secondly, this study is significant in its contribution to the understanding of hospital learning environment. Findings in relation to the association between students' perceptions of the satisfaction in their clinical placement and the perceptions of their ward learning environment, provide important and valuable information for nurse educators, clinicians and the nursing profession which may assist them to identify and measure factors within the clinical learning environment which influence student learning outcomes. Thus, the study has a practical significance for the nursing profession.

6.2 Major Findings of the Study

There were four major purposes in this study and each is restated and addressed in turn in this section:

To develop and validate the instrument, The Clinical Learning Environment Inventory, CLEI, for assessing pre-registration student nurses' perceptions of hospital learning environment during their clinical field placement:

It is apparent from the review of related literature and past research, as indicated in Chapter 2, that there is a lack of studies on hospital learning environments from the psychosocial educational perspective. The development of the CLEI provides one missing link in the study of the hospital learning environment.

The development of the CLEI, described in Chapter 3, was based on the existing scales of the CUCEI with some modifications made to adjust the new inventory to the specific and unique hospital environment. Based on Moos' (1974) theoretical perspectives, the instrument covered three general categories of characterising diverse learning environments. The three dimensions are namely; relationship

dimensions, personal development dimensions, and system maintenance and system change dimensions. An attempt was made to ensure the contents of the CLEI are considered salient by the nursing profession by seeking comments from nurse educators, nurse clinicians, and nursing students during the development stages of the inventory. The final version of the CLEI contains 35 items, with seven items assessing each of five scales, namely, Personalisation, Student Involvement, Task Orientation Innovation, and Individualisation.

An important aspect in the use of the CLEI has been the development of the preferred form. In addition to the actual form which measures student perceptions of the actual clinical learning environment, the preferred form, which is concerned with goals and value orientations, measures the perception of the environment ideally liked or preferred by the students. Although item wording is almost identical for actual and preferred forms, the instructions for answering the two forms are varied to inform students clearly whether they are rating what their clinical learning environment is actually like or what they would prefer it to be like. The descriptive statistics provided in Chapter 4 show that both versions of the CLEI, the actual and preferred forms, have satisfactory scale internal consistency, and scale discriminant validity thus confirming the validity of the CLEI.

To assess pre-registration nursing students' perceptions of Hospital Learning Environments during their clinical field placement:

Data were obtained from the selected sample of second-year nursing students on their perceptions of the hospital learning environment. As indicated in Chapter 3 of this thesis, quantitative data were collected using the CLEI along with qualitative data obtained through interviews with randomly selected students. Evidently, the qualitative data have helped to explain the quantitative data. Moreover, it was found that findings from both quantitative and qualitative data support each other. The findings have confirmed the significance of the social context of learning within nursing practice. The clinical learning environment has a significant impact on nursing students' achievement in their clinical practice.

The clinical facilitator was perceived as invaluable in negotiating the acceptance of the student onto the ward team and having a central role between the university and the clinical venue. Some students however, viewed the clinical facilitator as an authority representing the university since the final assessment of students' clinical performance falls on the clinical facilitator's shoulders. Other perceived the clinical facilitator as mentor, but very few students viewed the clinical facilitator as responsible for teaching students in the clinical environment.

Generally, students perceived themselves as the most influential participants in the clinical learning environment. The students considered that they ought to be actively involved with ward activities in order to get the most out of their clinical field placement They recognised that it is up to themselves to proactively work to create the kind of environment which will best meet their individual needs.

Apart from the students themselves, nurse clinicians were perceived by the students as the most influential participants in the clinical learning environment. It is apparent that clinicians, preceptors in particular, were gate-keepers and guides to learning opportunities for students. The study suggests that, if the clinicians fulfilled their role effectively and supported the students in their professional development, the students were likely to perceive a positive clinical learning environment with high degree of satisfaction arising from the experience. On the other hand, if the clinicians were unresponsive to student needs, students' learning outcomes were compromised. Most importantly, comments from a significant number of nursing students reflected the frustration they felt in the limitations institutional hierarchy and ritual sometimes imposed on their learning.

Findings from the study also suggest that the students perceived innovative teaching strategies adopted by clinicians and/or clinical facilitators as effective learning vehicles to enhance their professional development in the clinical learning environment. Experiential learning was regarded as being most beneficial although some students were hesitant initially as they felt threatened by the innovative teaching strategy.

