VOLUME I

A STUDY OF INDIVIDUAL AND ORGANIZATIONAL VARIABLES IN RELATION TO CHARGE NURSE BEHAVIOUR

A thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy at Massey University

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This study examines the impact of new ideas in the context of two hospitals. Concepts derived from systems theory have been used as a framework for the study which proposes that the innovative behaviour and characteristics of charge nurses are modified by individual and organizational factors. This proposition is also examined over time and a training intervention.

In the empirical section of this research, the statistical analysis yielded nine distinct clusters of variables. Examination of these clusters, and of the relationships between particular variables, led to the identification of important combinations. In particular, it was established that there is a positive relationship between measures of self assurance and interpersonal adequacy, as measured by the CPI, and judgements made by nurses in the ward Kardex. These judgements are influenced by the charge nurses' perception of the organization. A positive relationship was also demonstrated between the general and specific measures of innovative behaviour, and the perception by charge nurses of the climate of the organization.

In the propositional extension of the study, the effects of training and time on psychological characteristics and innovative behaviour were quantitatively and qualitatively examined. The planned training intervention devised for the study did result in significant shifts in psychological mindedness, social presence

and socialization as measured by the CPI. The POI measures for inner directedness, existentiality and capacity for intimate contact showed significant differences over time, but not training.

There was also evidence of innovative behaviour by charge nurses at both hospitals over the seven month period of the study.

It appears, therefore, that levels of general and specific innovativeness vary with the extent to which the organization is seen as facilitating or restrictive. Innovativeness is a relative concept, linked with social factors which influence perception. There is evidence in this study that training aimed at increasing knowledge and self confidence, can cause significant changes in these social factors.

PREAMBLE

This thesis is concerned with nurses, the organization of nursing in hospitals, and the impact of new ideas. It is in part, the end result of thirty years experience in hospital nursing practice, administration, and teaching.

A hospital is, by its very nature, a conservative institution. Risk taking and the trying out of new methods normally occur within specified limits, in specific areas of the hospital organization. The creation and implementation of new methods is usually restricted to one or two professional groups, and to recognized levels within those groups. It is not true to say that the nursing profession, as a whole, has no mandate for innovation. But much of the innovation with which the hospital nurse is associated arises outside the profession itself. For example, the nurse is an instrument in the use of new pharmaceuticals and an assistant to the doctor in the development of a new medical or surgical technique. But the work the nurse does is far more than giving prescribed medications or undertaking delegated medical care. It is in the distinctly nursing area of 'caring' for patients that new ideas have been slow to spread. Nurses appear to have accepted a humanist philosophy of nursing practice but many still cling to fragmented task oriented patterns of work.

The nurse in charge of a ward, department or unit, is seen as having a key role in the diffusion of new ideas in the nursing organization. It therefore seems logical that efforts to change

methods of delivering nursing care should be directed at charge nurses as a target group.

In this thesis, the innovativeness of charge nurses is examined. The main thrust of the study is an empirical analysis of their general behaviour at work. Specific and general aspects of innovative behaviour are identified and discussed in this baseline investigation. Later, designated aspects of their behaviour, including innovativeness, are studied before and after the intervention of a training programme. While the programme is aimed at increasing the cognitive and affective components of charge nurse behaviour, the specific concern of this thesis is not so much to assess the viability of the training programme per se, but to discover whether the training programme changes specific or general aspects of "innovative behaviour", and other associated behaviours.

A systems approach has been used as a general theoretical framework. Concepts of innovation, innovativeness and the diffusion of innovations have been used to develop a set of variables which have been used as the criteria for measuring change. A large volume of data has been produced and analysed in the course of this investigation. Not all of this data is pertinent to the purpose of this thesis outlined above. However, full details of the raw data and facsimiles of computer printout sheets are included with the Appendices (Vol II). A glossary of terms has been placed at the end of Vol I.

The content of this thesis has been organized into five distinct

sections. While the chapters containing these sections can stand alone, each is related to the whole. This method of presenting the content highlights important points, and assists both the author and the reader to cope with the presentation of the large volume of material required to analyse and understand the complexities of this longitudinal study.

Section One: Towards a Research Paradigm

In Chapters 1-6, the pertinent literature relating to hospitals as organizations, the organization and delivery of nursing in a hospital setting, the impact of new ideas, and the process of change, is presented and discussed.

Section Two: The Research Paradigm

In this section, Chapters 7, 8 and 9, the overall design for the research study is presented. The methodology used in both the empirical (Section 3) and propositional sections (Section 4) of this thesis is described in Chapter 9. This chapter describes the procedure followed in the identification, collection and processing of data from a variety of individual and organizational variables.

Section Three: The Application of the Research Paradigm: An Empirical Study

The main thrust of the thesis is encompassed in this empirical section of the study. Specifically, the perceptual and objective data are combined to produce a composite picture of the biographical and psychological characteristics of charge nurses and aspects of

their behaviour at work. This section also includes the presentation of data from climate and structural variables of the organization. The pattern of relationships between these assorted variables is examined using the multivariate technique of factor analysis. The results arrived at by this method are presented and their implications discussed in the light of the pertinent literature presented in Section One.

Section Four: A Further Application of the Research Paradigm: A Propositional Extension

This section addresses the experimental extension of this thesis. In Chapter 12, the intervention (training programme) is presented and discussed. Changes in selected baseline variables, identified in Section 3, as those pertinent to the implementation of new ideas and methods, are examined before and after the intervention programme. These results are presented in Chapter 13, and discussed in Chapter 14.

Section Five: A Prescription for Change

This section comprises the final chapter of this thesis in which conclusions already presented in the empirical and propositional sections of the study are drawn together. These conclusions are discussed in the light of their implications for change, and the process of change in nursing organization and practice. An interacting systems framework, as proposed in Section I is reiterated in this final chapter.

SECTION ONE

TOWARDS A RESEARCH PARADIGM

In this section of the thesis, the pertinent literature is presented and discussed. An overall framework for the study is described, and a theoretical basis for the research paradigm is established.

CHAPTER 1

A SEARCH FOR AN OVERALL FRAMEWORK

CHAPTER 2

TOWARDS A RESEARCH PARADIGM: ASPECTS OF THE HOSPITAL AS AN ORGANIZATION

CHAPTER 3

IDENTIFYING PROCESS OUTCOMES, AND THEIR RELATED PREDICTOR AND MODERATOR VARIABLES

CHAPTER 4

FURTHER MODERATING FACTORS AFFECTING PROCESS OUTCOMES: THE FATE OF NEW IDEAS FOR NURSING ORGANIZATION AND PRACTICE

CHAPTER 5

CHANGE AS A MODERATOR VARIABLE

CHAPTER 6

NORMATIVE-EDUCATIVE STRATEGIES FOR CHANGING THE BEHAVIOUR OF PEOPLE IN ORGANIZATIONS

CHAPTER 1

A SEARCH FOR AN OVERALL FRAMEWORK

Hospitals are organizations developed by society in general, and the health professions in particular, to provide services for a variable section of the population who meet specific admission criteria. Georgopoulos and Mann (1962) define the community general hospital as "an organization that mobilizes the skills and efforts of a number of widely divergent groups of professional, semi-professional, and non-professional personnel to provide a highly personalized service to individual patients". Given the "public" general hospital, particularly in New Zealand, is usually part of a larger organizational network of health services, this definition is an appropriate one in the context of this thesis.

A SYSTEMS APPROACH

The complex nature of the hospital as an organization has prompted theorists and research workers to use a variety of approaches in describing, or experimenting with, this type of organization. In Chapter 2 of this thesis, social and environmental approaches are described, both of which have contributed in some measure to the structure of this research. However, an alternative and relatively new procedure is the systems approach which is presented here.

Wren (1974) defines a system as:

> an organized, complex, functioning, total entity existing for a scientific purpose or purposes and derived from the rational application of the scientific method to the organization and administration of this entity (pp79-80).

This approach developed from the earlier work of Boulding (1956) who constructed a hierarchy of systems from the cell, to animal, human and social organizations. In utilizing Boulding's work, Wren (1974) describes a health organization as an "open" system (after Bertalanffy, (1951), on the fourth level of Boulding's hierarchy. Gagne (1966) points out that:

> a basic assumption of the system development point of view is that man can be considered as one of the major components of a total system... Any reasonably complex system requires a true interaction between man and the other parts of the system, which may be machines, other men, or combinations of these. (p.35)

Incorporated in Wren's approach are the general systems concepts of input (that which is fed into the system); output (that which comes out of the system); process (that which the system components do to the input to produce the output); control (the mechanism which measures actual output against desired output and initiates correction within the system); and feedback (information from control back into the system). As it shall be argued in the present work, these concepts offer useful ways of understanding the complex man-man, man-technology

and man-organization interactions in health services. The systems theory approach is not entirely new in this context.

Georgopoulos and Mann (1962) use systems theory to develop the framework for their study of twelve Michigan hospitals. They used the term "organizational system" to define the units of analysis in their research. These were "defined and measured at the organizational or group level, and not at the individual level, the primary interest being in the behaviour of hospitals as organizations". The study has a primary focus on areas of patient care and internal hospital co-ordination. These authors define the concept of organizational co-ordination as:

> the extent to which the various interdependent parts of an organization function each according to the needs and requirements of the other parts and of the total system. (p.273)

This definition is to be incorporated into later sections of the thesis (refer Fig. 7.1). Of further relevance to the present work are these six groups of independent variables considered by Georgopoulos and Mann:

1 organizational planning;
2 sharedness of expectations and co-operation among organizational members;
3 intra-organizational strain;
4 problem awareness and problem solving;
5 communication; and

6 certain structural aspects of the organization such as size and work-force composition.

In addition to the impact and potential of Georgopoulos and Mann's work, Kast and Rosenzweig (1974) advocate the systems approach as one of the most useful and productive ways of studying hospital organization. In their theoretical analysis of the general hospital, Kast and Rosenzweig consider the specific topics of changing environment; goals and values; technology; structure; the psychosocial system; and the managerial system. They advocate the use of these headings as a basis for comparative studies. They contend:

> we think the systems approach facilitates understanding the important forces affecting organizations as well as the development of a comprehensive body of knowledge concerning their internal atmosphere, and external environment. (p.viii)

As is to be argued here, these are indeed important issues for the development of management in large, expensive organizations such as hospitals.

Along similar lines, Kohn and White (1976) stress the importance of a systems approach in the understanding of health care and health services. The international collaborative study with which they are concerned, considers the extent that personal determinants of health and health behaviour affect the use of health services, and how much the prevailing health services modify these relationships. A useful aspect of Kohn and White's study is the use of personal health

services as a form of consumer behaviour. In this way Kohn and White have supplied a unique study in which elements of behavioural, social, epidemiological and systems theory have been linked together. This concept is of some importance and Figure 1.1 replicates the model developed by Kohn, White and associates (see Kohn & White, 1976). This is indeed a promising eclectic framework, within which to formulate research problems and which integrates seemingly unrelated empirical facts (p.12). It is because of this potential that Kohn and White's approach was influential in designing and formulating the present study.

However, it needs to be pointed out here that while much of Kohn and White's paradigm is utilized, the present work is concerned, not only with examining individuals and their relationships but also with studying the impact of new ideas on the hospital as a health service delivery system. By incorporating the latter, the present work extends earlier research. It poses the question, if clients or users of the service demand new methods, how readily are such demands translated into changed health service behaviour?

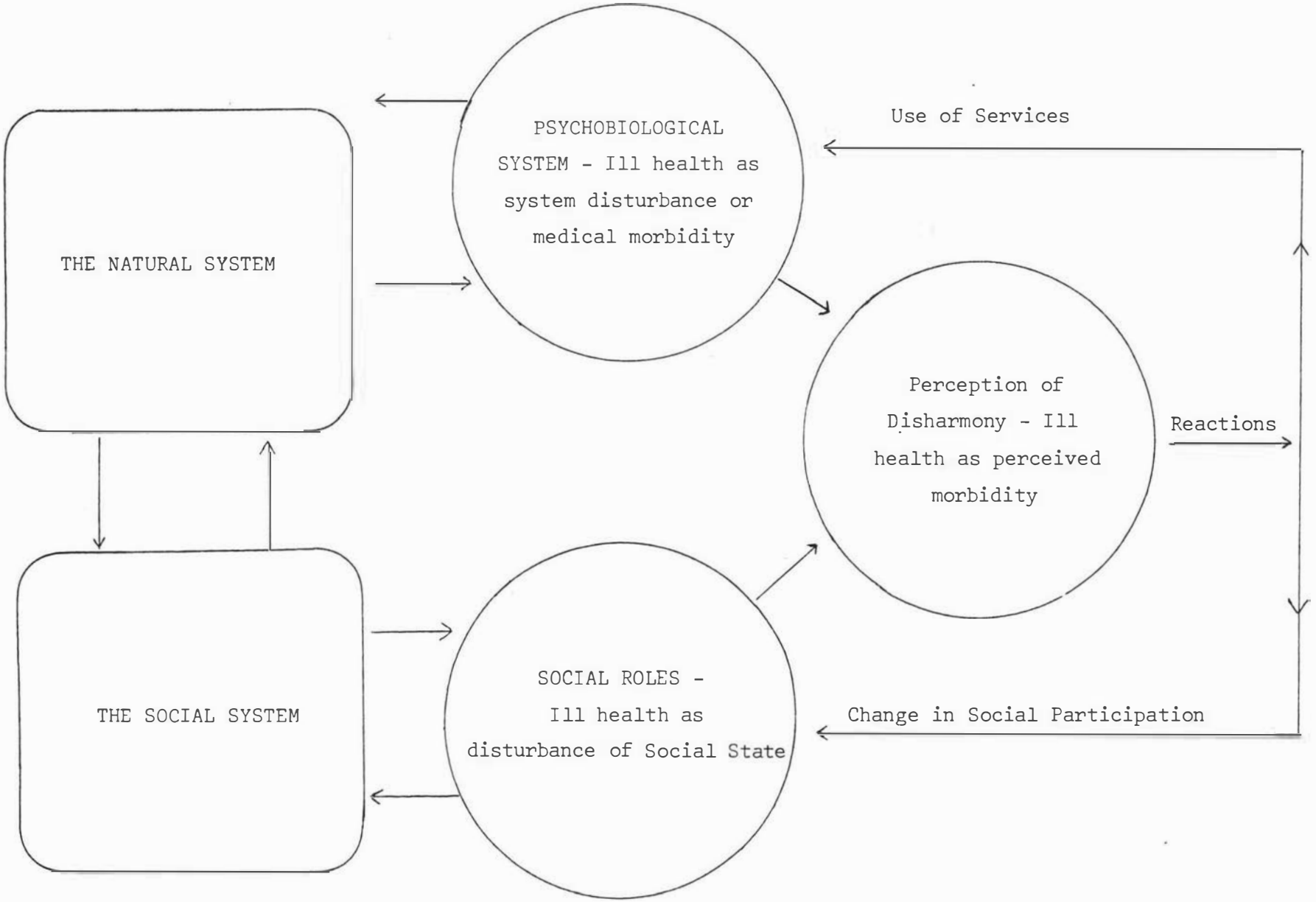

FIGURE 1.1. Model of Relationships Between the Individual and Social Systems (Kohn and White, 1976, p.11)

The Medical Care Process

The work of Donabedian (1973) has a direct bearing on the above question. He has designated the interactions involving health professionals and their clients as the "medical care process". He describes the relationship of the medical care process to the environment in terms of a number of factors, not the least of which is the health service organization within which the medical care process functions. Figure 1.2 is a reproduction of his model which shows the relationships between the "medical care process" and the environment within which it takes place. Donabedian (1973) states:

> The medical care process takes place not within a vacuum but within a context that we have referred to as its environment (Fig III.2). While this environment is too complex to permit easy categorization, it is useful for the administration to perceive it in two categories. First, there are the structures and processes that constitute medical care organization and which intimately surround and influence the medical care process. These in turn are surrounded and penetrated by the more pervasive and cultural features which also influence need and the perception of need, as well as client and provider behaviours in response to need. The separation of certain organizational features from all other social factors recognizes that the administrator has greater control over the former and that by manipulating these he may bring about

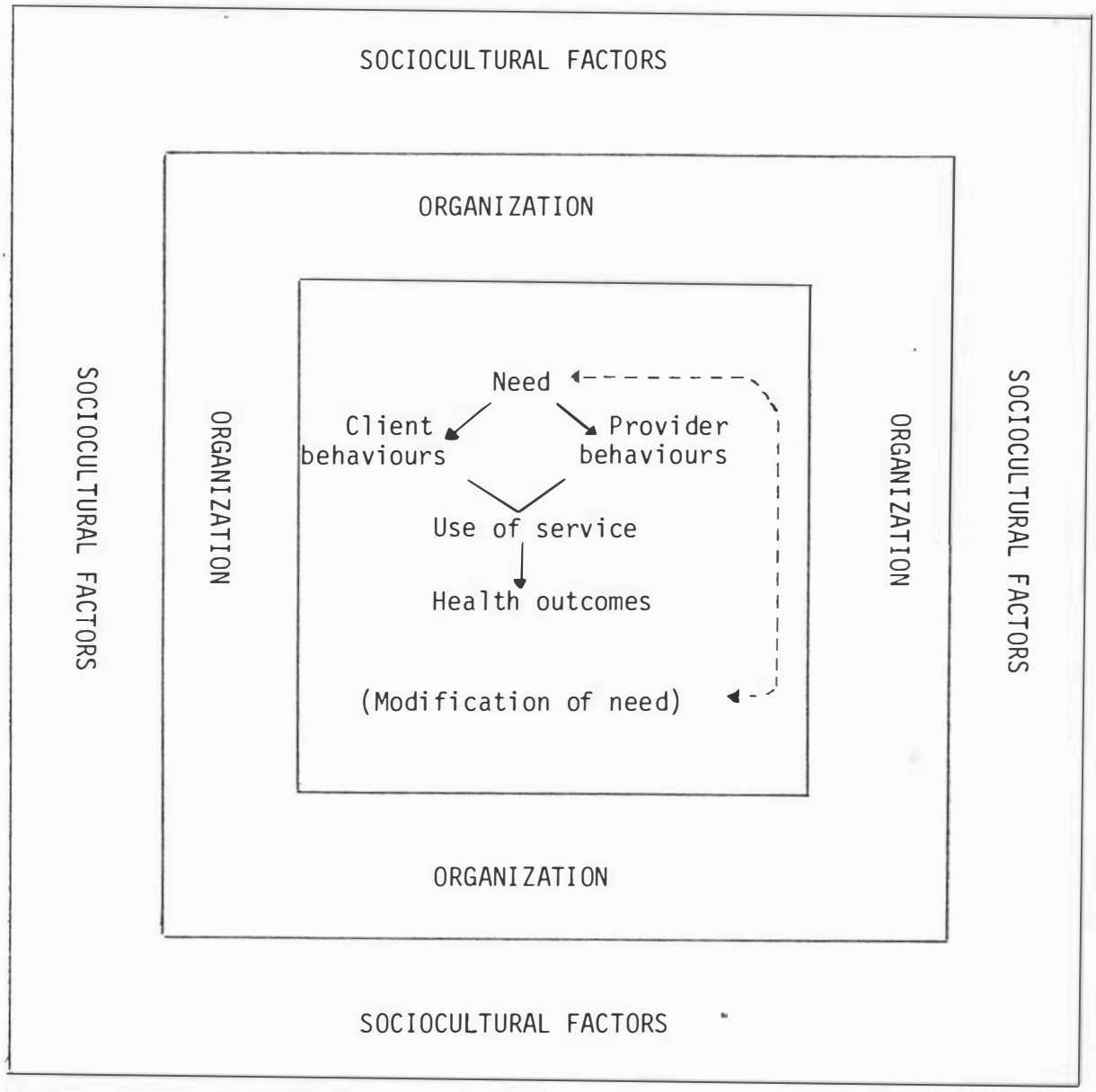

Figure 1.2 The Medical Care Process and its environment (Donabedian, 1973, Fig III.2, p.61)

> desirable modifications in the medical care process and its outcomes (p.60).

In developing the work of Donabedian it can be argued that, in an organization such as a health centre, or a group practice, the interpenetration of organizational and sociocultural factors should be facilitated. This is supported by Roemer (1975) who sees such a primary health care system responding readily to social pressure for change. However, Rubin, Plovnick and Fry (1974) were sufficiently impressed by the regularity of client resistance to change that they attempted to identify the forces at work when efforts were made to initiate planned change programmes in community health care organizations. In their study they identified several common areas of causal forces, including the task orientation of the community health centre, the people involved, the formal structure of the organization and the larger environment with which "these organizations must interface". This has implications for the present work where large health organizations, hospitals, with long established bureaucratic structures are to be examined. It can be expected that those areas of causal forces identified by Rubin, Plovnick & Fry will assume even greater importance. In particular, the formal structure of a section of the organization, and the people involved, are examined in detail.