While students require adequate guidance and support in their learning, they also require appreciation and recognition for their contribution to quality patient care. Findings from the study suggest that students needed to be valued and included as members of the ward team. Most importantly, students needed to be recognised and be treated as individuals accordingly. Again, clinicians play an important influential role in this avenue although clinical facilitators' role should also be considered. Moreover, recognition and appreciation of the students' involvement in the clinical environment by clients were also perceived as valuable, encouraging, and rewarding.

To examine differences between student nurses' perceptions of the actual clinical learning environment and the preferred clinical learning environment:

This study also found that there were significant differences in students' perceptions of the actual clinical learning environment from their preferred (ideal) clinical learning environment. The interpretation of both quantitative and qualitative data in Chapters 3 and 4 suggest that, generally, nursing students preferred a more favourable and positive clinical environment than they perceived as being actually present.

It has already been discussed in Chapter 2 of this thesis that it cannot be assumed that an individual student's achievement might be improved by moving him or her to an environment that matches his or preference (Fraser & Fisher, 1983c). However, the practical implication is that the achievement of certain outcomes of clinical field placement might be enhanced by attempting to change the actual clinical learning environment in ways that make it more congruent with that preferred by the students.

The literature review in Chapter 2 suggested that many nursing students perceived clinical experience as anxiety-provoking and that they often felt vulnerable in the clinical environments for various reasons (Sellek, 1982; Kushnir, 1986; Melia, 1987; Windsor, 1987; Ashworth & Morrison, 1989; Campbell et al., 1994). It is important for the clients, clinicians, and clinical facilitators to recognise and appreciate nursing students' vulnerability in the clinical learning environment. Moreover, maintenance of open and direct communication between each person concerned, would provide

and enhance a supportive learning climate which is a critical element of human resource development.

To investigate associations between nursing students' satisfaction with their clinical placements and their perceptions of hospital learning environment:

Along with the CLEI, an additional scale, Student Satisfaction with seven items was included to assess students' level of satisfaction arising from their clinical placement. In other words, Student Satisfaction was used as an outcome measure of the clinical placement. This additional scale was used for investigation on the associations between student outcomes and hospital learning environment. The quantitative data suggested that there were strong associations between students' satisfaction with their clinical placement and their perceptions of hospital learning environment as measured by the CLEI. Results of statistical analyses suggested that students perceived task orientation as the most important factor that influenced the outcomes of their clinical placement. These were echoed by the qualitative findings which suggested students who highly valued task orientation perceived the outcome of their clinical placement as immensely positive. Students enjoyed being busy and having an appropriate level of autonomy but found this difficult to achieve unless their role as student was clear to ward staff.

6.3 Implications of the study

The focus of clinical education emphasises on knowing and understanding than just doing. Clinical experience for nursing students is a very important aspect of their professional education. Clinical field placement is an integral element in the overall program of pre-registration nursing courses. Through clinical practice, clinical field experiences enable the student to develop competencies in the application of knowledge, skills, and attitudes to clinical situations. A supportive clinical learning environment is of paramount importance in securing the required teaching and learning process. The practice place should provide the students with an environment where they can receive learning opportunities. Various studies have indicated that

not all practice settings are able to provide student nurses with a positive learning environment (Ogier, 1981; Orton, 1981). As the time allocation for the clinical component of pre-registration nurse education is limited, it is important that the scarce but valuable clinical time be utilised effectively. The value of this study lies in the resulting implication for nursing education and future research. A better understanding of what constitutes quality clinical education from the students' perspective would be valuable in providing better educational experiences.

While the students are expected to take an active part in the teaching and learning process during their clinical field placement, it is clear from this study that the nature of the clinical learning environment has major impacts on the outcomes of the students' field experiences. Further studies into the clinical learning environments are essential in order to conciliate and maximise the limited but valuable clinical time.

It is indicated in Chapter 2 that one major assumption of learning environment studies is that better understanding and improvement in teaching and learning can emerge by examining the ways that the learning environments are interpreted by the students since students ultimately respond to what they perceive as important. It is apparent that collaboration between the higher education and health care agencies is essential if the clinical learning environment is to best meet the needs of undergraduate nursing students. Since the clinical teacher/facilitator was perceived by students as invaluable in negotiating the acceptance of the student with the ward team, it is vital for the clinical teacher/facilitator to have a central role between the higher education institution and the clinical venue. They could ensure effective communication occurred before, during, and after student clinical placement with students and clinicians concerned.

This study suggested that students perceived, apart from the student themselves, that nurse clinicians were the most influential participants in the clinical learning environment. Students viewed clinicians as gate-keepers and guides to learning opportunities. If the clinicians fulfilled their role effectively and supported the students in their professional development, the students were likely to perceive a positive clinical learning environment with a high degree of satisfaction. During

hospital placements, students enjoyed being involved with all ward activities and having an appropriate level of autonomy, but they found these difficult to achieve unless their role as students was clear to ward staff. Moreover, the roles of students, clinicians and clinical teachers/facilitator also needed to be mutually clear to all personal involved.

Continual communication between nursing academics, nurse administrators, nurse clinicians, and nursing students should be maintained. If each party fulfilled their roles effectively while maintaining efficient open communication with each other, the valuable but scarce clinical time would be utilised to its maximum capacity with favourable outcomes to all parties involved. Most importantly close co-operation between educational and clinical facilities in the planning and evaluation of clinical learning experiences at undergraduate level.

6.4 Limitations of the study

Perhaps the greatest limitation of this study is that the sample consisted of nursing students from just one university nursing school in South Australia, and thus the findings may not be representative of nursing students in general with respect to their clinical placement. Furthermore, the sample only involved second year students, which indicates even more caution must be taken when generalising from the results to all nursing students on clinical placement. To enlarge the survey population and to involve nation-wide coverage will no doubt require adequate resources and financial support.

A second limitation is that the findings are limited to the students' perspective. Inclusion of perceptions of the clinical learning environment from clinicians, clinical teachers, as well as clients from the receiving end, will provide a broad spectrum to complete the picture. Similarly, to fulfil this mission, relevant human resources and adequate financial support are yet again essential pre-requisites.

6.5 Suggestions for further research

The most immediate priority for further research is a replication of the study with a larger sample involving nursing schools in other states in Australia. Moreover, the Clinical Learning Environment Inventory requires further testing with a diverse range of samples to determine its reliability and validity. Involving nursing schools in various states not only enlarges the scale of the study, it enables cross validation of the CLEI.

Past studies into the differences between student and teacher perceptions of actual and preferred environment in classroom settings suggest that students preferred a more positive classroom environment than was actually present and that teachers perceived a more positive classroom environment than did their students in the same classrooms (Fraser, 1982; Fisher & Fraser, 1983a; Fraser & O'Brien, 1985; Hofstein & Lazarowitz, 1986; Giddings & Fraser, 1990; Wubbels, Brekelmans, & Hooymayers, 1991; Jorde-Bloom, 1991). These studies show that students and teachers are likely to differ in the way they perceive the actual environment of the same classroom and that the environment preferred by students commonly falls short of that actually present in classrooms.

One area of further research that arises out of this thesis is to extend the project to a comparative study to include clinical teachers' and nurse clinicians' perceptions of clinical learning environment along with students' perception. Slight modifications can be made readily to develop relevant actual and preferred versions of the CLEI suited for the clinician and clinical teachers. 'Having different actual and preferred forms of the CLEI that can be used with either clinicians, clinical teachers, or nursing students permits investigation of differences between students', clinicians', and clinical teachers' perceptions of the same actual clinical environment and differences between the actual environment and that preferred by students, clinicians, and clinical teachers. It would be interesting to explore and investigate the results of this research based on clinical environments in comparison with studies conducted in classroom environments.

As an extension to the suggested investigation, a person-environment fit study of whether students achieve better in their preferred environment would be worthwhile. Learning outcomes might be enhanced by attempting to change the actual environment in ways that make it more congruent with that preferred by the students.