For the present thesis, the containment of the "medical care process" within the structure of an organization which separates it from direct contact and free interpenetration with the environment, raises a number of problems. The organization, in this case a

hospital, develops its own characteristics, objectives, structure, processes and outcomes. The goals of the organization (Weick 1969; Etzioni, 1964) may no longer be primarily directed towards the "medical care process" but towards the development of the organization. It then seems probable that the perception by hospital administrators, of expressions of health needs, may be distorted and the system may convert from an "open" to a "closed" or partly closed system in which movement and change are difficult, if not impossible.

Nursing as part of the Medical Care Process

Nurses and doctors are generally regarded as the two major professional groups working in the organizational setting of a hospital. The organizational structure used to order the nursing input and system processes is a bureaucratic one. It relies on directive controls, superior - subordinate relationships, and an hierarchical status structure (Georgopoulos and Mann, 1972); Rowbottom et al., 1975).

Intuitively, it is difficult to see how the nursing organization, in a hospital setting, can readily respond to changes in the socio-cultural environment (refer Figure 1.2). Certainly, the need for such changes has often been recognized and pointed out by nurse leaders and the users of the service long before detectable movement occurs (see Chapter 4, p. 67). It is the contention of this author that there are a variety of individual and organizational factors which restrict the possibility of ready response by individual nurses within the organization, or response by the

organization as a whole.

It is a major goal of the present work to identify some of the above inhibitory individual and organizational factors. To this end charge nurses are used to form the 'provider' group whose innovative behaviour is studied in the context of individual and organizational variables. Here, charge nurse behaviour is treated as a "process outcome" (refer Figure 1.2, p.14). Additionally then, the work will also examine the influence of the organization on charge nurse behaviour (the process outcome). It has been previously argued (Kinross and Joblin, 1976) that charge nurses act as central processors of information. The written evidence of such information processing is preserved in patients' records, particularly that section known as the 'Nurses Kardex' (see below, and Section Two).
It is possible, using data derived from such records, not only to obtain measures of the subjective perceptions of charge nurses in relation to their work, but also to obtain measure of changes in these perceptions over time. With such records it should also prove possible to examine the effects of manipulation on the information input (through training) and relate this to a number of other outcome measures.

However, as shall become apparent, this relationship of input to outcome is not to be misconstrued as representing a simple direct causal relationship. Indeed Dunnette (1966) discusses this problem in his criticism of the model traditionally used by psychologists to structure their research into the selection and placement of personnel.

He states:

> this model has sought to link predictors (that is, various measures of individual differences) directly with so-called criteria (that is, various measures of organizational consequences or job "success") through a simple index of relationship, the correlation coefficient (p.104).

To develop his point, it is worth noting here that the interactive effect of the tests on personnel themselves is often ignored. To incorporate and account for such effects in research, Dunette argues for the acceptance of the idea that some variables moderate the effects of individual predictors. In line with Dunette's arguments, and extending them somewhat, the basic concepts of predictor, moderator, and criterion variables have been incorporated within the design of the present study.

Figure 1.3 (over) summarizes the foregoing discussion in model form. This model is followed in setting out the literature review and has been used in designing[1] and conducting the research and subsequent data analysis. A verbal summary may be useful at this point.

In general systems terms, (see Figure 1.3) the people input (charge nurses) is modified by process factors relating to people and their environment over time. In the model shown in Figure 1.3 differences in the general and specific aspects of the innovative

1 Refer Chapter 7, Fig. 7.1.

behaviour of charge nurses are depicted as the outcomes of interactions between four categories of variables: individual, environmental (organizational), change (training) and time. A detailed discussion of these variables and the possible relationships between them is contained in the following five chapters.

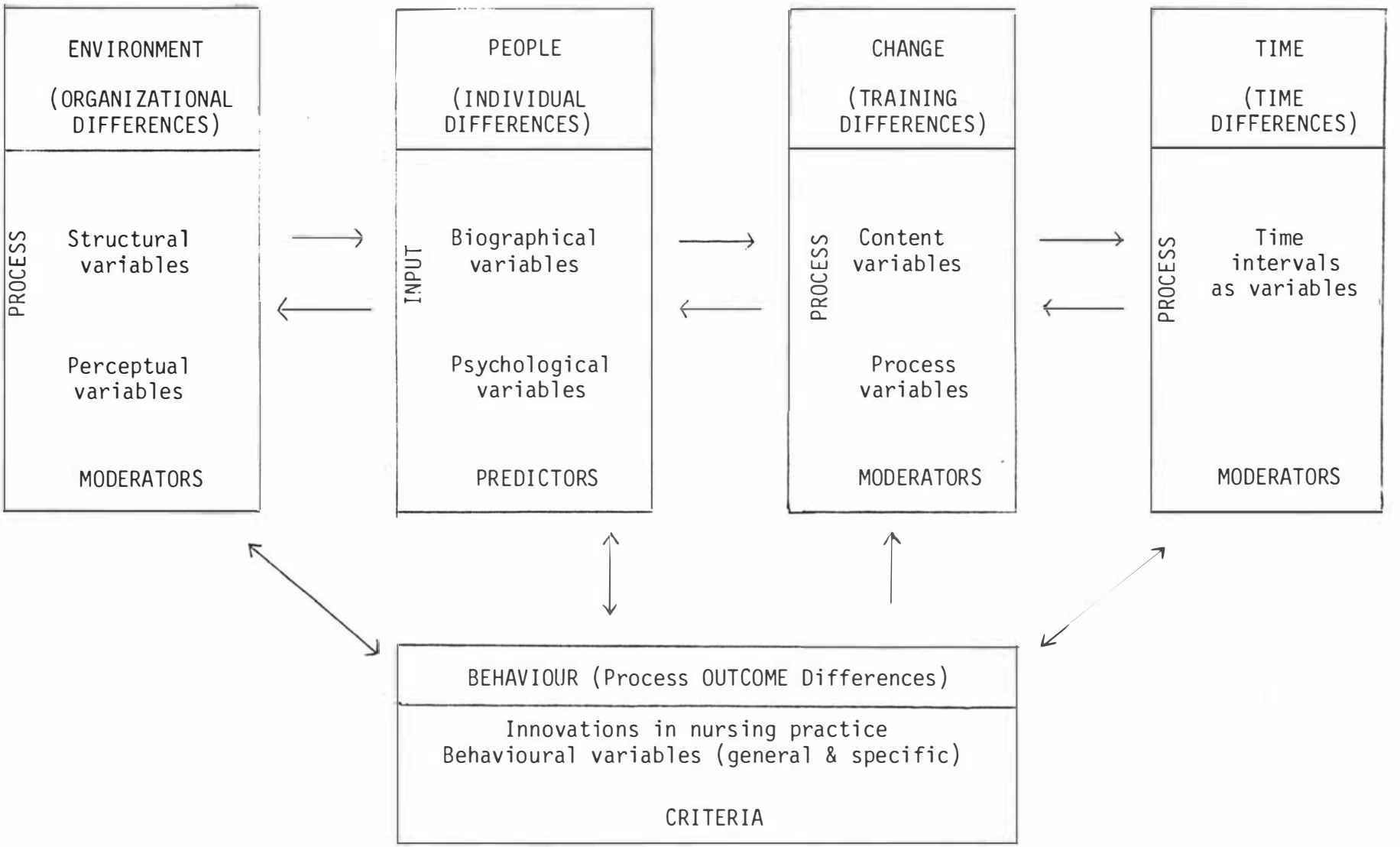

Figure 1.3 Innovative Behaviour in Nursing Practice: a behavioural outcome of the interaction between specific predictor and moderating variables.

CHAPTER 2

TOWARDS A RESEARCH PARADIGM:

ASPECTS OF THE HOSPITAL AS AN ORGANIZATION

Systems theory provides one framework for observation, measurement and prediction in health care. There are other approaches, however, which can be used to study the hospital as an organization.

The Hospital As a Social Structure

Etzioni (1964) defines organizations as "social units that pursue specific goals which they are structured to serve", and describes hospitals in terms of social controls as normative systems. Like Wilson (1963), Friedson (1970), Coser (1963) and others, Etzioni is concerned with the relationship of people in the social structure, particularly the role of the professional in an organizational environment which Wilson (1963) has referred to as a "rising tide" of bureaucracy. Using Weber's typology, Etzioni (1964) describes hospitals as "highly pervasive" organisations in that "they attempt to control most of the activities that take place within them". The position of the free professional in such an organization creates a number of anomalies. It has led to the dual system of professional and administrative authority that is characteristic of hospital organization. Wilson (1963) recognizes that the doctor in such an organization must relinquish some of his autonomy and prestige to become a team member.

A number of writers look at the differences between the roles of people in the social structure of a hospital. Kogan, Cang, Dixon and Tolliday (1971) describe the organizational roles in terms of functions, authority, and accountability. They use the definition of managerial role evolved by Brown and Jacques (1965) in the Glacier project, as a basis for their description of the managerial relationships which emerge from the Brunel Health Services Organization Project (Rowbottom, 1973). They identify five different types of role relationships in a hospital and name them superior-subordinate (or managerial), treatment-prescribing, supervisory, co-ordinating and monitoring relationships. Such a classification has the advantage of applicability across the range of hospital staff and of appearing to have useful practical application. It is not, however, the stuff of which prescriptions for change or predictions of outcome can be made.

Coser (1958) presents a "case analysis of the relationship between role behaviour and social structure" in a medical and surgical ward. Coser found that there were significant differences in the behaviour of the two head nurses on these wards.

> While the medical nurse went through prescribed channels in her dealings with doctors, addressing herself to the interne whose orders she was expected to fill, the surgical nurse would talk to any doctor who was available, regardless of work. She would more specifically ask that some decisions be made rather than trying to express her views

> through hints, which was the nurses' custom in the medical ward (p.56).

Coser uses Henry's (1954) typology of social organizations to describe the step by step downward "pine tree" delegation in the medical ward, and the "oak tree" pattern of delegation in the surgical ward. As Coser points out, multiple lines of communication, authority and control give "the nurse more power and a more active part in therapy" (p.62). Such a concept has something of the flavour of Rosner's (1968) theory of "organizational slack". He links organizational innovativeness inversely with activity control, and directly with visibility of consequences. Coser herself makes the comment, that "the surgical nurses seemed to be capable of innovation and were more often relied upon by doctors to use their own judgement" (p.63). She adds that "ritualism" or "innovation" is largely a function of the specific social structure rather than merely a "professional" or "character" trait, and justifies this stance by Merton's (1957) formulation that some social structures exert a definite pressure upon certain persons in the society to engage in non-conformist rather than conformist conduct.

This well known study of Coser's has been discussed at some length because it illustrates an important principle. That is, that natural social events can legitimately and usefully be recorded and interpreted according to the theoretical background, and bias of the researcher. In psychology, Gauld and Schotter (1977) make a plausible bid for the use of natural science methodology rather than the methods

of classical research in the study of human behaviour. Coser's study, and to a lesser degree the work of Revans and the Brunel team (1972) illustrate the advantages and disadvantages of the phenomenological approach. One disadvantage is the difficulty in finding firm grounds for prediction from a sample to the general population. However, a major advantage is that a multivariate approach of this kind can provide rich data which can be used to study the many dimensions of a 'real' organization. This advantage is used in the present thesis through the adoption of a systems framework.

AN ENVIRONMENTAL APPROACH

Georgopoulos and Mann (1962) found that the quality of patient care was positively related to the quality of organizational co-ordination in the hospital. The same general theme forms part of the rationale for the study of internal hospital communication systems by Revans and the Brunel team (1972) in the United Kingdom. Rowbottom et al. (1972), reporting on this research, look at the implications of problems of co-ordinating organizational design in the health service. Etzioni (1964) considers the problems of co-ordination in organizations which employ both professionals and non-professionals. Wessen (1972) looks at co-ordination but in the light of the relationship between professional ideologies and the hospital's communication system. He points out that disparate ideologies tend to separate occupational groups. He concludes that there are in the hospital certain tendencies which appear to set limits upon the degree

to which integration of the organization's personnel can take place. Communication tends to be channelled within occupational lines, giving rise to a tendency for those who work together on the wards to know and associate principally with those of their "own kind". If his conclusions are valid then some of the difficulties encountered in organizational change can be explained, if not always effectively countered.

This view can be related to Indik's study of organizational size and member participation rates. Indik (1965) hypothesises:

> that the size of the organization as a variable of organizational structure influences member participation indirectly through its effect on specific organizational processes such as those relating to communication, control, task specialization, and co-ordination. These processes, in turn, affect the ties that bind the individual to the organization, i.e. the degree of attraction among organizational members, the amount of intrinsic job satisfaction derived by the members, and the degree of bureaucratic inflexibility felt by members (p.339).

Indik (1975) states that it is these latter variables which directly affect member behaviour. Indik also argues that low participation rates "may not be the necessary effect of increased size" and quotes the untested work of Revans (1958) and Tallachi's work (1960) (see p.339) as consistent with this view[1]. Indik found that organization size is significantly and negatively related to

1 In both studies organization size is seen as having an indirect effect on participation rates.

member participation and puts forward three explanations for the findings. These relate to what can be described as the internal environmental factors of communication linkages, the degree of specialization, and the control methods used in the organization all of which tend to be longer and more complex in larger organizations. Thus organizational size, of itself, may not be the crucial factor in disrupting communication processes and limiting participation of staff in planning and change. As can be seen, this environmental approach can highlight some variables, but its approach is limited. (See Fig. 1.3).

Organizational Climate

One of the most important environmental factors which may contribute to organizational change and individual innovativeness could well be the climate of the organization. Burns and Stalker (1961) propose a mechanistic-organic continuum. Csoka (1975) considers that this concept may be "conceptually similar to the situational favourableness dimension of Fielder's contingency model". Burns and Stalker's concept of mechanistic organizations with a rigid hierarchical structure, formal rules, and a downward communication plan is appropriate when thinking of the structure of the nursing organization within a hospital structure. Csoka (1975) states that "organic climates are characterised by loose structures, a high degree of trust, tolerance of freedom, and multidirectional communication flow" (p.273). A later development of this idea of

"organic" organization is the concept of matrix organization, described by Kingdon (1973) and others. This concept also seems well suited to hospital organizations as it carries within it the idea of two "bosses" for one person (a well known characteristic of nursing organization). Kingdon questions the viability of the conventional large-scale organizations developed on the Weberian model and proposes the idea of a matrix organization. This is an attempt to combine the advantages of functional specialisation with those of project management. Thus hierarchical ordering and organic flexibility exist simultaneously in the same organization. This is an attractive idea which is already finding its way into health service organizations. Knight (1976) gives a comprehensive review of the literature available on matrix organizations, and also makes the link with the "organic" structure presented by Burns and Stalker (1961). Knight summarises the main advantages claimed for matrix organizations as:

> efficient use of resources
> flexibility in conditions of change and uncertainty
> technical excellence
> ability to balance conflicting objectives
> freeing top management for long range planning
> improving motivation and commitment
> giving opportunities for personal development (p.118)

The advantages of flexibility, technical excellence, and opportunity for personal development, would seem to have particular application to organizations such as hospitals, which are people and

technology intensive. They are therefore relevant to the present work.

The concept of organizational climate has proved difficult to operationalize and measure. Guion (1973) discusses the idea of organizational climate as an attribute or "set of attributes" of the work environment. As such, the environment is "perceived" by the individual and measures of climate are likely to come up with varying subjective outcomes. Payne, Fineman, and Wall (1976) discuss these and other problems in an interesting and useful paper which examines the meaning and measurement of the concepts of organizational climate and job satisfaction. They critically examine the claim made by Johannesson (1973) that measures of job satisfaction and organizational climate frequently show content overlap, and conclude that while there is evidence of a relationship between measures of these two concepts, "logically and empirically they remain distinct". The final conclusions they reach in this article seem appropriate in view of the subjective nature of their topic. That is, that as most of the empirical data is perceptual, studies in combining objective and subjective methods of measurement would be of considerable benefit. Litwin and Stringer's (1968) study demonstrates some of these points. They use Atkinson's (1966) definition of organizational climate: "the quality or property of the organizational environment that

(a) is perceived or experienced by organization members and

(b) influences their behaviour" (Litwin, p.135).

Their measuring instrument is a 31 item questionnaire which provided

scores on structure, responsibility, risk, reward, warmth and support, and conflict. Three groups of fifteen subjects each are matched on age, college, major work experience, n Achievement, n Affiliation, n power scores, and California Psychological Inventory personality profiles. Leadership style is examined in three simulated business organizations over a period comprising eight actual days of organizational life. The findings indicate that distinct organizational climates "can be created in a short period of time and their characteristics are quite stable". Once created, Litwin and Stringer (1968) claim that the organizational climates have significant "often dramatic" effects on motivation and tentatively conclude that climate may effect changes in personality traits. If this is so, then organizational climate, as defined by Litwin and Stringer, would be an important factor in influencing innovative behaviour in individuals and in organizations. This link between organizational climate and change in personality traits is incorporated in the present research design (Chapter 7) and in the data analysis used in subsequent chapters.

A number of other scientists have investigated the concept of organizational climate in one way or another. McCarrey and Edwards (1973) produced a 198 item Likert-type climate inventory in their study of the relationship between organizational climate and the conditions for effective research-scientist role performance. Their subjects were 72 biological scientists working in four laboratories of a Canadian federal government department.

Performance measures included ranking by peers of the subjects' total bench work, "mission-oriented" productivity, ranking of creativity and communication performance by peers, citation rates, and publication rates. A link was found between organizational climate and creativity. This research seems to support the tentative conclusion of Litwin & Stringer (1968). That is, that climate may effect changes in personality traits.

In another approach, Oaklander and Fleishman (1964) link organizational climate with people performance in the high stress climate of hospitals. They distinguish between intra-unit stress and inter-unit stress and hypothesise that the consequences of these might be different when linked with the leadership dimensions of consideration and structure. Consideration is defined as behaviour indicating mutual trust between the supervisor and his group. Structure is defined as behaviour in which the supervisor organizes and defines group activities and his relation to the group. That is, the supervisor defines the roles each member is expected to assume, assigns tasks, plans ahead, establishes ways of getting things done and pushes for production.

The research reported by Oaklander and Fleishman (1964) was carried out in three hospitals in the greater New York area. One hundred and eighteen (118) first line supervisors, with at least six subordinates, were tested using a leadership opinion questionnaire and a series of organizational stress measures.

In both types of hospitals, higher consideration was significantly (.01 level) related to lower intra-unit stress. The correlation was -.31 for 58 department heads in the two voluntary hospitals (600 and 200 beds) combined, and -.37 for 60 department heads in the government hospital (1000 beds). The hypothesis that supervisors who score higher on structure have lower inter-unit stress was reported by Oaklander and Fleishman to be supported in the voluntary hospitals but was unrelated to interdepartmental stress in the government hospital. Further work is needed on this latter finding. Organizational size and ward type, are both factors worth investigating. These have been included in the present study and will be examined in this context.

TOWARDS A RESEARCH PARADIGM

The problems of research in this field are well summarised by Forehard and Gilmer (1964) who discuss the difficulty of operationalising the concept of organizational climate. They report that methods used include field studies, assessment of participants' perception, observations of objective indices and experimental control of organizational variables. Examples of all of these have been included in this literature review. The Oaklander and Fleishman study is an example of the "participants' perceptions" approach. Forehard and Gilmer suggest that properties of organizations meriting further study are organization size, structure, systems complexity, leadership patterns and goal directions.

A glimmer of the importance of the interrelationship of organizational factors in producing an outcome (or series of outcomes), collectively labelled organizational climate, is offered by Pritchard and Karasick (1973). These authors synthesize the definitions offered by Gilmer (1966), Taguiri (1968), Mezer (1967), Georgopoulos (1965), Litwin and Stringer (1966) and Gellerman (1959). In doing so, these authors define organizational climate as a relatively enduring quality of an organization's internal environment, Pritchard and Karasick define it as a quality:

> (a) which results from the behaviour and policies of the organization, especially top management;
>
> (b) which is perceived by members of the organization;
>
> (c) which serves as a basis for interpreting the situation; and
>
> (d) acts as a source of pressure for directing activity (p.126).