6.6 Final Comments

Australian nursing education has undergone dramatic changes over the last 20 years. The transfer of nurse education to the tertiary sector in Australia sought to increase the quality of nurse education, yet problems associated with undergraduate clinical education have persisted. Concerns about the adequacy of clinical education in Australia have escalated since the transfer of pre-registration nursing programmes into the higher education sector (Jenks, 1993; Greenwood & "n'ha" Winifreyda, 1995; Paterson & Cruickshank, 1996). While the clinical learning environment has a major and definite impact on the outcomes of students' clinical placement, there are many other reasons for the problems associated with undergraduate clinical education. In order to view the wider picture, it is necessary to explore beyond the issues of the clinical learning environment.

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Appendix A

College and University Classroom Environment Inventory (CUCEI)

Directions

The purpose of this questionnaire is to find out your opinions about the class you are attending right *now*.

This questionnaire is designed for use in gathering opinions about small *classes* at universities or colleges (sometimes referred to as *seminars* or *tutorials).* it is *not* suitable for the rating of lectures or laboratory classes. This form of the questionnaire assesses your opinion about what this class is *actually like*. Indicate your opinion about each questionnaire statement by circling:

SA if you STRONGLY AGREE	that it describes what this class is actually like.
A if you AGREE	that it describes what this class is actually like.
D if you DISAGREE	that it describes what this class is actually like
SD if you STRONGLY DISAGREE	that it describes what this class is actually like.

All responses should be given on the separate Response Sheet.

1. The instructor considers students' feelings.
2. The instructor talks rather than listens.
3. The class is made up of individuals who don't know each other well.
4. The students look forward to coming to classes.
5. Students know exactly what has to be done in our class.
6. New ideas are seldom tried out in this class.
7. All students in the class are expected to do the same work, in the same way, and in the same time.
8. The instructor talks individually with students.
9. Students put effort into what they do in classes.
10. Each student knows the other members of the class by their first names.
11. Students are dissatisfied with what is done in the class.
12. Getting a certain amount of work done is important in this class.
13. New and different ways of teaching are seldom used in the class.
14. Students are generally allowed to work at their own pace.
15. The instructor goes out of his/her way to help students.
16. Students "clock watch- in this class.
17. Friendships are made among students in this class.
18. After the class, the students have a sense of satisfaction.
19. The group often gets sidetracked instead of sticking to the point.
20. The instructor thinks up innovative activities for students.
21. Students have a say in how class time is spent.
22. The instructor helps each student who is having trouble with the work.
23. Students in this class pay attention to what others are saying.
24. Students do not have much chance to get to know each other i this class.
25. Classes are a waste of time.
26. This is a disorganized class.
27. Teaching approaches in this class are characterized by innovation and variety.
28. Students are allowed to choose activities and how they will w
29. The instructor seldom moves around the classroom to talk with students,
30. Students seldom present their work to the class.
31. It takes a long time to get to know everybody by his/her fin name in this class.
32. Classes are boring.
33. Class assignments are clear so that everyone knows what to do.
34. The seating in this class is arranged in the same way each week.
35. Teaching approaches allow students to proceed at their own pace.
36. The instructor is not interested in students' problems.
37. There are opportunities for students to express opinions in this class.
38. Students in this class get to know each other well.
39. Students enjoy going to this class.
40. This class seldom starts on time.
41. The instructor often thinks of unusual class activities.
42. There is little opportunity for a student to pursue his/her particular interest in this class.
43. The instructor is unfriendly and inconsiderate toward students.
44. The instructor dominates class discussions.
45. Students in this class are not very interested in getting to know other students.
46. Classes are interesting
47. Activities in this class are clearly and carefully planned.
48. Students seem to do the same type of activities in every class.
49. It is the instructor who decides what will be done in our class.

Items whose numbers are underlined are scored 1, 2. 4, and 5, Respectively, for the responses SA, A, D, and SD. The other items are scored in the reverse manner. Omitted or invalidly answered items are scored 3.

To obtain the total score for each scale, add the scores for seven items in each scale. The items are arranged in cyclic order so that the first, second, third, fourth, fifth, sixth, and seventh item in each block, respectively, assesses Personalization, Involvement, Student Cohesiveness, Satisfaction, Task Orientation, Innovation, and Individualisation.

Appendix B

CLINICAL LEARNING ENVIRONMENT INVENTORY (CLEI): ACTUAL FORM

Directions

The purpose of this questionnaire is to find out your opinions about this clinical placement. This form of the questionnaire assesses your opinion about what this clinical placement is **ACTUALLY** like. Indicate your op about each questionnaire statement by circling:

SA	if you STRONGLY AGREE	that it describes
A	if you AGREE	what this clinical
D	if you DISAGREE	placement is
SD	if you STRONGLY DISAGREE	**ACTUALLY** like.

		Strongly Agree	Agree	Disagree	Strongly Disagree	#
1.	The preceptor/clinician considers students' feelings.	SA	A	D	SD	1
2.	The preceptor/clinician talks rather than listens to the students.	SA	A	D	SD	2
3.	Students look forward to coming to clinical placement.	SA	A	D	SD	3
4.	Students know exactly what has to be done in the ward.	SA	A	D	SD	4
5.	New ideas are seldom tried out in this ward.	SA	A	D	SD	5
6.	All staff in the ward are expected to do the same work in the same way.	SA	A	D	SD	6
7.	The facilitator talks individually with students.	SA	A	D	SD	7
8.	Students put effort into what they do in the ward.	SA	A	D	SD	8
9.	Students are dissatisfied with what is done in the ward.	SA	A	D	SD	9
10.	Getting a certain amount of work done is important in this ward.	SA	A	D	SD	1
11.	New and different ways of teaching to the students are seldom used in the ward.	SA	A	D	SD	1
12.	Students are generally allowed to work at their own pace.	SA	A	D	SD	1
13.	The preceptor/clinician goes out of his/her way to help students.	SA	A	D	SD	1
14.	Students "clock watch" in this ward.	SA	A	D	SD	1
15.	After the shift, the students have a sense of satisfaction.	SA	A	D	SD	1
16.	The preceptor/clinician often gets sidetracked instead of sticking to the point.	SA	A	D	SD	1
17.	The facilitator thinks up innovative activities for students.	SA	A	D	SD	1
18.	Students have a say in how the shift is spent.	SA	A	D	SD	1
19.	The preceptor/clinician helps the student who is having trouble with the work.	SA	A	D	SD	1
20.	Students in this ward pay attention to what others are saying.	SA	A	D	SD	2
21.	This clinical placement is a waste of time.	SA	A	D	SD	2
22.	This is a disorganised clinical placement.	SA	A	D	SD	2
23.	Teaching approaches in this ward are characterised by innovation and variety.	SA	A	D	SD	2
24.	Students are allowed to negotiate their work load in the ward.	SA	A	D	SD	2
25.	The facilitator seldom goes around to the ward to talk to students.	SA	A	D	SD	2
26.	Students seldom are involved with the process of handing over to staff in the ward for the next shift.	SA	A	D	SD	2
27.	This clinical placement is boring.	SA	A	D	SD	2
28.	Ward assignments are clear so that students know what to do.	SA	A	D	SD	2
29.	The same staff member (preceptor/clinician) works with the students for most of this placement.	SA	A	D	SD	2
30.	Teaching approaches allow students to proceed at their own pace.	SA	A	D	SD	3
31.	The facilitator is not interested in students' problems.	SA	A	D	SD	3
32.	There are opportunities for students to express opinions in this ward.	SA	A	D	SD	3
33.	Students enjoy coming to this ward.	SA	A	D	SD	3
34.	Staff are often punctual.	SA	A	D	SD	3
35.	The facilitator often thinks of interesting activities.	SA	A	D	SD	3
36.	There is little opportunity for a student to pursue his/her particular interest in this ward.	SA	A	D	SD	3
37.	The facilitator is unfriendly and inconsiderate towards students.	SA	A	D	SD	3
38.	The facilitator dominates debriefing sessions.	SA	A	D	SD	3
39.	This clinical placement is interesting	SA	A	D	SD	3
40.	Workload allocation in this ward are carefully planned.	SA	A	D	SD	4
41.	Students seem to do the same type of tasks in every shift.	SA	A	D	SD	4
42.	It is the preceptor/clinician who decides the students' activities in the ward.	SA	A	D	SD	4

Appendix C

CLINICAL LEARNING ENVIRONMENT INVENTORY (CLEI): PREFERRED FORM

Directions

The purpose of this questionnaire is to find out your opinions about this clinical placement. This form of the questionnaire assesses your opinion about what you prefer this clinical placement to be like. Indicate your opinion abou each questionnaire statement by circling:

SA	if you STRONGLY AGREE	that it describes
A	if you AGREE	what you **PREFER** this
D	if you DISAGREE	clinical placement
SD	if you STRONGLY DISAGREE	to be like.