This is a useful operational definition which incorporates four key components which have application in the context of this thesis.

Firstly, the concept of organizational climate as a reflection of top management policies and behaviour is interesting. This concept recalls the unique organic climate postulated by Revans (1971) in his studies on the morale and effectiveness of general hospitals.

The second important concept relates to the idea that organizational climate is a quality which is perceived by members

of the organization. In the present context, it then follows that there must be individual differences in climate perception which could be expected to influence the way in which charge nurses interpret their particular (unique) organizational situations.

In the light of the third and fourth aspects of Pritchard and Karasick's definition (1973) it seems likely that individual differences in perception and interpretation of organizational climate will be reflected in differences in charge nurse activity. Such individual differences would be expected to occur in the written information set out in the Ward Kardex (p.152). Further, individual differences in the perception of organizational climate could be expected to be linked with the level of implementation of new ideas.[1]

Adopting this concept of perception of the environment as an integral part of a research design is not new. It has been used previously by Stern (1970) and Pace (1963) among others, to develop organizational climate indices. Payne and Pheysey (1971) took the items in Stern's Organizational Climate Index and developed a new instrument, the BOCI (Business Organization Climate Index). In their discussion of the use of this instrument, they make the point that both perceptual and objective data are useful in "predicting the behaviour either of individuals or environments" (p.94). They tabulate twelve types of data that can be collected about people and their environment. This table is replicated here (Table 2.1) as it influenced the development of specific aspects of the methodology in this research. In particular, as suggested by these authors, both

1. Innovativeness

Table 2.1 People and Their Environments (Refer Fig. 1.3 p.

POSSIBLE TYPES OF DATA ABOUT PERSONS AND ENVIRONMENT						
	PERCEPTUAL				OBJECTIVE	
	Individually Perceived		Other Perceived		Objective	
Conceptualisation	Psychological	Environmental	Psychological	Environmental	Psychological	Environmental
Person	Self ratings, etc., e.g. Stern's Activities Index (1)	Self-ratings of adjustment to environmental stress (2)	Ratings of traits, etc. (3)	Ratings of physical attributes, perceived reactions to environments of types (4)	Performance tests, etc. (5)	Psychological, sociological measures: behaviours in stress, or different environments (6)
Environment	Perception of need presses, e.g. Stern's OCI (7)	Perceptions of climate, and situations in general (8)	Group means as measures of climate, e.g. Stern's OCI (9)	Group means as measures of environment, e.g. BOCI (10)	Counts of aggressive, regressive acts, e.g. aspects of R.G. Barker's "Behaviour Episodes" (1968) (11)	Sociological measures, physical measures, counts, charts, memos, etc., e.g. R.G. Barker's "Behaviour Settings" (1968) (12)

The descriptions in the boxes are given only as examples and are not exhaustive of the possible kinds of data that might be collected.

ORGANISATIONAL CLIMATE

Payne & Pheysey, 1971.

perceptual and objective measures of the individual and the environment have been used to obtain empirical and propositional data. The following measuring instruments were selected to assess individual and environmental variables. A perceptual organizational climate index has been devised, The Nursing Organization Inventory. This instrument is based on the Business Organization Climate Index developed by Payne and Pheysey (1971). The California Psychological Inventory (Gough, 1969) and the Personal Orientation Inventory (Shostrom, 1972) have also been used to obtain psychological information about the sample of charge nurses used in this study. Full details of these, and other instruments are given in Chapter 8 of this thesis.

KEY ASPECTS OF THE APPROACH TO A RESEARCH PARADIGM: A SUMMARY

This thesis is not so much concerned with considering the structural social and environmental aspects of the hospital organization in isolation from one another, but uses a global systems approach to examine the relationships between people and the health service organizations in which they work. As Gagné (1963) points out, man can be considered as one of the major components of a total system. This means that due emphasis can be given to the view that people are not seen in the social or technological sense as roles, or as instruments of the organization, but as living parts of the system. This emphasis is reflected in the measuring instruments selected here to assess how people bring to the organization their personal attributes, their experience, and their perceptions. Furthermore,

this research paradigm allows due acknowledgement of the fact that it is the interactions between the individual, perceptual, and organizational systems that produce behaviour as a process outcome. The following chapters will turn to examining in detail various "process outcomes" predicted from "input" factors, while giving due consideration to identifiable moderating factors (refer Fig. 1.3). In particular, the way individuals adopt innovations and manage change becomes a crucial question.

CHAPTER 3

IDENTIFYING PROCESS OUTCOMES, AND THEIR RELATED PREDICTOR AND MODERATOR VARIABLES

PEOPLE AND THEIR ENVIRONMENT

The importance of the relationships between the quality of the organization's internal environment and the way people perceive this has been extensively discussed in Chapter 2. This discussion can now be linked with Figure 1.2 where Donabedian (1973) depicts the relationship between "provider" behaviours (as part of the medical process), the organization, and the external environment. It has already been argued that change is slow in hospitals and that perception of the quality of the organization (climate) may have a crucial effect on the way individuals adopt new ideas and manage the implementation of them (change).

Schein (1970), like Donabedian, views the problems of growth, adaptation and the management of change as part of the relationship of organizations to their environment. As Schein (1970) says:

> new ideas for products and processes come from people. The organisation, therefore, faces the problem of how to create an environment and a set of management policies which will not only get the primary task performed effectively, but which will in addition stimulate creative thinking and innovation. (p.18)

This chapter begins with a brief discussion of creativity as a personality trait. This leads on to a detailed analysis of innovativeness, the process of innovation and the diffusion of innovations, which are concepts more crucial to the work of this thesis. In the course of the discussion of this group of behaviours, which together constitute the "process outcome" variables (refer Figs. 1.3 and 7.1) defined and used in this thesis, several associated predictor and moderator variables are also presented. Detailed discussion of these latter variables also occurs in other chapters of this thesis.

Published literature on the topic of innovation falls into three main streams, all of which will be briefly presented here. Innovativeness is discussed in relation to creativity and to the diffusion of innovations. The distinction between the diffusion and the adoption of innovations will also be pointed out. Later, the relationship between the process of creativity, the process of innovativeness, and innovation will be studied and the relationship of these processes to organizational change will be established. In the final section links are made between organizational theory, creativity, innovativeness, and the diffusion and adoption of innovations. These are in turn linked with the process of change in the structure and practice of nursing, regarded here as a subsystem of the hospital organizational system.

CREATIVITY

A Basic Ingredient

Getzels and Jackson (1962) discuss a variety of approaches to creativity ranging from the psychoanalytic approach of "regression to primary-process thought", developed from Freudian concepts, to Schachtel's view of "openness to the world" (p.115). The two views represent opposite ends of the continuum, for as they point out "the one creative behaviour is seen as tension-reducing, the other as tension-seeking" (p.116). In common with Getzels and Jackson, it is difficult not to find Schachtel's view attractive. That is, that adults who are creative are able to "encounter and perceive the new, that which transcends the labels of his 'patterned' experience be it in a new object or in an object encountered many times". There is an element of perception in this definition which is useful in the context of this thesis, (see earlier discussion p 35, and Glossary of Terms).

Creativity expressed in these terms, seems peculiarly appropriate and indeed necessary to those adults who work in situations where rules and regulations are necessary for safe practice, but where change is essential if both the providers and the users of care are not to become institutionalized. Health care delivery services for the medium and long term care of the mentally ill and services for the care of the aged come readily to mind. However, Getzels and Jackson point out that the qualities ranked highest by teachers for defining giftedness in children are I.Q., good marks, and creativity. Those qualities

ranked highest for success in adult life are: "getting along with others, goal directedness and emotional stability (adjustment)" (p.119). Even though this study is a small one, Getzels and Jackson state "it is noteworthy that neither intelligence nor creativity, which had been ranked first by parents as defining the gifted child, is included by either teachers or parents within the first three qualities making for adult success". This finding may be used to partially explain the curious lack of evidence of the creative process in the development of innovations within systems of health care. Donabedian's model (Figure 1.2) clearly demonstrates the importance of the relationship between the medical care process and the environment within which it takes place. This model postulates a dynamic interaction which should result in changes in the focus, quality and outcomes of the process. But most health service organizations are remarkable for their stability rather than for their capacity for innovation and change. Creativity, and its associated process of innovativeness have not been normal measures of success for health professionals, nor for health/illness institutions.

At this time of change, complexity and economic recession, countries in the western world are looking enviously, and somewhat hopelessly, at the simplicity of access, the use of folk medicine, and the use of short-term training programmes for paramedical personnel in countries such as China and Tanzania. Even though New Zealand should have strong cultural and trade affiliations with the Pacific and South East Asia, she is still tied by her cultural

and trading traditions to a predominantly Western European way of life. Her health services reflect this western approach only too well, with prime emphasis on the importance of expensive technology in the prevention and treatment of illness. Information on health and illness is still primarily the prerogative of the medical and nursing professions and there has been little attempt to adjust the medical care process to the needs of minority groups and the exigencies of the economy.

This lack of innovativeness in experimenting with new methods of delivery of health care, and resistance to change, would seem to be key issues in the planning and development of the health service in New Zealand at this time. Ministers of the Crown now talk, as does Scoville (1973), about the effective use of human resources. The Hospital Boards' Association has latched-on to management training as the means of change. Hospitals are appointing staff training officers and spending considerable sums of money setting up staff training departments in the fond hope that such steps will, of themselves, lead to increasing "accountability" and "responsibility" in the health service. If the quality of creativity, and the processes of innovation and innovativeness are important factors in change, then the question remains as to whether or not health workers can be trained to develop these qualities and the skills associated with them? The problem, as Schein (1970) points out, is to develop management policies which will not only allow the job to be done efficiently and effectively, but which will in addition stimulate creative thinking

and innovation.

In a New Zealand study, Parsonson (1978) outlines the current status and future potential of training for creative behaviour. He uses Rhodes' (1961) four "P's" of creativity (person, process, press and product) to analyse studies which have been done. He points out that the majority of studies have focussed on the cognitive processes of already creative persons and considers that press environment and product have been accorded low priority. He further states that "behavioural research has shown, however, that diverse responding can be objectively defined, reliably measured, and deliberately trained" (p.93). Whether this generalization can be properly referred to the training of adults, as well as pre-school children is an issue taken up in the research aspects of this thesis.

Creativity in Nursing

Schweer and Gebbie (1976) recognize creativity as a "quality inherent within every individual" (p.30). They use the publication edited by Alice Miel, "Creativity in Teaching" (1961) to discuss clinical teaching in nursing and use the four aspects of the creative process described by Foshay: openness, focus, discipline and closure.

Schweer and Gebbie (1976) define openness as "the deliberate act of allowing one's self to entertain new unstructured thoughts about a current issue or problem" (p.35). They emphasise that this "first step of creativity is perhaps the most crucial of all" and requires the reduction of defence mechanisms to allow the "complete self to be open to experience in a less structured way before formulating any

theories to interpret ideas". In this definition, Schweer and Gebbie have, perhaps unwittingly, included the elements of Freudian regression and Schachtel's "openness" cited by Getzels and Jackson (1962) and already discussed in the preceding section of this chapter.

Focus is the second step, in Schweer and Gebbie's process of creativity. "Openness makes data available; focus begins the process of translating significant pieces of data into meaningful patterns" (p.36). The process then naturally flows on with the efficiency and effectiveness components of discipline and closure.

Schweer and Gebbie (1976) make an interesting distinction between creativity and the process of problem-solving. They ask the question "How does this process of creativity differ from that of problem-solving as used in nursing?" (p.37). The element of difference, they say, lies in the component of self-actualization. It is this component of self-actualization which can be built into an educational curriculum or training programme, and which can be measured using instruments such as the Personal Orientation Inventory (POI) developed by Shostrom (1972). This approach has been used in the methodology developed for this thesis.

The stimulation of creative thinking in nursing through a deliberate educational process, has been the subject of an extensive study by the Faculty of Nursing, University of California (San Francisco) who developed an experimental curriculum for its baccalaureate students during the 1960's. This experiment is well reported in "Newer Directions for Patient Centred Care" by Abdellah,

Beland, Martin and Matheney (1973). Bailey, McDonald and Claus (1970) state that "one of the major goals of the experimental curriculum project of the University of California School of Nursing (San Francisco) is to educate nurses to be creative problem-solvers". This approach is justified on the grounds that "each problem is seen as unique" and, therefore, each solution is seen as a creative act by the problem solver (p.100).

Measures used to test outcome, included the Torrance tests of Creative Thinking; the Bailey General Nursing Problems Test; the Torrance Social Improvement Test; and the Torrance Common Problems Test. The data indicated that the second experimental class (1968) was generally superior to the control group and to the first experimental class (1967) on the verbal creativity measures. However, the control group was superior to the two experimental classes on figural creativity despite the fact that Bailey, McDonald and Claus report no significant differences among the groups in relation to demographic data and personality measures (Edwards Personality Preference Schedule; California Psychological Inventory[1]; the Minnesota Multiphasic Personality Inventory; and the Ideal Patient Scales of the Adjective Check List). On the Torrance Social Improvement Test, Bailey, McDonald and Claus (1970) report the highest mean original score. They therefore concluded that the curriculum had stimulated verbal creativity.

1 The California Psychological Inventory is also used as an instrument in this thesis.

Creativity, and the stimulation of this process by education programmes does not, however, guarantee that the cognitive process will result in innovation, as this involves other processes, skills and interactions.

INNOVATIVENESS

The cognitive process of creativity may account for the novel idea, the new way of examining the problem, or the model behind the new system of nursing care delivery. But not everyone is creative, and all creators are not innovators. Innovativeness, defined here[1] as the process of implementing a new product, requires an individual extension beyond the act of creation. It can perhaps be associated with (what is loosely called by some writers), "creative behaviour" but goes beyond the closure described by Schweer and Gebbie (1976) as the "first stage of the creative process". It is the act by which the new product becomes an innovation, and therefore accessible to a variety of individuals and organizations. But, again, not everyone is an innovator and not all environments are conducive to the adoption and hence the diffusion of innovations. In Western countries in particular there is an increasing distance between the innovators, and the society which is expected to accept the use of the innovation. The process of the acceptance and the use of innovations has been the subject of a number of studies.

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1 Refer Glossary of Terms placed at the end of Volume I.

The Diffusion of Innovations

Coleman, Katz and Menzel (1966) studied the social and psychological factors affecting the transmission and acceptance of a new drug ("gammanym") by 216 doctors in four mid-Western communities in the United States. This study used both interview and record audit to collect data, a system also used in the research later described in this thesis. Coleman et al. justify this approach by stating "the doctor's actual use of gammanym could be studied and analysed in terms of the information obtained in the interview" (p.19). There are a number of interesting aspects to this study, not the least of which is the integrated use made of "hard" data from records, and the subjective views of the doctors themselves[1]. Through the combination of both methods, the authors were able to demonstrate not only the cautiousness of early adopters but also the importance of social processes in the adoption of the drug. They were able to look at the community of physicians in each city and to suggest that "it may be useful to think of the structure of social and professional relations among physicians in a community as a network of communication through which information, influence and innovation flow" (p.69).

Coleman, Katz and Menzel (1960) used medical imagery to identify two distinct patterns of diffusion, linked with differences in social

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1 Refer also to work by Payne & Pheysey (1971) cited in Chapter 2, particularly Figure 2.1 p.34.

interaction. In the "contagion" pattern of adoption, physicians were well integrated in the medical community while doctors defined as "more" isolated, showed a constant rate of adoption. The specific findings are not as important as the methodology that was used in this case study, which pointed up the importance of professional and friendship ties in the process of adopting innovations. Early adopters of the drug tended also "to be early adopters of other, equally undramatic, pharmaceutical innovations" (p.36). Such early adopters were cautious in their use, but continued to use the drug.

An interesting facet of this study is that Coleman et al. did not find that early adopters favoured "innovations of various other kinds". This reinforces the view that innovators (early adopters in this case) may be specific in their process of implementing new products (innovativeness). It also raises the question whether innovativeness as defined in this thesis can be regarded as a general personality trait of the same order as creativity. This seems unlikely if the process of implementing new products can be constrained or facilitated by the variety of individual, social, and organizational variables presented and discussed in the literature section of this thesis.

Time as a Factor in Innovation

The relationship between the social system, personal characteristics, and the process of innovation is examined in detail by Rogers (1962) whose authoritative work has been used by a number of writers and researchers on this topic (Roche, 1969; Coleman, Katz & Menzel, 1966). He defines four crucial elements in the analysis of the diffusion of innovations:

1. the innovation;
2. its communication from one individual to another;
3. in a social system;
4. over time (p.12).

Rogers defines an innovation as an idea perceived as new by the individual. Diffusion is defined as the human interaction process in which one person communicates a new idea to another person. "The norms of the social system and the status of individuals A & B in the social structure of the system affect the diffusion of ideas" (p.15-16). Coleman, Katz and Menzel (1966) also bring out the importance of these social factors in their study of innovation among physicians. In Chapter II of the fifth edition (1967), Rogers examines six traditions of research on the diffusion of innovations. He places these under the headings of anthropological; early, rural, and medical sociological; education; and industrial.

In the development of this thesis, studies of the area of medical and rural sociology, and in education have influenced the research design. One of the factors that encouraged the author of this thesis

to extend the period of observations scheduled for this study, was Tarde's comment (1903) as quoted by Rogers: "At first only a few individuals adopt the new idea, then great numbers of individuals accept the innovation and finally the rate of adoption slackens" (p.28). It therefore seemed important to allow sufficient time for this process to occur.

Human Factors in Innovation

Innovativeness is defined by Rogers (1967) as the degree to which an individual adopts new ideas earlier than the other members of his social system (p.287). This definition is used here (refer Glossary, p.350). As Rogers points out, earlier innovativeness is a "continuous" dimension in that individuals adopt a new idea at different times (p.159). Innovativeness, as such, is seen as a "relative" concept. "One has either more, or less, innovativeness than others in a social system. It is essential to specify the social system whose members one is classifying on the basis of their innovativeness". In this respect, the norms of the social system are obviously important and Rogers asserts that "an individual's innovativeness varies directly with the norms of his social system on innovativeness" (p.71). He argues from Van den Ban's, and from Rogers and Burdge's (1962) studies to support this statement. Van den Ban (1960), in a sample of 903 Wisconsin farmers in 47 townships, found that the farmers' education, size of farm, and net worth "were found to be positively related to individual innovativeness. But the township norms were even better

predictors of innovativeness than were these social and economic characteristics". Coleman, Katz and Menzel's (1966) findings relating professional and friendship networks to the diffusion of innovation, support this point. Consequently social system norms for innovativeness are relevant to the present study.

Rogers has developed five categories to distinguish variation on a continuing scale of innovativeness: innovators, early adopters, early majority, late majority and laggards. He postulates an assymetrical bell-shaped curve, with innovators forming 2½% of the population at one end and laggards 16% of the population at the other. Together, innovators and early adopters make up 36.5% of the population, with early majority (34%) and late majority (34%) making a central distribution of adopters of 68%. The characteristics of each category are outlined and placed along a continuum. They range from risk-taking for innovators, to the leadership quality of early adopters, to the link position of the early majority, and then to the scepticism of the late majority, and the traditional attitudes of the laggards. In his study of human factors in agricultural innovation in Ireland, Roche (1969) makes a distinction between the diffusion process, as defined by Katz, Levin and Hamilton[1] (1963) and the

1 Katz, E., Levin, M., and Hamilton. "Traditions of Research on the diffusion of Innovation". American Sociological Review 28: 1963, define diffusion as the (1) acceptance (2) over time (3) of some specific item - an idea or practice (4) by individuals, groups of other adopting units, linked (5) by specific channels of communication (6) to a social structure with (7) a given system of values or culture (p.223-252).

process of adoption as described by Rogers (1962). Rogers defines diffusion as "the human interaction process in which one person communicates a new idea to another person" (p.13). He further defines adoption, as Roche (1969) points out on page 83 of his article, as the mental process through which an individual passes from first learning about an innovation to final adoption (Rogers, 1962, p.77).

Variables Adopted in this Thesis

The work of Rogers (1962) and Coleman, Katz and Menzel (1966) influenced the selection of individual, and group variables used in this research.

It seems likely that the process of diffusion can be viewed in part as a social phenomenon, while innovativeness can be defined as a relative term related to degrees of individual behaviour in relation to the development and adoption of new ideas. If the movement of innovations is indeed a social phenomenon, then the enhancement of the social process through shared learning experiences should be possible. This approach has been used in this thesis in constructing the group training intervention for the charge nurse subjects who are the focus of this study.

In the present thesis, a continuum of innovativeness has been postulated and movement along the continuum of innovativeness is explained in terms of individual, social and organizational factors in relation to a known time interval. Roche's survey of human factors in agricultural innovation for 70 farmers in Ireland has served as a useful basis for some of the variables adopted. In particular, the

use of a variety of information sources by early adopters and the notion of an "index of progressiveness" led to the idea of an index of innovativeness, discussed in the final chapter of this thesis.

Communication Networks and the Diffusion of Innovations over Time

Rogers (1962), Katz, Levin and Hamilton (1963), Coleman, Katz and Menzel (1966) and Roche (1969) have all looked at the interplay of human and social factors in the diffusion of innovation. In particular, Coleman, Katz and Menzel postuled a chain reaction or "contagion" which operated in the diffusion of an innovation - the use of the drug gammanym among practising physicians (p.113). Three types of social networks (discussion, advisorship, and friendship) were identified and compared over a period of six months from the release date of the drug. It was found that

> different networks clearly came into play at different stages in the diffusion of gammanym. The advice and case discussion networks were the first to resonate to this new development and exert their influence towards its adoption; after this period, talk of the new development came into more casual conversation, the conversations that are carried by the friendship network (pp.127-128).

In fact, Coleman, Katz and Menzel found that the friendship network did not reach its peak until five months after the original release. The effectiveness of these networks also seems to be related to

place, a point also made by Roche. This aspect is important when looking at innovation in organisational settings where the population is not homogeneous (such as hospitals) and where a variety of organisational (or situational) factors affect the ability of the individual or his family to pursue his own course of action.

It is interesting to consider the process of diffusion from a quantitative point of view. The geographers, among others, have an important contribution to make here. Brown (1968) in his review of diffusion of innovation as developed by Hägerstrand (1967). A flow diagram of Hägerstrand's conceptualisation of the innovation diffusion process is given below (Figure 3.1).

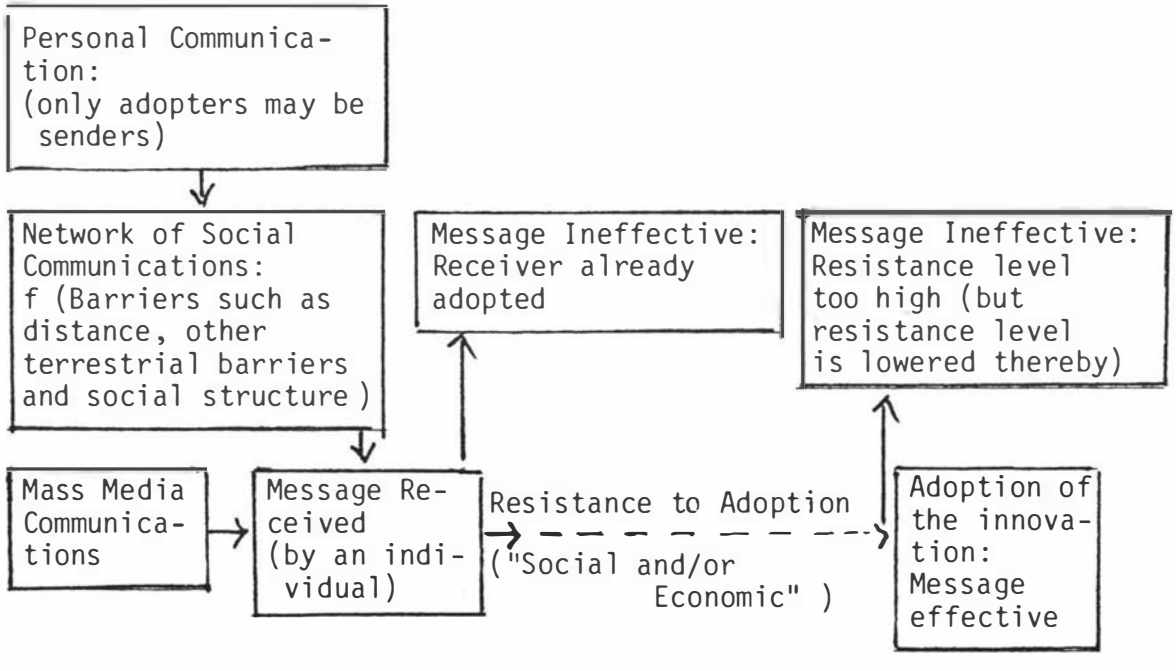

Figure 3.1 A flow diagram of Hägerstrand's conceptualisation of the innovation diffusion process.

Brown delineates the Hägerstrand theory "with information flow, particularly personal communication, as its focal point and a learning process as its underlying perspective". Brown further points out that Rapaport's random and distinctive biased net model, although developed independently from Hägerstrand, contains many of the same elements. Both models have messages sent and received. In Hägerstrand's case, Brown states "all adopters send messages; in the innovation diffusion version of the distance biased net, only new adopters send messages". As Brown points out, however, this does not constitute a major difference. Finally, Brown describes the contribution of epidemiology to the diffusion literature. Coleman, Katz and Menzel (1966) provide an excellent illustration of this approach, which seems particularly appropriate when looking at the process of diffusion of innovation in a medical setting. In this approach, the strength of the original "infection" seems of importance, and a useful link can be made to the concept of strength of the source, whether this be the original source (innovation) or the adopter source. In this sense again, the epidemiological approach which is also suggested by Brown can provide some useful concepts, particularly those of resistance, strength of infection, and population at risk (p.28). All of which have been adopted here.

Innovation in Organizations

In a paper entitled "The Individual, The Organization, and the Career: A Conceptual Scheme", Schein (1968) brings a further dimension to the concept of innovation. In this paper he considers the

stable structural elements of an organization, and others which he describes as "process" variables, and describes the "dynamic interplay" between "parts of the individual in the context of his ongoing career". One kind of process is the usual one of "adult socialisation", but Schein (1968) then introduces the interesting idea that another is "the influence of the individual on the organization, which can be thought of as a process of innovation" (p.302). Schein further argues that both socialisation and innovation coexist in an organization and have differing influences, depending on the particular point in time and career of a particular individual. This view of the influence of the individual on the organization incorporates the predominant themes of communication and adoption of other models, and underlines the unique "human factor" nature of innovation.

Amalgamating the above, Schein uses the concept of a constructed social self as the basis of his discussion. He points out that the basic rules of conduct are largely culturally determined, "but these basic rules still leave each individual a wide latitude in how he will choose to present himself in any given situation" (p.307). He then goes on to discuss the basic states, positions, and processes involved in moving through a career. These range from the education and anticipatory socialisation processes of pre-entry; through a variety of assignments and testing processes; to the granting of tenure and the passing of the "inner conclusion" boundary; to the granting of peripheral status after exit. In this description, the career of an individual is seen as a series of boundary passages. Schein

hypothesizes that "innovation, or the individual's influence on the organization will occur in the middle of a given stage of the career, at a maximum distance from boundary passage" (p.314).[1]

This social self, then, is another dimension which should be linked into any study of innovation in an organizational setting. Although this definition of innovation is much more general than that discussed by Rogers (1962), it contains the same sense of the generation and promotion of new ideas, by individuals. More importantly, Schein's view allows the processes of socialisation and innovation to proceed at the same time, even though one takes precedence over the other at various times. It can further be hypothesised that the two are related, and we then come full circle to Roger's (1962) assertion that "an individual's innovativeness varies directly with the norms of his social system on "innovativeness". Various measurements are carried out in the present project in an attempt to assess the impact of the "social self" and the "social system" on innovativeness as defined in this thesis.

Administrative Controls and New Ideas (Innovations)

Rosner (1968) has carried out some interesting and useful studies on the relationship of innovation to administration controls in organizations. In a study of the frequency and promptness of trials of new drugs in 24 hospitals, Rosner (1968) examined the differences between activity controls and controls relating to the "visibility of

1. In the context of this thesis, Schein's innovation equated with innovativeness.

consequences". He defined "activity controls" as "the degree to which members of the organization use procedures or resources specified by their superiors". Control related to visibility of consequences was defined as "the ability or willingness to measure the programmes in terms of organizational goals" (p.36). This propositional study is reviewed by Georgopoulos (1973) who described it rather wryly as one of the few propositional studies that have been done in hospitals where the data all supported the hypotheses.

Rosner found that organizational innovativeness varies inversely with activity control and directly with visibility of consequences. As Rosner states:

> the findings assume added importance because hospital control over medical staff activities is minimal. The relationships may be more pronounced in more tightly controlled organizations (p.36).

Since the nursing subsystem of a hospital is a tightly controlled organization (refer Fig 4.1), it is expected in the present study that the relationship suggested by Rosner will be quite pronounced. However, as was discussed in Chapter 2 (p. 28) there are unique differences in the organizational climates of different hospital systems. These may lessen the strength of the above relationship which could be still further reduced if there were differences between the climates of subsystems. In addition, the effects of individual and grouped biographical and psychological characteristics of the charge nurses working in the nursing subsystem is not known. By taking

these issues into account, one of the things the present work will examine is Rosner's proposed relationship between innovativeness and the strength of administrative control.

A related concept of importance to this study is Rosner's (1965) proposition of "organizational slack". In the study of the economic determinants of organizational innovativeness, Rosner found support for his contention that organizational slack correlates positively with innovation, while economic orientation correlates negatively with innovation. In addition, Rosner (1965) asserts that the rate of organizational innovation[1] varies inversely with activity control, but directly with visibility of consequences, and that it varies directly with organizational slack, but inversely with economic orientation emphasis. The present study uses the concept of organizational slack to explain relationships found in the data.

Summary and Conclusion

In this chapter, individual human factors in innovation have been considered, and the importance of social networks in the diffusion of innovation (new ideas) has been identified. A number of studies of innovation, innovativeness and the diffusion of innovations have been considered, most of which are concerned with the behaviour of

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1. Innovativeness in the present study.

individuals in single community settings. The general concepts involved seem applicable, with appropriate modifications, to the more tightly controlled and densely populated organizational setting. In such a setting, however, the innovativeness of the individual is not only modified by "normal" biographical and diffusion factors, but also by organizational (or situational) variables which will vary along a continuum both for the individual and the organization. It is possible therefore to view the "innovativeness" of the organization in the same relative way as Rogers (1967) views the "innovativeness" of the individual. It is considered that such organizational innovativeness is relative and will vary over time with the type of innovation, and will vary also with the structure, the purpose, communication and control systems of the organization.

The present work has been designed to enable an assessment of the above issues. It has also been designed to study the "normal" variations people display in their levels of "innovative behaviour".

To achieve the above goals, a large number of variables have been incorporated in the design. These include those predictors associated with biographical characteristics such as age, education, length of time in the present job, and past experience. The structure, type, size and climate of nursing subsystems, together with time, contribute to the list of moderator variables. Criterion measures include the rank of subjects on a scale of "innovativeness", and variables drawn from the previous history of innovative behaviour of

subjects and the observed introduction of specific innovations.

Innovation in organizations is seen as a complex multivariate process in which some factors are more likely than others, at a particular time point, to influence the spread of new ideas.

CHAPTER 4

FURTHER MODERATING FACTORS AFFECTING PROCESS OUTCOMES: THE FATE OF NEW IDEAS FOR NURSING ORGANIZATION AND PRACTICE

This chapter will discuss issues related to the nursing subsystem of the organization in which this study was conducted, i.e. the New Zealand hospital system. Details will be given of the typical structure of a hospital nursing organization at the time this study was carried out (1976/77). The relationships of education, and training, to change in nursing are discussed. Reasons are advanced for a variety of reported and observed practices which occur in the organization and delivery of nursing services.

All of the topics concerned here, have a bearing on the design and the method of conducting the present research (as illustrated in Fig 1.3 Chapter 1, p.20).

NURSING ORGANIZATIONAL STRUCTURE

Nursing has been an established part of the health service in New Zealand since the first general hospitals were set up in Auckland, Wellington, Wanganui and Taranki in 1846 (Department of Health, 1969). These hospitals were financed by the state and were staffed at first by unqualified nurses from "the domestic class". By the 1880's Nightingale-trained nurses from England were working in some hospitals which began to reflect a trend towards professionalism in nursing. It was at this stage that the pattern of staffing wards

with probationer nurses and qualified sisters was developed (Board of Health, 1974), a pattern which is still evident in the public hospital sector. Figure 4.1 represents a generic organization chart for the nursing subsystem of a large hospital board. It has been adapted from that shown in Appendix VI of the Board of Health Report Series, 1974, No. 23, "An Improved System of Nursing Services in New Zealand".

The features of this organization chart include an hierarchical structure with a long chain of command; the use of student nurses as part of the work force; a proliferation of nurse categories intervening between the ward sister and the patient; and the ultimate responsibility of the medical superintendent-in-chief for the nursing services of the board. Since 1974, some changes have taken place, notably changes in title for the various levels, the shortening of the chain of command by eliminating the staff sister category and the progressive withdrawal of student nurses from the service organization. But, for most hospitals this is still the predominant pattern. In such an hierarchical organization it is not surprising that a functional system of task assignment work allocation has persisted in patient care areas, despite vigorous efforts by nurse leaders, the Board of Health (1974), the New Zealand Nurses' Association (1976), nurse consultants (Reid, 1967; Carpenter, 1971) and others to change this. Kinross, Chick, Thomson and Pybus (1976) state "nurses in New Zealand have been slow to see the dangers inherent in continuing to accept delegated power as a suitable base on which to build a professional career structure". The same authors quote from Maas (1973)

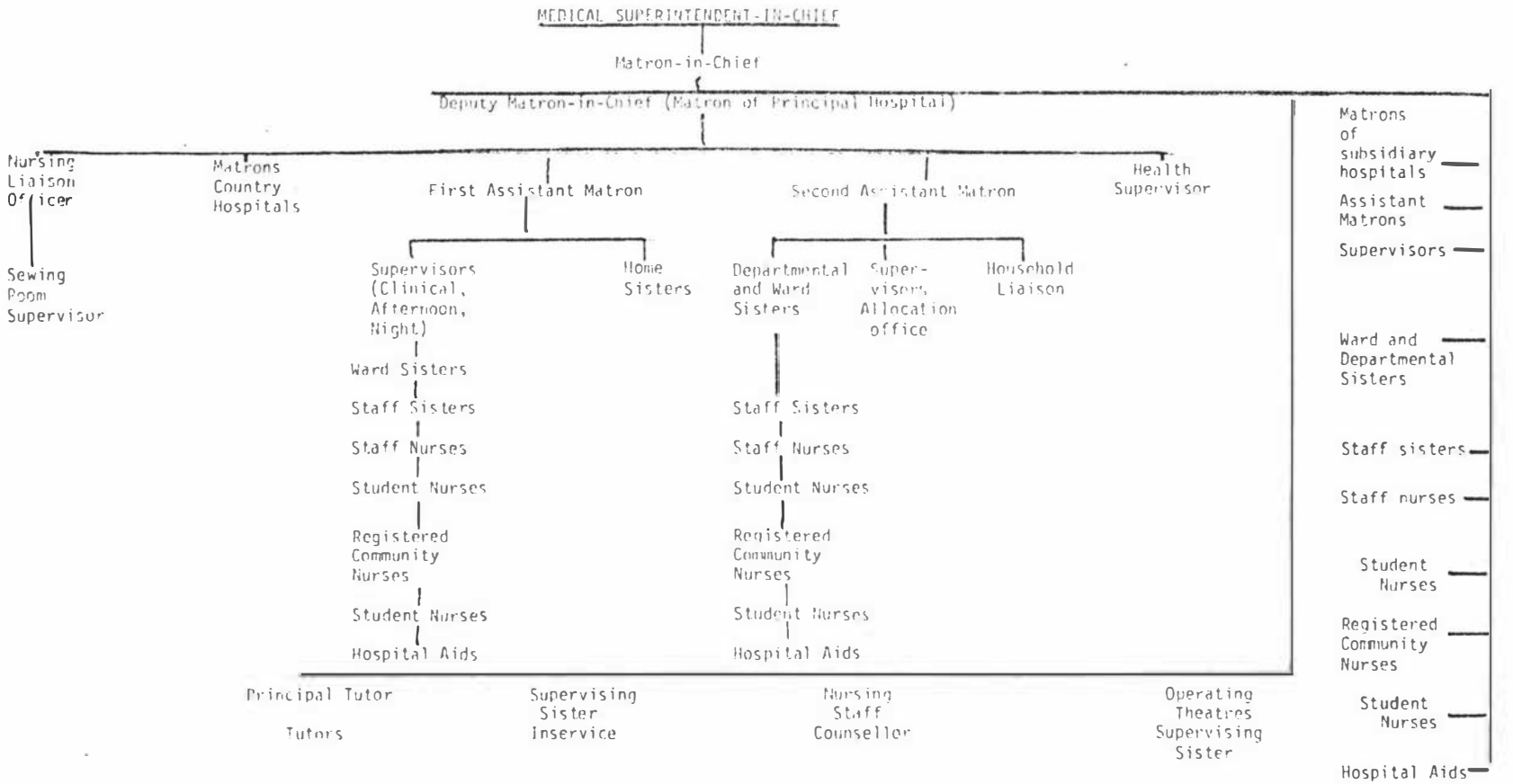

Figure 4.1 HOSPITAL NURSING SERVICES (Large Hospital Board)

Adapted from New Zealand Board of Health. "An Improved System of Nursing Services in New Zealand". Report Series No. 23. Wellington 1974. Appendix VI, p.50.

"nurses have typically been employed in a department of nursing within an institutional hierarchy. The nurse has been delegated administrative authority and accountability, but has not been granted responsibility for her own patients over an extended period of time. Responsibility has been fixed by physical location, routines, and circumstances, with clients as temporary charges only". Moreover, in a service where 48.6% of the staff are unqualified (King, 1977), the care of clients is prescribed and proscribed by policies, rules, and procedures, and decision making by the individual nurse is reduced to a minimum. In such a climate, the initiation of innovation and change is difficult, if not impossible at the lower levels. Ideas for new methods in nursing practice can be generated from above, or outside the system; and innovation can be prescribed from above. But, the chance of success is slight unless there is a group of innovators and early adopters with a well established communication network who have the power and control systems available to implement change and influence others. The ward sisters, now known as ward charge nurses, are one such group in the nursing subsystem of a hospital.

There have been attempts over the years to incorporate different theoretical concepts and alternate systems of practice into the overall system of nursing in New Zealand. These efforts have gained momentum in the last twenty years and the process has accelerated since 1973 with the establishment of nursing in 1980 as a separate discipline within eight polytechnics and two universities. At present the old

persists along with the new, with all but two hospital boards in the country still offering at least one nursing programme (NERF, 1978), thereby retaining the probationer/graduate service pattern which began in 1884 at Wellington Hospital (Carpenter, 1971).

KNOWLEDGE, NEW IDEAS, AND CHANGE

It has already been mentioned that in bringing about change in nursing in New Zealand within the last fifteen years, and certainly before that, there has been heavy reliance on transplanting concepts from overseas (usually North America) together with regular visits from overseas "experts" (Reid, 1967; Carpenter, 1971). Such an approach to change places heavy emphasis on the relationships between knowledge and change, using the kinds of "empirical-rational" strategies outlined by Chin and Benne (1969). Strategies in this category include the dissemination of knowledge through education, the use of "experts" or consultants in the field, the development and application of applied research, and what Benne and Chin define as "Utopian thinking". All of these can be identified in recent efforts to change nursing in this country. In particular, Utopian thinking can be identified with the much quoted "improvement in practice" contingent upon transferring nursing education from hospital boards to the general tertiary education system, and the consequent withdrawal of the unqualified nurse student work force. King (1977) estimates this number to be 4861 on 1 March 1977 which represents 28.6% of the

actual number of nursing staff employed by hospital boards on that date.

Aside from the logistic problems of such a change in this country there is no reason to believe that a simple cause and effect relationship exists between increase in knowledge and change in nursing. Nevertheless, dogmatic statements of faith in this causality occur frequently in the literature of nursing both in this country and overseas. For example, in the introduction to "New Directions in Patient-Centred Nursing", an authoritative collection of the views of a variety of American nurse leaders, Abdellah states "any major inroads in nursing practice must be made through nursing education". Ashley and La Belle, in "Current perspectives in nursing education" (Williamson, 1976) state that the purpose of education is to "increase professional vitality and to free minds for creating new knowledge". To come closer to home, Carpenter (1971), in the preamble to her report, writes that "It is clear that nurses will be working in a world of change and in a field that is 'constantly on the move'. Hospital oriented training programmes should give way to more broadly-based health-oriented education. The curriculum should provide for study in the humanities, biological and social sciences, with nursing related throughout" (p.23). In other words, education for the whole person - an ancient and well regarded concept.