		Strongly Agree	Agree	Disagree	Strongly Disagree	Office Use Only
1.	The preceptor/clinician would consider students' feelings.	SA	A	D	SD	1.
2.	The preceptor/clinician would talk rather than listen to the students.	SA	A	D	SD	2. R
3.	Students would look forward to coming to clinical placement.	SA	A	D	SD	3.
4.	Students would know exactly what has to be done in the ward.	SA	A	D	SD	4.
5.	New ideas would be seldom tried out in this ward.	SA	A	D	SD	5. R
6.	All staff in the ward would be expected to do the same work in the same way.	SA	A	D	SD	6. R
7.	The facilitator would talk individually with students.	SA	A	D	SD	7.
8.	Students would put effort into what they do in the ward.	SA	A	D	SD	8.
9.	Students would be dissatisfied with what is done in the ward.	SA	A	D	SD	9. R
10.	Getting a certain amount of work done would be important in this ward.	SA	A	D	SD	10.
11.	New and different ways of teaching to the students would be seldom used in the ward.	SA	A	D	SD	11.R
12.	Students would be generally allowed to work at their own pace.	SA	A	D	SD	12.
13.	The preceptor/clinician would go out of his/her way to help students.	SA	A	D	SD	13.
14.	Students would "clock watch" in this ward.	SA	A	D	SD	14.R
15.	After the shift, the students would have a sense of satisfaction.	SA	A	D	SD	15.
16.	The preceptor/clinician would often get sidetracked instead of sticking to the point.	SA	A	D	SD	16.R
17.	The facilitator would think up innovative activities for students.	SA	A	D	SD	17.
18.	Students would have a say in how the shift is spent.	SA	A	D	SD	18.
19.	The preceptor/clinician would help the student who is having trouble with the work.	SA	A	D	SD	19.
20.	Students in this ward would pay attention to what others are saying.	SA	A	D	SD	20.
21.	This clinical placement would be a waste of time.	SA	A	D	SD	21.R
22.	This would be a disorganised clinical placement.	SA	A	D	SD	22.R
23.	Teaching approaches in this ward would be characterised by innovation and variety.	SA	A	D	SD	23.
24.	Students would be allowed to negotiate their work load in the ward.	SA	A	D	SD	24.
25.	The facilitator would seldom go around to the ward to talk to students.	SA	A	D	SD	25.R
26.	Students would seldom involve with the process of handing over to staff in the ward for the next shift.	SA	A	D	SD	26.R
27.	This clinical placement would be boring.	SA	A	D	SD	27.R
28.	Ward assignments would be clear so that students know what to do.	SA	A	D	SD	28.
29.	The same staff member (preceptor/clinician) would work with the students for most of this placement.	SA	A	D	SD	29.R
30.	Teaching approaches would allow students to proceed at their own pace.	SA	A	D	SD	30.
31.	The facilitator would not be interested in students' problems.	SA	A	D	SD	31.R
32.	There would be opportunities for students to express opinions in this ward.	SA	A	D	SD	32.
33.	Students would enjoy coming to this ward.	SA	A	D	SD	33.
34.	Staff would be punctual.	SA	A	D	SD	34.
35.	The facilitator would often think of interesting activities.	SA	A	D	SD	35.
36.	There should be little opportunity for a student to pursue his/her particular interest in this ward.	SA	A	D	SD	36.R
37.	The facilitator would be unfriendly and inconsiderate towards students.	SA	A	D	SD	37.R
38.	The facilitator would dominate debriefing sessions.	SA	A	D	SD	38.R
39.	This clinical placement would be interesting.	SA	A	D	SD	39.
40.	Workload allocation in this ward would be carefully planned.	SA	A	D	SD	40.
41.	Students would do the same type of tasks in every shift.	SA	A	D	SD	41.R
42.	It should be the preceptor/clinician who decides the students' activities in the ward.	SA	A	D	SD	42.R