While on the one hand, the planners, the union, and the academics postulate new career patterns and structures for nursing service (Board of Health, 1974; Department of Health, 1969, 1974; NERF, 1978; NZMA, 1976; Kinross et al. 1976; Thomson, Kinross and Chick, 1978) nursing organization in public hospitals remains remarkably resistant to suggestions and exhortation for change, despite changes in nursing education. The New Zealand Manpower Planning Report published in 1978, acknowledges the many difficulties associated with change in nursing in the past and the added difficulties that now exist with the progressive transfer of nursing education into the system of general education. The report makes the realistic comment that "most problematical" for those nurses with the responsibility for maintaining a safe and effective nursing service in the hospital setting, is how to systematically plan for the replacement of students by non-student nursing staff.

A Summary of Change in Nursing Education

Although change has been slow in nursing service a number of changes in the system of nursing education in New Zealand have taken place in the period 1928-1978. These changes do not seem to have arisen entirely in relation to pragmatic considerations but have involved changes in the philosophical approach of educators and policy makers to curriculum changes required for nursing practice (Longway, 1972). They have reflected overseas trends, particularly

in the United Kingdom and North America as an increasing number of New Zealand nurses have had contact with overseas literature and practice through the International Council of Nurses, membership of international nursing committees, study programmes and travel.

For example, the change from a pathology or disease-oriented approach in teaching nursing to a more integrated system orientation was reflected in New Zealand in a curriculum change in 1957. Nursing teaching in this country was reorganised under body systems; the programme of study was broadened to include "maternity" nursing as well as community health nursing and a gesture was made towards the "totality" theories of man by including twelve hours psychology (N & M Curriculum Guide, 1957). Longway (1974) describes earlier parallel changes in the United States.

From a body systems approach, nursing education moved further towards a humanistic position and in 1962, the curriculum guide for the newly established category of second level nurse (community or enrolled nurse) used a 'needs' approach developed by Henderson (1964) as a basis for organising the learning experiences for student community nurses. The revised guidelines for the general three year programme produced in 1966 showed a similar theoretical orientation, only in this version humanistic concepts were grafted onto the existing body systems stem. A curious hybrid curriculum resulted that is still guiding teaching and learning in hospital schools of nursing in 1980. While basic

nursing education can be seen moving slowly from a knowledge base of scientific causality in the pathology era of the thirties and forties to an increasingly humanistic and interactional framework in the seventies, concomitant changes in the structure and practice of nursing are less easily identified.

Research Findings on Change in Nursing Practice

It is one thing, however, to believe that there is a causal link between improvement in knowledge and self-fulfilment through education and quite another to prove it, in terms of measurable change in nurse behaviours and hence to changes in patient outcomes. An examination of the rather small amount of reported research in this area shows a curious lack of unequivocal evidence of a clear relationship between an increase in the knowledge base for nursing practice and changes in either the quantity or quality of care received by patients.[1]

Georgopoulos (1975) and Abdellah and Levine (1973) both refer to an important study by Aydelotte and Tener (1960) which used work sampling methods to test the hypothesis that an increase in amount or an increase in the quality of nursing would improve patient care. This early attempt at outcome measurement in relation to nursing predated the more general published work of Donabedian (1966) which has since served as an important framework for later studies of this kind. Aydelotte and Tener used three wards as experimental units. One of these was given more staff, another a programme of inservice

1 See also the earlier discussion p.44.

education and a third received both more staff and more education. The fourth ward served as a control unit. The results of this experiment were inconclusive and these findings have since been supported by other studies which have shown that simple "enlargement of staffing does not result in an exponential increase in the volume or quality of patient care" (Georgopoulos, 1975). More importantly, for those advocating staff training as an important factor in improving patient care, the findings show no increase in either the quantity or the quality of care after inservice training. Aydelotte defends the validity and the sensitivity of patient care measures in a simple but explicit article published in Nursing Research, Winter 1962. Georgopoulos (1975) reports the replication of this study by Simon and Hudson in 1964 and both Abdellah and Georgopoulos comment that there was a replication of the result "no improvement in patient welfare was observed". It was thought that these results suggested that there may be "a limit to the contribution that nursing care can make to patient welfare". This would appear to be a simplistic view that does not appear to take into account other systems factors such as the personal characteristics of the people input, the structure within which they worked, individual differences in response to training, and organizational constraints in the process of delivering care to patients (refer Figs 1.3 and 7.1).

Where cause and effect can be clearly identified then research findings on the results of nursing interventions do seem much less equivocal. Specific aspects of practice can be related to specific

indicators of patient outcome. For example, Foster (1974) in a well devised study, shows the positive effect of interpersonal communication on patients prior to surgery by using the sodium/potassium ratio in urine as a criterion measure. Schmitt and Woolridge (1973) studied the effect of group counselling on patients for surgery by using criterion measures such as the need for pain medication and the degree of urinary retention. Patients who received this type of group preparation for surgery were reported as having slept better and experienced less anxiety the morning of surgery. They recalled more facts about their experiences on the day of surgery and their recollections less often involved fearful and unpleasant images. They experienced less operative urinary retention, required less anaesthesia, less pain medication, returned more rapidly to oral intake and were discharged sooner. Amborn (1976) studied the relationship between the amount of tracheobronchial secretions and the presence of clinical signs in patients who had a cuffed tracheal tube in place. In studies like these there is a clearly demonstrated relationship between "the medical process" as described by Donabedian (1973) and the outcome of the episode of illness for the patient. The problems begin when one starts ascribing this process to one particular group of health professionals, in this case nurses, and linking the process expressed as nurse behaviour to measurable indicators of patient outcome. It is this linkage which is taken for granted in justifying curriculum changes and the development for training programmes.

A British study by Julia Davies (1972) attempted to show a relationship between management training and hospital structure. She evaluated first line management training courses for ward sisters in the Manchester region, using a before and after research design with a structured questionnaire to collect data. She identified success in terms of the changes carried out in the work situation by the ward sister. Davies concluded that a number of factors limit course effectiveness, including the structure of the organization and the position of the individual within the structure.

The evidence seems to point to some sort of relationship between education and change in behaviour, (refer also the San Francisco School of Nursing Study) (p.44). But, it is difficult in practice to accurately select criteria which will act as the best or most suitable measures of change. Problems arise when a single direct relationship is assumed. Weiss (1976) discusses the problem of multiple variables in organizational observation. He points out that the mass of observations collected by a researcher in the complexity of an organizational environment makes it difficult for the observer, unless the data are organized by such a technique as multivariate covariation analysis. In situations such as those being described here, where it cannot be assumed that the criteria and predictor variables are directly related, then an appropriate multivariate technique for establishing and consequently predicting relationships between variables should be selected. This matter has also been discussed in Chapter 1 (pp.18-19), and at the end of the previous chapter where

the importance and impact of moderator variables is pointed out. This problem is of course avoided where descriptive studies of nursing and nursing organizations are undertaken. Examples of such studies in New Zealand general hospitals are the study of ward sister interaction in a public hospital (Kinross & Joblin, 1975); an account of a staffing experiment in nursing in a public hospital (O'Connor & Winitana, 1975); the study of the position of a staff sister in a New Zealand Hospital (Thomson, M. 1974); the study of the position of supervising sister in a New Zealand Hospital (Thomson, S., 1971); a study of nursing in three surgical wards (Dowland, 1975); a descriptive study of nurses and patients in a surgical ward (Thomson, Chick & Kinross, 1977); and the work life study published by King and associates (1980).

On the other hand, despite the difficulties with propositional studies, Georgopoulos (1975) cites a study by Linville and Hudson (1963) which outlined an educational programme in a California community hospital to teach nurses to "become skilled managers and evaluators of the care provided under their direction". This programme was also associated with reorganization of the structure of nursing service and with improvement in the technology (nursing service report forms used). Georgopoulos reports that "in the succeeding 18 months, patient satisfaction increased while room rates and daily charge rates remained stable, and a month-by-month reduction in average per patient cost was realised, not only in nursing but throughout the hospital". A recent study of a large metropolitan

hospital in this country (Salmond, Powell, Gray & Barrington, 1974), shows similar results. There is, however, an important difference in the category of outcome indicators used as criterion measures in these studies and those used in the study carried out by Aydelotte and Tener (1960). Outcome indicators such as average patient cost per day, and patient day stay can only be regarded as indicators of gross movement within the organization and cannot be related with any accuracy to changes in nursing. In addition, measures of patient satisfaction are notoriously unreliable. Moore and Cook-Hubbard (1975) compared the use of questionnaires and interviews in evaluating patient responses but found little in reliability difference. Marram (1973) reports a study in which she concluded that the most powerful factor to affect the reliability of patient evaluation was the visibility of the tasks to the patient.

These limitations on the reliability of outcome indicators such as patient satisfaction measures, precluded their use as criterion measures of nurse behaviour in the study being reported here.

However, it should be mentioned that some researchers see patient surveys and opinion surveys of staff as useful, if they are linked to an education and change programme for the organization. They then become part of the knowledge base on which the organization, and the individual people in it, develop their behaviour (refer Chapter 3).

A good example of this is the Wellington Hospital study in which Salmond et al. (1974) present their findings in the workshop format

in which the material was used as a basis for discussion with staff. In the case of the Wellington Hospital study, Salmond discusses the contribution of consumer research to the ongoing life of a hospital. He points out that in addition to identifying problems to be solved by management, the project highlighted communication problems within the hospital. Salmond quotes the work of Revans and the Brunel team in this connection. The approach of the Wellington researchers to their results, therefore, was to use them as a basis for workshop discussion and problem solving by staff, using the action learning model developed by Revans.

This "action learning" approach has been critically evaluated in "Changing Hospitals" edited by Weiland and Leigh (1971). In the introduction to this report, Revans describes the background and aims of the change model that was developed in what came to be known as the Hospital Internal Communications Project. This model links communication systems and learning processes in a curious chain of causality stretching from the senior medical staff to the patient. Revans (1971) states:

> the social mechanism is simple: if the consultants appreciate the suggestions of the ward sisters, or even seek them, the sisters will be anxious to have ready for those consultants the maximum information about the patients. To get this information, the sisters will encourage their nurses to discuss the patients with them. This, in turn, means that the nurses will tend to

> communicate more with the patients, and this communication will encourage the patients also to ask questions (p.4).

Revans links learning to this mechanism by defining it as a "feedback process, and it consists essentially of seeing the effect of one's own behaviour or getting the answer to one's question" (p.4). But, as Skipper (1965) and Corry (1978) point out, communication between nurses and patients is highly instrumental in character and is unlikely to lead to the type of learning conceived by Revans in this definition. Not surprisingly, the results of this action research programme were inconclusive, at least in terms of the gross measures of organizational outcome that were used to measure programme effectiveness, such as length of patient's stay. As in Wellington Hospital, however, there was evidence of useful "people" change as a consequence of using survey results as a basis for individual learning. Wieland and Leigh however, highlight the need in further similar projects for "a balance between cognitive/objective and emotional/subjective approaches" (p.389).

This comment by Wieland and Leigh (1971) recalls the comments by Payne and Pheysey (1971) which are presented in Chapter 2 of this thesis. Here, the importance of both objective and perceptual data in studying people and their environments is presented in Table 2.1. As already discussed, this need for balance between cognitive/objective and emotional/subjective approaches has been an important consideration in planning the design and methodology for both the empirical and propositional sections of this thesis.

It must be emphasized here, that, although the basline data was all collected before the planned intervention (training) programme took place, none of this data was analysed at this time. Nor was it presented to participants at any time during the data collection period. It must be stated, however, that general information about the organization, and the people in it did form part of the teaching/learning process of the training programme. In this thesis, training is seen as a means of cognitive and affective development for one selected group within the nursing subsystem of a hospital organization, rather than part of an action research approach. Although, in the light of the discussion above, it must be admitted that an element of this is present in this study.

CHARGE NURSES AS A TARGET GROUP

In 1976, the New Zealand Nurses Association produced a policy paper on post-basic education which seems to have influenced planning. This policy paper postulated a career structure for nurses, with teaching, clinical and management career streams. The implementation of such a career structure requires a number of changes in the organization of nursing services in hospitals and an increase in the autonomy and accountability of nurses who work in them. How can such change be achieved? It is possible that direction can come from above, but it is likely that resistance will be vigorous at the lower levels in the hierarchy. A developmental approach to such change

could be a profitable approach. Greiner (1967) proposes a scheme in which successful change depends on a redistribution of power within the organization through a process of development. He discusses the importance of shared power in which a number of people at different levels in the organization take part in diagnosis, problem solving and intervention.

Charge Nurses as Change Agents

Jacoby (1976) in an interesting article on the relationship between consumer and industrial psychology, considers the mutuality of the theoretical constructs developed independently by these two disciplines. In particular, he points out that consumer psychology has "drawn most heavily from the social psychological literature on attitudes, communication, and persuasion, while organizational psychology has traditionally focussed on the social psychological studies of leadership and group behaviour" (p.1033). He pinpoints opinion leadership as a phenomenon common to both areas, and points out that informal leaders in organizations, like opinion leaders in the community, "may be more receptive to organizational change than other organizational members and may, in many instances serve to facilitate the introduction and acceptance of planned organizational change" (p.1040). Moreover, he identifies opinion leaders as "much more active participants in the communication process than their followers both as receivers and transmitters of formal and informal communications" (p.1041). Jacoby then takes the obvious step of linking such change agents with the innovators and early adopters

described by Rogers (1962) and discussed here in Chapter 3 (p.50). Schein's (1968) definition that "innovation or the individual's influence on the organization will occur in the middle stage of the career at a maximum distance from the boundary passage", quoted on p.50 of this thesis is also useful corroboration of the argument at this point.

The groups, then, which have been identified as change agents and selected as the target for training for change are the charge nurses (ward sisters) of a nursing subsystem of a hospital organization. They would appear to meet the criteria described above and in the practical experience of the author, this group of nurses play a pivotal role in the organization. The role of charge nurses, and their behaviour in this role will now be discussed.

The Behaviour of Charge Nurses

Descriptive studies have been carried out on this group of nurses in a New Zealand setting. The work sampling study by Dowland (1974) shows that the ward charges of three surgical wards in three medium sized hospitals spent the majority of their time in activities described by Dowland as "administration". The majority of her time (60%, 55% & 62% respectively) was spent discussing patients with the nursing staff and doctors, writing reports, conducting report sessions and performing general clerical tasks". Dowland reports that the involvement of the ward charge in activities designated as technical, housekeeping and food related is minimal, and that, of all ward staff, she had the least contact with patients. These results are supported

by the study of a surgical ward at Southland Hospital by O'Connor and Winitana (1976) and by the ward interaction study by Kinross and Joblin (1976). The latter found that the ward charge spent 64.4% of her time in the ward office. A large proportion of this time was spent alone, working on clerical activities (26.42%) which these investigators classified as management type activities. In contrast, only 10.11% of the charge's time on duty was spent at the bedside of patients. Another interesting finding from this study related to the marked difference between the charges' perception of where they spent their time and the actual distribution recorded by observers. For example, one ward charge considered that she spent approximately 30% of her time in the office and 30% at the bedside. Observers recorded that she spent 66.15% of her time in the office and only 9.74% of her time at the bedside. This degree of distance between perception and reality, which was repeated to a lesser extent by the other four ward charges, can be explained on the basis of the difference between "what is" and "what should be" in acute institutional nursing practice.

Although the sample is very small (N = 5), some of the findings from the Kinross and Joblin study gave useful background information for the present study, particularly the finding that "a high proportion of the total number of interactions she undertakes during a working day are associated with overt decision making (62.19%) and two thirds of these are "clinical" decisions directly related to patient care" (p.63). In addition "a number of ward sisters" face to face with interactions are with nursing staff .... more interactions

are initiated by the ward sister than by the nurses (55.7% of total) and it follows logically that the highest percentage of interaction content is related to the giving of information by the ward sister" (p.64). The evidence is slight but it does point to the central role of the ward charge (sister) in an information network. This is supported by the activity sampling results reported by Dowland in "People in Hospital" (Thomson, Kinross & Chick, 1977). Dowland found that 62% of the ward sister's activities related to management, of which 45% consisted of such activities as contact with doctors, report writing and discussing patients. She continues: "while the ward sister has a small (6%) involvement in technical procedures, social support was recorded as taking up more time (11%) in the ward sister's daily activities. This recording lends weight to the observations already recorded that the sister is involved with much of the social (as distinct from physical) support in the ward and is centrally located in the communication network" (p.73). Thomson, Kinross and Chick (1977) discuss the role of the ward sister and state: "the giving and receiving of information is clearly seen as a centralised function of the ward sister and was located in the ward office, which was significantly known as "sister's office". This centralisation of knowledge can and also has been seen as centralisation of power and authority" (p.107).

A major part of the present research is to assess whether such a group of nurses, readily identifiable by reason of formal job category do indeed equate with the change agents/innovators/early

adopters postulated by Jacoby (1976) after Rogers (1962). If such a situation exists, then the adoption of innovations should be evident in the measurement of the charge nurses' practice and their knowledge of the innovations should appear in the written systems of communication which can be analysed and measured. This rationale has already been presented and discussed in Chapter 1, p.17).

The actual process of change, and the methods used for changing people and their behaviour in organizational settings still remain to be discussed (refer Fig. 1.3). These topics will be concerned in detail in Chapters 5 and 6.

CHAPTER 5

CHANGE AS A MODERATOR VARIABLE

In this chapter, particular attention is paid to social factors in the process of change. Here, the process of change and strategies for change are discussed. The importance of Chin and Bennes' (1970) normative re-educative strategy in the context of this thesis is re-emphasised. Models for organizational development are discussed in the light of their usefulness in explaining the diffusion (or lack of diffusion) of innovations in nursing organizations.

The Social System as a Factor in Change

If new ideas are associated with change, then the process of diffusion and adoption of these ideas is an integral part of the process of change. But, despite the fact that professional and friendship ties (Coleman, Katz and Menzel, 1966) appear, on casual observation, to exist between charge nurses in the same hospital, the diffusion of innovations in the structure of nursing service organizations, leading to the adoption of new methods of nursing practice seem to have been slow.

In fact, the hospital, as an organization, is remarkable for its stability and its sluggish response to change. Rosner's (1965) proposal of a relationship between administrative controls and innovativeness has already been discussed at length in Chapter 2, p.24 Georgopoulos and Mann, however, emphasise the importance of other factors.

In their study of the community general hospital these authors note the point that:

> while historical forces might account for the origins of the authoritarian characteristics of the hospital, it is not likely that some of the characteristics would continue to persist (especially within the context of a highly secular culture) unless they were more functional than not (p.307).

More importantly, they go on to make the point that the need to meet crises rapidly, perform well to meet the expectations of the users of the service, and meet medico-legal requirements has resulted in the hospital placing "high premium on being able to count upon and predict the outcome of the performance of its members". If this is true for a similar type of hospital in New Zealand, and it would seem to be, then the channel for movement to change in the hospital organization is probably narrow and well defined. That is, that change will tend to take place in those areas where "keeping up to date" is seen as important by both users and providers. It is probably not by chance that both Rosner's (1968) and Coleman's et al. (1966) studies were done in the area of innovation related to technology used in the health service, i.e. drugs. Here, both users and providers have expectations of change. On the other hand, the use of problem oriented records as a routine part of nursing practice in hospitals has not moved rapidly even though it has been the subject

of frequent publications. It could be that such an approach is not seen as contributing to the predictability of performance, an important factor in a highly visible occupation such as nursing. There are other factors, however, which would seem to contribute to the resistance to change. A characteristic which seems to be an integral part of the nursing sector of the health delivery system.

The Social System as a Defence Control Mechanism

There have been a number of studies which have looked at the functioning of the social system as a means of protecting people, particularly where they work in high stress situations. Revans and his associates (1971) looked at student wastage rates in five acute general hospitals in Lancashire in England[1]. These hospitals were selected on the basis that their total average wastage rate over a period equated with the national average (approximately 50%). But the five hospitals varied from 38% to 64% and were therefore graded by wastage rate as "very low, low, average, high and very 'high'" (p.55). From this wastage pattern, the team moved to a conclusion which was to be the basis of many studies by this, and other groups in the 1960's. That is (p.56) "that there might be organic qualities about the hospitals which might influence not only student nurses but other classes of nurses as well". Subsequently a concordant relationship was reported to exist between staff stability and patient recovery. An important factor in this was said to be

1 Also refer p.24 of this thesis.

the relationship between the ward sister and the junior student nurse, and, in turn, the relationship of the ward sister to the consultant. Although the measures used in this study are crude and the links made are too simple, the ingredients that are identified probably do have substance. Once again, the problem of simple versus multivariate relationships in a complex organizational setting becomes an important issue in generalising from this research. What is important, however, is that one is left with a feeling that the conclusions could be right, even if the logic of the reasoning is questionable. A view also held to some degree by Wieland and Leigh (1971).

In common with other studies (e.g. Georgopoulos and Mann, 1962; Coser, 1958; Thomson, Kinross and Chick, 1976), it would appear that the social system in an organization manipulates the behaviour of individuals in that organization by the control of information through formal and informal interaction and feedback mechanisms. A mechanistic view perhaps, but one which would seem to be in line with the findings of Coser's (1958) study on the relationship between role behaviour and social structure in a medical and a surgical ward. Here, the multiple lines of communication, authority and control in the surgical ward were linked with a more active role of the nurse in therapy, a greater capability for innovation, and a greater use of nurses' judgement, than in the medical ward. Coser, (1968), like Schein (1968) and Rosner (1968) views innovation as a function of the social structure, rather than an individual character trait. It could be, however, that innovative behaviour is enhanced or reduced

by a number of variables, including the social structure of the organization.

Coser (1958) poses the question of innovation or ritualism in nursing as a function of the social structure in which patient care takes place. One of the earliest studies of the effect of desired social change on nursing practice was carried out by Menzies (1960). Her case study of the functioning of social systems as a defence against anxiety is a classic of its type and is still widely used and quoted. In some ways, Menzies' approach to the study has elements of what has come to be known in the 1960's and 1970's as the O.D. (organizational development) approach to change. An approach described and discussed by such writers as Kahn (1974); Greiner (1967); Bennis (1969); Bowers (1973); and Blake and Mouton (1969).

Menzies' study was initiated by the teaching hospital (or group of hospitals) and as Menzies herself puts it "the research data were, therefore, collected within a socio-therapeutic relationship in which the aim was to facilitate desired social change". In a footnote to this statement Menzies comments on the process involved in the collection of data and its interpretation with senior nursing staff

> so that together we might formulate conclusions and plans for action. For them, this was a difficult and distressing process which required considerable courage. It challenged their personal and professional ethics, often led to their feeling personally and professionally criticised and seemed to point to directions of development that they found impossible to follow (p.95).

In the course of her research, Menzies defines and develops the central theme that members of this nursing organization have developed socially structured defence mechanisms, which appear as elements in the structure, culture, and mode of functioning of the organization. These include such familiar phenomena as splitting up the nurse-patient relationship by task assignment of work; depersonalization of both nurses and patients; denial of feelings by policies of "detachment"; the elimination of decision making by ritual task performance; reducing responsibility in decision making by checks and counter-checks; collusive social redistribution of responsibility; purposeful obscurity in the formal redistribution of responsibility; reduction of responsibility by upward delegation; idealisation and underestimation of personal developmental possibilities, and resistance to change. The last in this long list of diagnostic indicators can be regarded as the natural outcome of the rest. If Menzies is correct in her diagnosis, and if, for practical purposes, her comments can be generalized to the international population of nurses, then it should be possible to identify these socially structured defence mechanisms in other nursing organizations.

In the present research, given measurements related to the variables previously listed, it should be possible to identify these elements (or the absence of them) in a teaching hospital in New Zealand. Such mechanisms may not only exist but may operate in a similar way to restrict the possibilities for change in the organization.

The restriction in possibilities for change is compounded, when the changes in structure and practice, frequently proposed or experimented with in pilot studies, involve increasing the accountability and responsibility in nursing practice in hospitals by some form of nursing care delivery which involves an increase in personal contact between nurse and patient, and therefore an increase in decision making by individual nurses in the system. Much of the impetus for change is coming from North America and includes such approaches as team nursing (Jenkinson (1958); nursing process (Yura & Walsh, 1973); and primary nursing (Marram, Schlegel & Bevis, 1974)). Nursing process, with its emphasis on assessment, selection of alternatives, decision making, implementation and reassessment represents an application of the systems approach to nursing practice. Such as open system allows for creativity on the part of the individual nurse leading to innovativeness in nursing practice. That its adoption in New Zealand hospitals has been on the basis of isolated cases rather than as epidemic (Coleman, Katz & Menzel, 1966), points again to the relationship between the social system, and the organizational structure in the adoption of innovations. Ironically, this particular innovation bears within itself, the remedy for the "non-disease" of stability and resistance to change. Primary nursing (Marram, Schlegel & Bevis, 1974) is a more recent innovation which has been well described in overseas journals[1], and which is used as a specific innovation in the the planned change programme used in this thesis.

1 Refer Appendix J.10, Volume II.

THE PROCESS OF CHANGE

If innovation (the development of a new idea/product) is indeed a function of social structure (Coser, 1958: Menzies, 1960) as well as organizational structure (Rosner, 1965), then Scheins' (1968) concept of the process of innovation as "the influence of the individual on the organization" supplies a useful linkpin mechanism in this thesis. However, it should be noted that the "process of innovation" is consistently referred to here as innovativeness[1] (see Glossary and earlier discussion.) The two may not be synonymous, but for the purpose of this study the term innovativeness highlights the cognitive and affective components of the process of innovation. This process (innovativeness) is regarded as a necessary ingredient in the process of change. It is assumed, that for change to take place at all, it must always be present to a greater or lesser degree (refer to the discussion on Roger's concept of the relativity of innovativeness, (pp.49-50, Chapter 3 of this thesis).

Most humanistic discussions on a theory of change begin with Lewin's (1947) concept of a three stage change process: unfreezing, changing and refreezing. Schein (1973) uses Lewin's change model as a basis for identifying a series of psychological mechanisms involved in change. He has developed these in general terms (1970) and then applies them to the concept of management development. These mechanisms are based on the assumption that "the change target's significant behaviour, beliefs, attitudes, and values are organized around and supported by his self image" (p.99). Furthermore, Schein assumes

1. Also note the distinction between "innovativeness" and "innovative behaviour as defined in the Glossary.

that people present themselves differently in different social situations. In this assumption, he makes use of Goffman's work on situated activity systems and expressions of individual activity which are defined by Goffman (1961) as role distance. Goffman (1972) states:

> the term "role distance" is not meant to refer to all behaviour that does not directly contribute to the task core of a given role but only to those behaviours that are seen by someone present as relevant in assessing the actor's attachment to his particular role and relevant in such a way as to suggest that the actor possibly had some measure of disaffection from, and resistance against the role (p.95, my emphasis).

It is in this sense, that measurement extracted from the written nursing records (Kardex) is used in this study, to assess the charge nurses' "attachment" to the role of "innovator", (see earlier discussion p.78). Furthermore, Goffman adds the comment that "when the individual withdraws from a situated self he does not draw into some psychological world he creates himself but rather acts in the name of some other socially created identity" (p.107). It seems logical to argue that evidence of a high number of doctor-prescribed items in the Ward Kardex may be evidence of withdrawal of a particular charge nurse from the role of innovator to dependence on the medical profession for new ideas in particular, care and treatment. A change programme, therefore, should be related to perceptions of self and perception of the role of the charge nurse. An approach used in this thesis.

Schein (1970) defines the first step in the change process as the development of "alternate assumptions and beliefs through a process of cognitive redefinition of the situation (p.102)". This involves the process of openness to information which has already been established as a crucial factor in creativity (Schactel, 1959; Schweer & Gebbie, 1976). Such cognitive redefinition, Schein says, comes about through a range of processes, the extremes of which are identification, with its emotional involvement, and "scanning a multiple array of sources", a relatively objective process. In this he acknowledges the use he makes of Kelman's (1958) work in identifying compliance, identification and internalisation as three processes of attitude change. Schein, Goffman and Kelman all appear to share a common approach to change. That is, their theoretical position is based on the analysis of human processes rather than abstractions of reality. Kiesler, Collins and Miller (1969, p.330), in describing Kelman's work, state that his theory clearly implies that knowledge of how an attitude was acquired is the key to changing it effectively. That is, if one is familiar with the processes involved, then it is possible to change or perhaps reverse, the process. Figure 5.1 shows the process of influence and the mechanisms defined at each stage in the change process originally described by Lewin, and adapted by Schein.

Stage 1	Unfreezing:	creating motivation to change
	Mechanisms:	(a) Lack of confirmation or disconfirmation (b) Induction of guilt anxiety (c) Creation of psychological safety by reduction of threat or removal of barriers
Stage 2	Changing:	developing new responses based on new information
	Mechanisms:	(a) Cognitive redefinition through 1) Identification: information from a single source 2) Scanning: information from multiple sources
Stage 3	Refreezing:	stabilizing and integrating the changes
	Mechanisms:	(a) Integrating new responses into personality (b) Integrating new responses into significant ongoing relationships through reconfirmation

Figure 5.1 The Process of Influence and the Mechanisms Underlying Each Stage from Schein, E. "The Mechanisms of Change" in W.A. Bennis, K.D. Benne, and R. Chin, The Planning of Change. London, Holt, Rinehart and Winston, 2nd edition, 1970, pp. 98-107.

This particular model links usefully with Menzies' (1960) study in which the processes of the social system of nursing in hospitals are seen as the means of maintaining psychological safety in a highly stressful occupation. It therefore seems likely that unfreezing may take place if the change and/or the direction of the change is seen, by most people in the situation, as maintaining, or increasing their chances of safety. However, as Schein points out, the cognitive redefinition that takes place may be a defensive identification process, or a positive identification process which is person, rather than position oriented (p.105). The outcome from the first "leads to a more restricted ritualised, and stilted set of responses and attitudes". Scanning and positive identification, on the other hand, are regarded by Schein (1970) as involving more spontaneous, seeking behaviour, which leads in turn to further growth.

PLANNED CHANGE

Strategies for Change

Up to this point, or a little before, most of the discussion has been directed towards factors which can inhibit or facilitate the change process. In particular, change as a process has been examined in detail. It seems appropriate at this stage to elaborate on the idea of not leaving innovation to chance, but deliberately initiating a process of change in an organisation which can be monitored, outcomes measured, and data fed back into

the system to generate further adjustments and changes. Such an approach requires strategies of the type outlined by Chin and Benne (1970) in their paper "General Strategies for Effecting Changes in Human Systems". They base their proposals on the common element of "the conscious utilisation and application of knowledge as an instrument or tool for modifying patterns and institutions of practice" (p.33). Strategies are grouped within the three broad categories of empirical-rational, normative re-educative and power strategies.

The first approach is based on the doubtful premise that people are rational, and therefore given the facts by one means or another, they will change their behaviour. The persistence of the fluoridation controversy in New Zealand is an excellent example of the problems inherent in this approach. In other words, the processes of innovation, diffusion and adoption do not necessarily follow on, one from the other. A problem which has already been addressed at length in this thesis. Chin and Benne quote Clark's (1967) statement of faith in this respect. "Clark's earnest conviction is summed up in this statement: 'In a sense, the educational research community will be the educational community and the route to educational progress will self-evidently, be research and development'". If the argument can be translated into nursing terms, Ketefian (1975) has pointed out that practitioners have been slow to make use of research which would improve their practice. The study cited by her shows that only one registered nurse out of a sample of

80 made use of findings related to the correct determination of oral temperature. Kinross (1978) comments hopefully, "as outcome studies become more common, nurses will probably make more use of findings" (p. 7).

The second family of strategies described by Chin and Benne rest on assumptions and hypotheses which they see as contrasting with those underlying the empirical-rational approach. They use Dewey's reflex arc concept (1967) as a starting point and move on to Lewin's emphasis on "action research as a strategy of changing and participation in groups as a medium of re-education". A whole range of educational and training strategies can be included in this group. Perhaps the best known is the T (Training Group) which was an integral part of many planned change programmes in the 1950's and 60's.

The third group of strategies described by Chin and Benne (1970, p.52) are the power-coercive approaches to effecting change. Here, political and economic sanctions are important. This type of strategy can be identified in the planned transfer of mental health institutions to hospital boards, as a consequence of government regulations in a 1972 amendment to the New Zealand Hospitals' Act (1956). One consequence of legislated change may be confrontation between opposing political groups. In this case, the confrontation surfaced in the Report of the Commission on

Oakley Hospital (1971). The recommendations of that Commission would seem to have had far reaching effects on the development of psychiatric services in this country in the 1970's.

While Chin and Benne use knowledge as the pivot for change, Greiner (1967) is interested in examining organisation change from the dichotomous outcomes of success or failure. In a report on the survey findings of eight studies of organisation change, Greiner (1967) puts forward the tentative theory that successful change depends basically on the redistribution of power and further, that such a redistribution occurs through a developmental process of change. To some degree, the same kind of thinking can be seen in M.B.O. (management by objectives) strategies and in the more recent concept of matrix organisation (Kingdon, 1973). In another article concerned with the effectiveness of managerial grid training (Blake & Mouton, 1964) for 800 managers in the Sigma plant, Greiner (1967) puts forward the interesting proposition that "historical events established important pre-conditions which enhanced the ultimate effect of grid training" (p.52). He continues his discussion with the forthright statement: "without these prior conditions, it is entirely possible that grid training might have been a "flop" at Sigma"(p.53). He admits as a field researcher that in looking at history, he found it "immensely difficult to be "scientific", because the data were based on reflections, the variables were numerous and complex, and there was no control organisation to compare against Sigma's".

A familiar problem to all investigators doing research with human beings in an organisational setting. If Revan's (1971) uniqueness theory is correct, the probability is, that the process of change in one organisation cannot be accurately compared with the process in another[1]. Treatments to effect the change may be essentially the same, but the interaction of criteria (or process) variables will be different. It is argued further, that such a process and its outcome(s) cannot be replicated in the classical scientific sense and that different tests of scientific rigor need to be applied.

Barnes (1970) recognises these and other problems in his review of approaches to organisational change. He points out that organisational changes "involve multiple sets of complex variables whose identity, interaction, and impact vary from situation to situation" (p.79). He also makes the interesting statement that those involved in organisational change face an even greater problem of describing a dynamic process with a static language system. A problem appreciated by those who attempt to describe the findings of "action" (or hermeneutical) research in 'normal' scientific language developed often for non-human subjects in the laboratory environment. A language where the concepts of objectivity trials, subjects, reliability and validity imply situations in which all variables can be identified and controlled. This would seem to be an impossible task in a natural large group human setting, such as a hospital.

1 Refer section on 'organizational climate' Chapter 2, p.26.

Organisational Development

The limitations of the classical research model in the organisational setting have been demonstrated many times. Etzioni (1964) discusses the Hawthorne studies in this connection pointing out that these findings: "brought into question statements of classical writers that there was a simple and direct relationship between physical working conditions and rate of production" (p.33). This discovery of the significance of 'social factors' in producing a different outcome (increased production) is seen by Etzioni as a major finding of the Hawthorne studies. From these early studies (Roethlisberger and Dickson, 1939; Trist and Bamforth, 1951; Menzies, 1960) research and development in organisations has moved to the point where the combination of consultancy and action research is seen as a productive approach.

Margulies and Raia (1972), define the "emerging discipline", of organisational development, as "a systems approach to the total set of functional and interpersonal role relationships in an organisation" (p. 2). They consider that the interaction of the technical, managerial and personal-cultural subsystems in an organisation produce the "behaviour and role relationships that effect organisational output". This technique, then, is a logical consequence of the unexpected findings in early organisational studies that social factors are often crucial in determining the outcome of change. French (1969); Margulies and Raia, (1972) and

others have developed models for action research. These all show the characteristic pattern of shared definition of the problem; the collaborative involvement of management and the consultant in data gathering; the planning and programming of change by key executives with the consultant, and the feedback of data from and to the client group. Margulies and Raia (1972, p.120) point out that the action-researcher is at times a problem solver, and at other times he develops the problem solving capabilities of the client group. It is obvious that such an approach to planned change in organisations has provided a number of levels at which enthusiasts from a variety of disciplines can become involved. Among these have been the various proponents of problem solving educational and training methods, including survey feedback, T-groups, management by objectives, group management training and the more recent inclusive package variously labelled human resource development, human engineering or personnel management systems.

A recent well documented study of organisational development techniques is the Michigan ICL Study which was launched in 1966 by staff members of the University of Michigan's Institute for Social Research. Bowers (1973) describes the analysis of data from more than 14,000 respondents in 23 organisations in terms of the organisational development treatments that intervened between pre and post measures. Four 'experimental' treatments were used (survey feedback, interpersonal process consultation, task process

consultation, and laboratory training) and two 'control' treatments (data handback and no treatment) were compared to "determine their relative association with improved organisational functioning as measured by the Survey of Organisations questionnaire" (p.21). There were 16 indices of organisational climate, managerial leadership, peer leadership group process, and satisfaction. These measures of organisational functioning were obtained from repeated administrations of the questionnaire, ordinarily one year apart (Bowers, 1973). Bowers states that the questionnaire (Taylor & Bowers, 1972) has been subjected to extensive analyses and certainly the data on reliability and validity presented by Taylor and Bowers (1972) supports this statement. This is a well validated study with a reliable instrument (for specific content areas) and a large sample. It is reasonable therefore that the results can be regarded as a basis for prediction. A brief summary shows that the survey feedback and consultation methods were associated with significant improvement on a majority of measures but that laboratory training and no treatment were associated with a decline in organisational functioning. Perhaps the most significant result, however, is that organisational climate was identified as "a potentially extremely important conditioner of these results with Survey Feedback appearing as the only treatment associated with substantial improvement in this domain" (p.21). This finding would appear to support the much criticised work of Revans and the

Brunel team (Wieland & Leigh, 1971). It certainly supports the view that climate is an important factor in organisational change. It may well be a critical factor in the success or failure of change aimed at human performance. This proposition is examined in the context of the present thesis.

Kahn (1974) is critical of the large body of OD literature. He begins his article on problems and proposals in this field with the levelling statement that "advising people in power about how they can better attain their goals is a very old occupation. Organisational Development (OD), on the other hand, is a new label for a conglomerate of things an increasing number of consultants do and write about" (p.485). He is critical about the lack of scientific definition of the term itself and dismisses it therefore as a 'convenient label'. He maintains, probably correctly, that the OD literature contains a number of frequently recited slogans such as the advice that the "change agent" should "start at the top" of the organisation he intends to change. A slogan which certainly influenced the developmental process at Sydney Hospital reported by Grattan, Kinross and Morel (1972). Kahn is particularly critical of the central principle of participation which underlies all OD models. He ascribes this development to the Coch and French (1948) research on overcoming resistance to change. He argues that comparative data is not yet available which yields "separate estimates of the effects of identical substantive changes

generated under participative and non-participative conditions" (p.489). He admits that his needling approach is intended to be provocative of "movement" in the reader towards the "elaboration and strengthening of old theoretical formulations, for systematic test of old injunctions, for the refinement and extension of old empirical generalizations". It is not difficult to be impressed by his temerity in criticising the established tenets of the OD field, let alone his unusually well balanced prose. His clinching argument emphasising the need for a balanced approach in OD so that both structure and process elements are included, is one that is both necessary and convincing.

It is tempting to simplify a complex situation by reducing the variables to manageable dimensions. One way of doing this, as Leavitt (1965) points out is to categorise organizational variables into four interacting groups, task variables, structural variables, technological variables and human variables. Kahn (1974, p.957) claims that this scheme implies the separation of process and structure, and as such he finds it "misleading". But, a close examination of the Leavitt article shows that Kahn is using an apparent dichotomy as a springboard for his own unsubstantiated theory that structure has a special meaning in human organizations, and that there is an ultimate fusion of structure and process (p.497). He arrives at this end point by defining the structure of an organization as "the pattern of actual behaviours as that pattern is created and re-created by the human beings we call members of the

organization" (p.496). In his terms, structure is process, and process is structure. A pragmatic and colourful view, not helpful to the researcher.

Certainly, in a research environment of the degree of complexity of an organization, the artificial categorisation of variables into structure, process, outcome (Donabedian) or task, structure, technology and people (Leavitt) has the merit of encouraging the researcher to focus, rather than diffuse his effort. It could be, however, that in the organizational development context where the consultant (research, or change agent) is an integral part of the change, that he should be as Kahn (1974) states, more concerned with doing, and studying effects of treatments and their implications, rather than being hampered by artificial "terminological distinctions". It can be argued that Leavitt's (1965) interest in and support for the power equalisation models in organizational change does indeed represent a fusion of people and structural approaches in Kahn's terms, although Kahn himself seems to deny this (p.1154-1166). In the power-equalization model, heavy reliance is placed on the ideas of "self-imposed and collaborative change". As Leavitt (1965) states "self-imposed change solved the problem of commitment by avoiding the causes of resistance, and it solved the problem of the manipulative soft spot precisely because it was self imposed" (p.1165). In the present study, an interactive systems approach has been used. Within this, interactions between researcher, participants and the organization can be conveniently examined.

The Power Equalisation Model in Health Care Systems

The power equalisation model, with its humanistic core, is the basis for many change models in health care at the present time. Rodgers (1973) uses the three analytic models of change described by Chin (1961): the system model, the developmental model, and the model for changing. She makes the interesting distinction that in the first two models, the change agent is external to the system, and in the third, both systems and developmental models are fused to produce an emphasis on the forces that produce the change. In this instance, the change agent is "an active participant in the situation, playing the role of helper to the client-system". Rodgers (1973, p.171) states that planned change is distinguished from unplanned change on the basis of power. She further states that "a primary feature of planned change is equal power distribution, that is, shared deliberations and goal setting". It is natural that Rodgers should identify the equalisation of power as a crucial factor in change as she sees power as "a means of access to all other values". An extravagant statement perhaps, but one which she directs towards nurses, as a traditionally powerless group.

This powerlessness is not only related to the medical dominance factors identified by Friedson (1970). A study by Berkowitz and Bennis (1961), produced some tentative evidence that there may be factors within the nursing organisation itself which restrict open communication and hence, the sharing of power. Berkowitz and

Bennis (1961) suggest that the data on the interaction patterns of nurses working in outpatient departments show that:

(1) "the extent of the respondents' self-initiation is inversely related to the status of the other party (O), providing that peers are omitted as this closely approximates that with subordinates;

(2) O's status is related to the content of the interaction such that the transmission of organisational material is maximised with superordinates; interpersonal content goes more to peers than others, while task content is minimised with subordinates;[I]

(3) frequency of contact is inversely related to O's status;

(4) the importance and satisfaction with interactions are positively related to O's status" (p.429).

I Note: This latter finding is questioned in the discussion and certainly seems at odds with other research, although numbers of routinized tasks in nursing in particular settings may partly account for this. On the surface, this finding seems at odds with other research, e.g. Kinross and Joblin, 1972.

This interaction pattern of nurses in an outpatients' department is hardly a communication network in the sense used by the innovation theorists, and generalizations from this research can be used to explain, at least in part, the failure of the spread of innovation in nursing organizations. When this is added to the power distribution factor in planned change described by Rodgers (1973), Greiner (1967), Leavitt (1965) and others, it follows that any model for planned change in nursing organizations must involve change in both structure and process factors, which substantiates Kahn's (1974) view that the two cannot be separated in an approach to change. It seems unlikely therefore that a planned change approach using either the rational-empirical and/or the power-coercive strategies postulated by Chin and Benne (1978) will succeed in effecting planned change in the nursing sector of a health services organization.

It seems logical therefore, to explore the possibilities inherent in the normative educative approach to change provided that other restraining variables in the situation are acknowledged and their interaction effect identified in the outcome.

It has been the purpose of this chapter to highlight aspects of the process of change which are relevant to this thesis. Chapter 6 will discuss in detail, the process and consequences of a normative-re-educative strategy for changing the behaviour of people working in the organization.

CHAPTER 6

NORMATIVE - EDUCATIVE STRATEGIES FOR CHANGING THE BEHAVIOUR OF PEOPLE IN ORGANIZATIONS

In the last of these six chapters devoted to developing a rationale for the research reported and discussed in this thesis, short term teaching/learning programmes to change the behaviour of people will now be discussed. A variety of methods are described, ranging from "T-Group Training" to specific training in "management skills". The problems inherent in the measurement of change outcomes for people and organizations are presented. Finally the application of normative-educative strategies to health professionals and health care systems are described.

TRAINING STRATEGIES

T-Group Training and Laboratory Method

The "Organizational Development" movement provided a number of opportunities for human relations theorists to develop a range of 'people centred' strategies for effecting planned change. T-group training itself, fits well into a systems framework, with its central themes of dynamism and feedback. Bradford, Gibb and Benne (1964), describe the T (Training) Group as "an innovation in the technology of education" (p.1). But, as Bradford, Gibb and Benne point out, this educational technology "is more than this as it has its roots in a system of values relative to mature, productive, and right relationships

among people. It is grounded in assumptions about human nature, human learning, and human change" (p.1).

The T-Group approach to organizational change uses the central processes of experimental learning through feedback from group members in a here and now situation, and in an environment away from the normal work situation. The major distinguishing features of the T-Group are described by Golembiewski and Blumberg (1973): "it is a learning laboratory; it focusses on learning how to learn; and it distinctively does so via a 'here-and-now' emphasis on immediate ideas, feelings, and reactions. The process of its functioning can be said to be controlled by the dynamics of the interaction between group members, the personality and orientation of the trainer and the process of feedback of information about an individual's performance in the group setting" (p.5).

Lewin (1951) is generally given the credit for the initial impetus towards developing this approach to change. From his original work, and that of his associates (Bradford, Benne, Lippitt and others), developed the whole national Training Laboratory movement in the United States. The first historic session was held in Bethel, Maine in 1947. Bradford, Gibb and Benne (1964) who were involved from the beginning, describe a T-group as a group where "participants have the task of constructing a group which will meet the requirements of all its members for growth. Members have the opportunity to learn about themselves, about interpersonal relations, about groups, and about larger social systems. Trainers help to establish processes of data

collection, data analysis, and diagnosis of the changing here-and-now experiences of the group and its members" (p.viii). The learning technique has been a central feature of much organizational development work in the 1960's and early 1970's. Golembiewski (1972) describes the laboratory approach to organization development (OD) as a means of "continuous organization renewal", with a focus on "openness, trust, and shared responsibility. Their goal is to increase interpersonal competence via regenerative interacting systems" (p.113).

This approach then, became the cornerstone of a number of organizational development strategies used by management consultants and others in the last two decades. It contributes the components of knowledge of self, openness, trust, and sharing to the training programme developed for this research.

Management and Skill Training

In the New Zealand Hospital (May 1979), an unsigned article puts forward the principles of 'Management Training for New Zealand Hospital Board' - a nationally co-ordinated plan for the year 1979-80. The principles listed include such rubrics as:-

"Everyone on the staff who manages or supervises others, or who may do so, needs and is entitled to planned training opportunities to help him or her to manage effectively";

"The line manager is the basic trainer in any organization";

"Special training staff may support or strengthen these efforts through planned programmes; but this plan aspires

> to acknowledge, support and strengthen the exercise of that fundamental line management responsibility to develop staff competence" and so on (p.3).

This concept of training is very different from the dynamic change approach by Lewin and his associates. Here, training is seen as part of the necessary socialisation process in a static organizational structure. Golembiewski (1972) would define the two opposing views as the 'pull theory' and the 'push theory' (p.503). He uses Whyte's "The Organization Man" in his illustration of the 'push' theme of 'survival-of-the-fittest training programmes' and 'no harshness, no progress' point of view. An extreme expression of this polarity, as Golembiewski himself is an articulate supporter of the second, 'pull' approach. In this, Golembiewski (1972) states the individual "also scrambles and innovates and burns the midnight oil" but in this case, the actions are justified by the questionable statement: "the goal is dual: doing the job better, and doing it in ways that permit unprecedented personal freedom in organizations" (p.504). This 'pull' theoretical stance leads naturally on to the exciting, but largely untested concepts of the creative process (Rokeach, 1971) and the cognitive function of creativity (Bruner, 1971). The distinction here between creativity and innovativeness is not clear, but the intent of this collection of readings would seem to be similar to Schein (1970) and other theorists who discuss the process of innovation. Guetzow (1971) considers that the following three process factors determine whether an organizational environment will be provocative of creativity:

i) the way in which the organization handles its distribution of authority;

ii) how the organization's slack is used for error absorption;

iii) the manner in which the organization's communication facilities serve the innovation of ideas.

The question is then, are hospitals of themselves, necessarily and desirably, static organizations? Can the normally rigid organizational structure of a hospital provide a suitable framework for dynamic action by individuals within the organization, or indeed by the organization itself? That is, can a hospital ever fulfil the criteria of a creative organization?

It seems illogical that an organization can be at the same time both dynamic and static, but, in the case of a hospital this may well be so. There are areas where dynamic interaction needs to be restricted for patient or staff safety. Here, spontaneous innovativeness on the part of individuals may not be appropriate. Training programmes for nursing staff in operating theatres and intensive treatment units may need to be oriented towards identified knowledge and skills and the passing on of proven theoretical knowledge and techniques from one practitioner to another. In this situation, the statement of the Hospital Boards' Association (1979) has validity. That is, that the line manager is the basic trainer in the organization. But there may be other areas of the organization where application of Golembiewski's (1972) 'pull' theory seem more appropriate. In the

paediatric and geriatric wards, for example, the training methods used for nursing staff should feed into and promote a nurturing organizational climate. In those areas of the hospital where participation, problem solving and change are important, learning opportunities which stimulate openness, creative problem solving, and independent decision-making, should be used. Group training methods are most useful in this situation and can make use of both the T-group (or modified T-group) approach, the action research method and a variety of combinations of these. Here, the line manager may not be the best person to carry out training. It may be difficult to combine the information giving role of the charge nurse with that of teacher of creative problem solving. Such a development implies the processing of information and decision-making concerning patients by staff members other than the doctor and charge nurse. This is precisely the development required in the use of nursing process in the practice situation (Yura & Walsh, 1973). Primary nursing (Marram, Schlegel and Bevis, 1974) demands even more change from the charge nurse in terms of her traditional role. It therefore seems unrealistic to introduce these methods of nursing care delivery into a hospital unless the organization, or sections of the organization, have sufficient organizational slack for experimentation to take place.

Davies (1972) in her study of first line management courses for ward sisters concluded that "if management training is part of a general strategy of change, then ... it must take into account the organizational structure" (p.136). She is critical of the lack of

concern in present courses for the interaction between the organization and the individual. In particular she is critical of what she calls "blanket regional cover at first-line level" in courses which are "not designed to meet the specified needs of organizations". It is this lack of consideration for the interaction of a variety of organizational, personal and situational variables which seems to be a crucial factor in measuring the success or failure of programmes of training.

MEASUREMENT OF THE OUTCOME(S) OF A NORMATIVE - EDUCATIVE STRATEGY FOR CHANGE

Whether Golembiewski's (1972) "push" or "pull" approaches to training are used, or a mixture of both, the measurement of the outcome in terms of the production level and marketing ability of the industry is important. This relationship of input to output has been discussed elsewhere in this thesis (p.8, Chapter 1).

Fuchs (1973) an economist, considers that one of the greatest challenges facing the health service at present is the measurement of the contribution that the health industry makes to the economy. A particularly difficult task when the product itself is a statement of relativity and can only be defined in terms of people, their perceptions, acculturation and beliefs (Herzlich, 1973). McKinlay (1978) expresses this view even more forcibly when he states that all health projects supported by public money should be cost efficient, effective, and acceptable to the public in general.

These criteria arise from the premise that the control of variables, measurement and prediction are normal processes in health services. This is certainly true for medical treatments, particularly those with a large technological input. It certainly has not been true, for the 'people intensive' parts of the organization where use of self is the central therapy in health care, or where the service is supportive of the medical system, such as medical records. In addition, because the outcome for the patient (at least in hospital) is the result of a mixture of caring and curing services, the relative contribution of each person, each profession, and the consequent interaction affects of the wide variety of these and other variables are difficult to measure. This is, of course, the very problem identified by Ayedelotte and Tener (1961) and discussed in Chapter 4 of this thesis.

Research Evidence

Panther (1973), in a study of training in a hospital setting, asserts in his research hypotheses that there is a significant difference in a hospital's ability to achieve its objectives more effectively, and the degree of professional management training given to its employees relative to:

1) the emphasis on the work group, rather than the individual;
2) a high rate of interaction and mutual influence among work members;

3) high degree of participation in decision-making and control activities in the lower echelons of the hospital; and

4) if department heads and supervisors provide a high degree of supportiveness to subordinates.

Panther points out that this study differs from previous field experiments in that it tests historical theories in the new setting of the medical care field which lacks sufficient empirical evidence to test the validity of historical management theory. Panther (1973) uses a before and after design. Most of the correlational analyses are reported as statistically significant. More importantly, however, Panther concludes that the failure to achieve correlation in all areas was related to "unanticipated" changes in the hospital population. This difficulty in relation to criteria variables is usefully discussed by Ronan and Prien (1971) who point out the difficulties involved in moving from laboratory study to studies of real performance, whether these be individual effectiveness or global measures of organisational performance.

Measurement of change in human interpersonal performance is difficult, even in laboratory type situations. Lieberman, Yalom and Miles (1973) studied 206 students at Stanford University who wished to participate in encounter groups and randomly assigned them to 17 groups led by "experienced professionals". As a basis for

comparison, the researchers studied a control group of 69 students "who enrolled for the encounters but could not get in because of schedule conflicts". The experimenters used a before and after design, with a third measurement 6-8 months after treatment. The summary of the reported variations in effect is impressive, if only for the lack of predictability in outcome, even among groups using the same theoretical orientation. For example, for the members of the two Gestalt oriented encounter groups, the researchers reported changes in members, after six months, on the composite change index of + 1.1 and - 1.2. In the first group, there were: 0 dropouts; 0 casualties; 0 negative changes; 7 no changers; 2 moderate changers; and 2 high changers. Group members saw the experience as 'good in itself' and saw more opportunities for 'open contact with their peers'. The second group on the other hand, was recorded as the least successful of the 17 groups, with: 1 dropout; 3 casualties; 3 negative changers; 3 no changers; 2 moderate changers; and 1 high changer. Members were reported as placing more growth on self but their self esteem decreased, and they 'judged themselves' and others more harshly. Clearly, there are a number of variables involved here, including student input, and the theoretical orientation of the groups. Trainer, or leader influence could be one variable that needs to be explored.

Lundgren investigated trainer-member influence in T-Groups at early and later time points in seven weekend T-Groups. Lundgren reports

that trainers showed a strong and consistent tendency to under-estimate the favourability of member attitudes towards themselves. Joure (1970) also studied the influence of trainer style and participant personality on T-group change, using students rated as high or low on the dogmatism scale with eight treatment groups (3 groups with Lewinian trainer style, 3 with clinical trainer style, and 2 control groups). Although differential behaviour changes were recorded for high and low dogmatism subjects, the evidence of a differential effect of trainer style was not conclusive.

From these few examples, it appears that the selection of appropriate predictor, moderator and criterion variables is crucial in research into human performance. In order to examine the relationships within and between these groups of variables, it is necessary to place them within an appropriate global theoretical framework. In this thesis, an open systems approach has been developed for this purpose.

A TRAINING AND DEVELOPMENT PERSPECTIVE FOR HEALTH SERVICE MANAGEMENT

If humanistic principles and financial problems continue to pervade the health service, then it seems likely that greater effort will be made than at present, to develop the people resources in the system.

This emphasis on the importance of the development of human resources is underlined by Rubin, Plovick and Fry (1974).

In commenting on their work with a variety of health care organizations in the United States, they make the point that "these efforts have focussed on helping these organizations make better use of their human resources through programmes of management, development, organization redesign, and so forth" (p.197). The article "Initiating Planned Change in Health Care Systems" discusses the work of the authors in relation to community health care systems. They point out that "although the need for change was felt by many of the individuals in the health care systems in which they worked, they found that the organizations were often unable to respond to that need: resistance was high" (p.104). They point out, as does Menzies (1960) that health care organizations have high levels of uncertainty and anxiety, and that "a health care organization often demands concrete proof that a proposed change will or will not have certain effects". They advocate that "a consultant who wants to help health care systems may have to initiate the contact and essentially market, or create the need" (p.123).

The theory of human resource development can be regarded as one such marketing package. The contents of this package, as described by Scoville (1977) contain a number of variables, but central to this theoretical stance is the control of knowledge, and hence the distribution of power in health care delivery systems. Greiner's (1967) view on this has already been extensively discussed. Reiff (1974) adds another dimension by pointing out that the breaking up of the monopolistic control of knowledge by the helping professions,

"would inevitably result in the democratisation of knowledge and a new social contract between the professions and society" (p.451). Overtones of this democratisation concept are present in the shift to a human resource development perspective in the management of organizations. This perspective appears to take into account a number of the objections raised to the more traditional organizational development action research and management training approaches. Human resource development may well be too global in its approach and the number of criterion variables that could be generated for measurement could well create many difficulties in methodology. But, new theories call for new research approaches, and these may need to be developed before the best possible predictive data on human and organizational behaviour can be obtained and analysed.

Scoville (1977) offers six activities as possible components of an HRD[1] function within a health care institution:

1. patient education;
2. employee education and training related to hospital wide programmes such as safety orientation, patient relations and career development;
3. management training and development appropriate to the needs and philosophy of the institution;
4. organization development;
5. job development;
6. human resource accounting.

1. HRD = Human Resource Development.

The last, human resource accounting, is a concept which originated with Likert. It involves the translation of the human value of an enterprise into quantitative terms which can then be related to the more traditional statistical measures of the organization's activities.

This pragmatic and useful framework is in the early stages of development. Human resource development appears to be a natural extension of the normative re-educative approach to change developed by Chin and Benne (1970) and discussed in detail in Chapter 5 p 96 In this context, it places a strong emphasis on education as a means of changing people and training within a particular organizational structure. Further, it does make an attempt, albeit questionable, to measure the value of human performance in quantitative terms.

In its emphasis, human resource development is related to the study presented in this thesis. Here, training is presented as a process intervention interacting with the normal cognitive and affective processes of individuals and the structural and climate processes of the organization (see Fig 1.3 & 1.1). Within the training programme used here, a specific innovation (new idea), primary nursing, is introduced.

SECTION TWO

THE RESEARCH PARADIGM

In this section of the thesis, the design, methodology, and the procedures followed in the identification, collection and processing of data are described. The material contained in this section has application to the empirical study presented in Section Three and the experimental extension of the research described in Section Four.

CHAPTER 7

THE RESEARCH DESIGN

CHAPTER 8

METHODOLOGY USED IN THE STUDY

CHAPTER 9

PROCEDURE AND SETTING

CHAPTER 7

THE RESEARCH DESIGN

One purpose of this thesis is to examine the impact of new ideas in the context of the nursing organization of a general (public) hospital. In order to achieve this purpose, a variety of aims and goals have been selected. These have been stated, in one form or another, in the previous six chapters but they are presented collectively here as an introduction to the research paradigm.

AIMS OF THIS THESIS

In rephrasing statements in the preamble, it can be said that this thesis has four major aims. These are to:

1. examine the literature relevant to a hospital as an organization, and to nursing as part of that hospital organization;
2. present a comprehensive empirical analysis of the characteristics of charge nurses at work, which includes an analysis of the climate and structure of the nursing organization;
3. examine the effect of a planned intervention on specific aspects of charge nurse behaviour;

4. discuss the relevance of the results presented here, to nursing organization and practice.

In order to achieve these aims, the broad approach for this thesis has been depicted in Figure 1.3. This model has been used to structure the literature review and has been used as the basis for the statement of the specific strategies depicted in model form in Figure 7.1. p.131.

Concepts derived from systems theory have been used as a general framework for this model (Fig 7.1). In addition, a systems framework links the various theoretical concepts used in this research paradigm; and forms a basis for the discussion and conclusions. The justification for the use of a systems framework for a multivariate study of this type has already been presented in Chapter 1. Here, explanation of the model presented in Figure 1.3, p.20, is verbally reiterated:

> in general systems terms, the behaviour and characteristics of the people input (charge nurses) are modified by process factors relating to people and their environment, over time.

In order to examine the connections between the people input and these process factors, it has been necessary not only to choose an interacting framework (systems) but to select a series of variables for which measurements could be obtained. To this end, specific strategies have been followed, on the basis of a rationale derived from the review of the literature.

SPECIFIC STRATEGIES

These guide the selection of variables; the choice of measuring instruments; the identification of patterns among the variables; the examination of process outcomes; the choice of charge nurses as a target group and the way to plan and examine the time schedule outlined in Chapter 8.

Selection of Variables

The strategy for the selection of these has been drawn from the literature outlined in Chapters 2 to 6 of this thesis. The variables come from the following general areas:

1. Biographical Variables drawn from data related to the experience, age, and education of the people input to the project;
2. Psychological Variables have been selected from tests used to measure psychological information which may be related to the behavioural outcomes, (Chapters 1, 2 and 3).
3. Environmental Variables have been used which include both perceptual and objective measures of the environment (Chapter 2).
4. Behavioural Variables selected have been derived from objective and subjective measures of the behaviour of a group of people within the nursing organization (Chapters 3 and 4).
5. Time as a Variable has been derived from the longitudinal nature of the study and has been used as one of the means of examining apparent differences in behaviour in the subjects.

In discussing this strategy of selecting variables, the comments on the key aspects of the approach to a research paradigm are reiterated.

It is emphasized that this thesis is not centrally concerned with considering the structural, social and environmental aspects of the hospital organization in isolation from one another. It uses a global systems approach to examine the relationships between people and the health service organizations in which they work. This research paradigm gives due acknowledgement to the interactions between the individual, perceptual, and organizational systems that produce behaviour as a process outcome. A detailed listing and the definition of the variables is given at the end of Chapter 8.

Patterning of the Variables

In order to examine these interactions and their relationship to the selected process outcome, the patterning or clustering of variables is examined using the multivariate statistical technique of factor analysis.

Once the relationship between sets of variables has been established, it is then possible to examine selected representative variables (from the clusters) before and after the experimental intervention. This examination, which constitutes the third major aim of this thesis (refer p.124) is an extension of the baseline empirical study. As such, the findings serve to confirm and elaborate the conclusions reached at the end of Section Three (Chapter 11).

Before and After: Examining the Process Outcome

This strategy is used to examine the effects of an intervention (a planned change) in the normal workday life of the people input to this study. Innovativeness has been selected as the appropriate behavioural outcome to be measured.

As stated in Chapter 3, innovativeness, as an observable behaviour, is not only modified by biographical and psychological factors, but also by environmental variables which will vary along a continuum for both the individual and the organization. The present work not only examines the "normal" variables pertinent to innovative behaviour but also the variations that people can display in their levels of such behaviour before and after a planned intervention.

Innovativeness in the Nursing Organization

The choice of charge nurses as a target group for this change programme is justified in Chapter 4, where the importance of their pivotal role in the nursing organization is discussed. It is emphasised that one of the major thrusts of this research is to assess "whether such a group of nurses, readily identifiable by reason of formal job category do indeed equate with the change agents/ innovators/early adopters postulated by Jacoby (1976) after Rogers (1962). If such a situation exists, then the adoption of innovations "should be evident in the measurement of the charge nurse's practice" (p. 79, Chapter 4).

This identification of the charge nurse as the target group, from the literature, and the subsequent examination of their

behaviour leads to the development of an important set of variables. This development is based on the assumption that evidence of charge nurses' behaviour will appear in the written systems of communication they employ to regularly transmit information about patients and the associated nursing practice to other nurses working in the ward/dept/unit.

Examination of the Process of Change

Examination of the process of change has a particular relevance to the propositional extension of this thesis placed in Section Four. It is considered that it should be possible to identify social and organizational mechanisms for restricting and facilitating change in nursing organizations. The theoretical bases for these mechanisms are discussed in Chapters 5 and 6 of this thesis.

The planned intervention selected in the propositional extension is a planned normative - re-educative strategy which uses the dynamics of group process and authoritative leader input as part of the intervention. "Training" is presented as a process intervention interacting with the normal cognitive and affective processes of individuals and the structural and climate processes of the organization. As was stated in Chapter 3, p.51:

> if the movement of innovations is indeed a social phenomenon, then the enhancement of the social process through shared training experiences should be possible.

A MODEL OF THE RESEARCH PARADIGM

An integrated model of the research design is shown in Figure 7.1. The model is based on the relationship depicted in Figure 1.3, p.20. The concepts of people, environment, training, and time have been operationalized in earlier chapters (also see Glossary). The people data, collected by a biographical inventory and two psychological tests contributes 46 predictor variables to the study. The environmental data contributes 16 variables to the research design. This data was obtained from hospital records, interviews with subjects, and from an organizational climate scale administered to all subjects. The five criterion measures shown in Figure 7.1 contributed 36 variables. These five criterion measures allow assessment of both general and specific innovative behaviours.

The subjects examined in this study are charge nurses employed in two hospitals which are administered by one regional hospital board. This gives broad policy links in nursing administration which are relevant in Section Four. Two groups of nurses (A & B) are located in one large hospital (Beta) and a third group (C) work in a smaller hospital (Delta) in another town.

In line with the second aim, outlined previously (p.124), the first part of this research report (Section Three of this thesis), examines the empirical relationships between predictor, moderator and criterion variables using the multivariate procedure of factor analysis.

The second part of the report (Section Four) meets the third aim

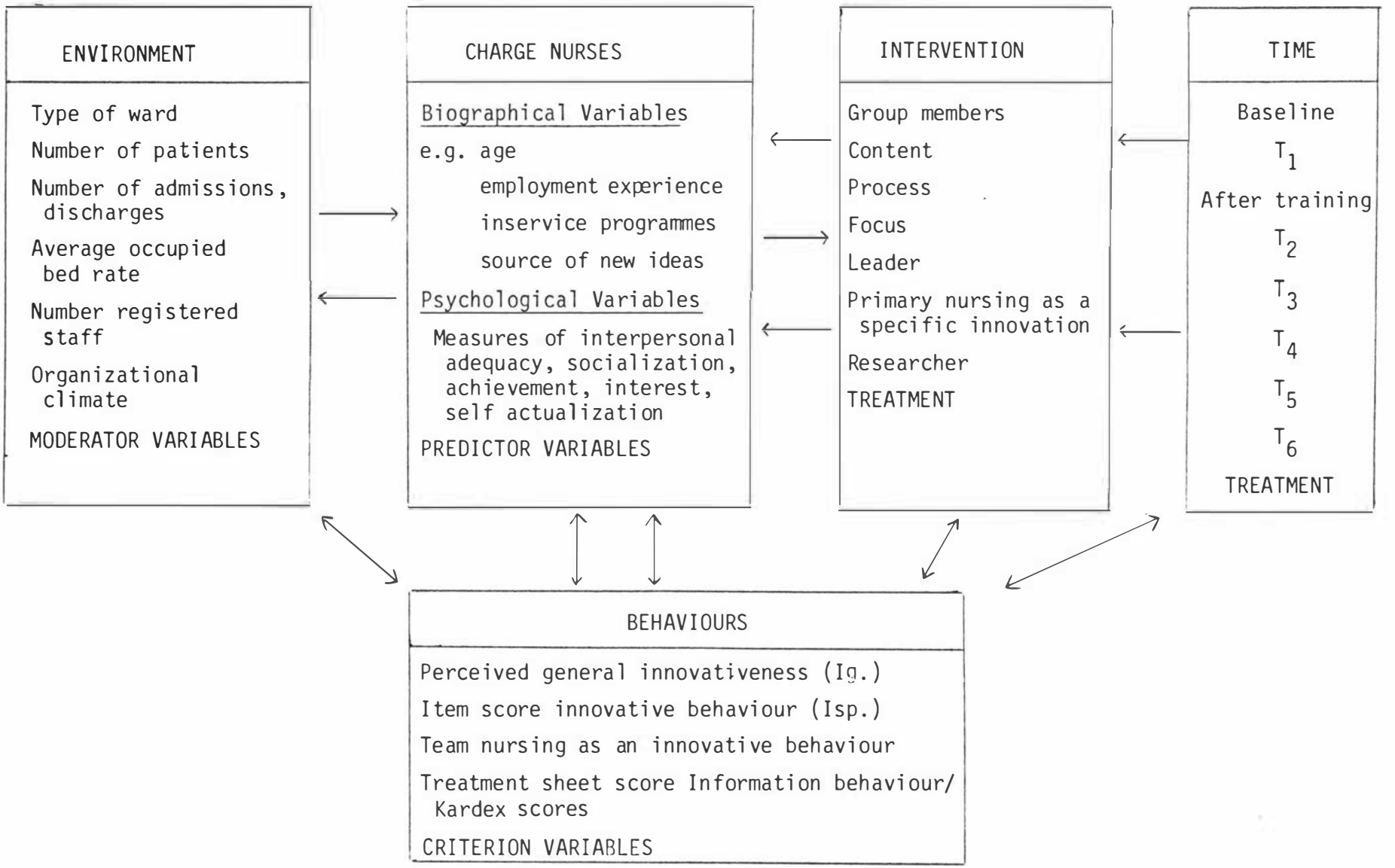

Figure 7.1 Innovative Behaviour in Nursing Practice: a design model.

(p.124) as it examines the measurement of change, and the direction of change, as functions of treatment and time. (Note that the specific concern of this thesis is not so much with the processes of the intervention, but to discover whether the training programme changes specific or general aspects of innovative behaviour (see Preamble p.2).

As indicated in Fig 7.1 the behaviour of the researcher is an integral part of the change process, and needs to be included as part of the design.

For the most part, the researcher's activities are planned and measured, albeit indirectly, as in the description of the intervention, Chapter 12. But it must be accepted, that in this type of research, the researcher is an integral part of the whole change process. In this case also, the researcher acted as the source of information on a specific innovation (primary nursing). Her place as an opinion leader (Katz & Lazarsfield, 1955) is acknowledged. In this sense, there is an element of action research in the application of information gained in the course of the collection of baseline data which did influence the direction and planning of the group training programme. This influence and its consequence is discussed in Chapter 12. Since the design was implemented and the data collected, an unpublished paper by Wallis and Cope (1979) on pay-off conditions for organizational change in the hospital service has become available. This paper outlines an action research programme in two psychiatric hospitals in which data-collection and feedback techniques were used. They also acknowledge the work by Revans (1964) in this connection.

CHAPTER 8

METHODOLOGY USED IN THE STUDY

In this chapter, details of the method used to implement the research design are presented, together with a brief description of the population of charge nurses who participated in the study. For the purposes of describing the method used in this research, the subjects are regarded as one population (system). As already described in the design (p.131), it is possible to consider this population in terms of three samples, or subgroups. These are of relevance in Section Four, and descriptions of these samples will be given there. The results for the empirical or descriptive aspects of the study (Section Three) are therefore based on the analysis of data from the total population (system).

THE POPULATION OF CHARGE NURSES WHO PARTICIPATED IN THE STUDY

A total of 58 nurses in charge nurse (or acting charge nurse) positions in two hospitals participated in the study. These hospitals are administered by the same hospital board and nursing policy is co-ordinated by a chief nursing officer through the principal nurses of each hospital. Of these charge nurses, 42 were stationed at Beta, a large metropolitan hospital of over 800 beds. The remaining 16 were located at Delta Hospital situated in another town some kilometres distant.

The main criterion used for the participation of charge nurses in this study was whether or not they passed on written information and instructions to staff through some form of ward/unit/department written report, such as a "Ward Kardex". The procedure followed by the researcher is outlined in Chapter 9 (p.153-156).

Of these nurses working in charge nurse positions: one reported that she was designated as a supervisor, 53 had the employment designation of charge nurse, and four were designated as staff nurses; 43.1 percent had never married, 29 percent were married and 6.8 percent completed the not now married or other categories on the biographical inventory sheet (Appendix C1); 26.7 percent of the sample reported that they were responsible for the financial support of others; and for 86.2 percent their job was their primary source of income.

The following tables show the general and professional levels of education achieved by these nurses.

Table 8.1 Frequency Distribution Highest Level of General Education Achieved Sample of Charge Nurses (N = 58)

Category	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Up to 3 years secondary but not school certificate	29	50.0	50.0
School Certificate	7	12.1	62.1
Sixth Form Certificate	11	19.0	81.1
University Entrance	8	13.8	94.9
Undergraduate diploma	0	0.0	94.9
Undergraduate degree	2	3.4	98.3
Postgraduate diploma	1	1.7	100.0
Postgraduate degree	0	0.0	100.0
	58	100.0	

Table 8.2 Frequency Distribution First Levels Professional Education Achieved Sample of Charge Nurses (N = 58)

Category	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Three year general (including maternity)	51	87.9	87.9
Three year psychiatric/ psychopaedic	1	1.7	89.6
Three year polytechnic	0		
None of these	6	10.3	99.9
	58	99.9	

Of the 58 charge nurses in the sample, 13.8 percent (8) reported postgraduate professional education at the University level and 44.8 percent reported no postbasic qualifications. Only 32.8 percent (19) out of 58 respondents reported membership of the New Zealand Nurses' Association. An interesting point perhaps if nursing relies on either postbasic education or the professional organisation for the dissemination of new methods in nursing practice.

These charge nurses work in a variety of situations within both hospitals. Charge nurses from operating theatre, accident and emergency, and the outpatient services were all excluded from the study on the grounds that they had little opportunity to work with patients on a continuing basis; that the consequences of their input into patient care would be hard to identify; and that, in

general, the structural context of their practice differed from nurses in charge of wards or special care units. This decision was supported by the difficulties that developed later in the study in distinguishing the individual nursing contribution and differences in the behaviour of charge nurses in delivery suite in the obstetric units of both hospitals. Table 8.3 presents the frequency distribution of the charge nurses' work location.

Table 8.3 Frequency Distribution Charge Nurse Work Location (N = 58)

Category	Absolute Frequency	Relative Frequency (Percent)
Medical	6	10.3
General Surgical	7	12.1
Intensive treatment	5	8.6
Orthopaedic	4	6.9
Specialist	11	19.0
Paediatric	1	1.7
Paediatric medical	2	3.4
Paediatric surgical	1	1.7
Obstetric	5	8.6
Obstetric intensive	6	10.3
Obstetric specialist	2	3.4
Geriatric	6	10.3
Hospital admin/school	2	3.4
	58	100.0

Of the total sample, 24.1 percent (14) have been working in their jobs for at least 24 months but less than 36 months. An equal number (24.1 percent) have been in their jobs less than 12 months. These are counterbalanced in part by the 18.9 percent (11 cases) who have been in the same job for 84 months and over. These charge nurses see themselves as directly responsible to a variety of superiors in the nursing hierarchy. The frequency distribution for this biographical variable is shown in Table 8.4.

Table 8.4 Frequency Distribution of Nurse Administrators to whom Charge Nurses are responsible (N = 58)

Category of Person	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Principal Nurse	23	39.7	39.7
Assistant Principal Nurse	5	8.6	48.3
Block Supervisor	9	15.5	63.8
Surgical Supervisor	4	6.9	70.7
Paediatric Supervisor	3	5.2	75.9
Obstetric Supervisor	13	22.4	98.3
Charge Nurse	1	1.7	100.0
	58	100	

The modal age range of the sample is between 30-34 years. The frequency distribution of N = 58 is given in Table 8.5.

Table 8.5 Frequency Distribution of age ranges, Sample of Charge Nurses (N = 58)

Age ranges	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
20 - 24 years	5	8.6	8.6
25 - 29 years	9	15.5	24.1
30 - 34 years	13	22.4	46.5
35 - 39 years	5	8.6	55.1
40 - 44 years	4	6.9	62.0
45 - 49 years	9	15.5	77.5
50 - 54 years	5	8.6	86.1
55 - 59 years	6	10.3	96.4
60 years and over	2	3.4	99.8
	58	99.8	

MEASUREMENT OF THE CHARGE NURSE POPULATION

Biographical information was obtained which served as a basis for the raw data input for the biographical variables of: age; marital status; education; financial support of others; employment designation; income; level of general education; level of professional education; number of job changes inside and outside New Zealand; number of staff training programmes; membership of the professional organisation; membership of health related and non-health related organisations; non-people sources of information; people sources of information; length of time in present employment; and category of person that the charge nurse considered she was responsible to in the work situation. Questions relating to these variables were included in the biographical inventory refer Appendix C1. Reported research by Dyer, Monson and Drimmelen (1975) on the relationships of biographical and personality variables to quality patient care influenced the collection of data in this section, particularly the questions on age and education. The work of Schein (1968) on the interplay between adult socialization and the influence of the individual on the organization, which he defines as innovation[1], prompted the questions on length of time in the job. Biographical data was also obtained relating to the diffusion of innovations as described by Coleman, Katz and Menzel (1966).

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1. More specifically (p.302) as the process of innovation (refer p.55 for detailed discussion).

The biographical inventory was pretested in a pilot study at Alpha Hospital before being used in this present programme of research. A brief summary of that pilot study is attached as Appendix I, Volume II.

Psychological information about the population of 58 charge nurses provides the raw data for the other section of predictor variables in the study. Again, the rationale for including these comes from the research of Dyer, Monson and Drimmelen (1975), but other studies also contributed to this decision. Pasnak (1968) in a study on fashion innovators used variables from the Personal Orientation Inventory[1] (Shostrom, 1966) to discriminate between fashion innovators and non-innovators on clothing attitudes. Whitsett (1967) looked at self-actualization and the modern formal organisation using the POI. Robertson and Myers (1969) studied personality correlates of opinion leadership and innovative buying behaviour using variables from the California Psychological Inventory[2] (Gough, 1965). Bowron (1963) also used the CPI in a study of creativity and psychological health, and Bouchard (1966) uses the same psychological test in a study of personality, problem solving procedure and performance in small groups (1966).

A. The Personal Orientation Inventory in the reprinted supplemented edition (Shostrom, 1972) contributes 14 predictor variables to the study. These are the scores on the scales for:

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1. Frequently referred to as POI.
2. Frequently referred to as CPI.

time incompetence/time competence; other directed/inner-directed; self-actualizing value, which measures the affirmation of a primary value of self-actualizing people; existentiality, defined as the ability to situationally or existentially react without rigid adherence to principles; feeling reactivity, which measures sensitivity of responsiveness to one's own needs and feelings; spontaneity, defined by Gough (1965) as the freedom to react spontaneously, or to be oneself; self regard which measures affirmation of self because of worth or strength; self acceptance; a scale labelled the "nature of man" which measures the constructive view of the nature of man, masculinity, femininity; synergy, measuring the ability to transcend dichotomies; the acceptance of aggression, and capacity for intimate contact.

Shostrom has developed sound evidence on the reliability and validity of the items in the POI scale which is set out in the revised edition of the POI manual (1972) used for the study being reported here. McLain (1970) reports on further validation of the inventory in an assessment of the self-actualization of school counsellors. Braun and Asta (1968) present evidence on the intercorrelations between the Personal Orientation Inventory and the Gordon Personal Inventory Scores. Shostrom and Knapp (1966) studied the relationship of POI and MMPI items and the wide variations in this analysis are well reported in the POI manual.

B. The California Psychological Inventory as set out in the revised edition (Gough, 1969) contributes 18 predictor variables to the study. Gough sets out these standard scales in four broad categories outlined below

Class 1: Measures of poise, ascendancy, self-assurance and interpersonal adequacy: dominance; capacity for status; sociability; social presence; self-acceptance; sense of well being.

Class 2: Measures of socialization, maturity, responsibility and intrapersonal structuring of values: responsibility; socialization; self-control; tolerance; good impression; communality.

Class 3: Measures of achievement potential and intellectual efficiency; achievement via conformance; achievement via independence; intellectual efficiency.

Class 4: Measures of intellectual and interest modes; psychological mindedness; flexibility; and femininity.

The revised CPI manual (Gough, 1972) presents considerable evidence on reliability and validity. One drawback with both scales is that much of the published work on the development of these scales is North American.

MEASUREMENT OF THE ENVIRONMENT

Organisational Information

This was obtained through interview, the objective analysis of existing records, and through the perceptions of charge nurses obtained from the Nursing Organization Opinion Inventory devised for this study.

A. The Ward/Unit/Department Interview

The researcher interviewed all charge nurses in their work locations in Beta and Delta hospitals in the week preceding the intervention. The schedule for this baseline interview is attached as Appendix C2. This interview technique was pretested and adjustments made in the pilot programme at Alpha Hospital earlier in the year. The information obtained at this, and subsequent four weekly follow-up visits (refer Appendix C3) has been used in two ways.

The data on the total number of staff, the number of registered staff, the number of patients, and the type of ward constitute some of the structural moderator variables used in the study to examine structural differences within and between three groups,(A, B and C) which are presented in section four. Data was also obtained from the hospital daily patient status sheets from which the average admission, discharge and occupied bed rates were calculated for each work location. In the case of charge nurses working in the obstetric delivery suites of Beta and Delta Hospitals, the radiotherapy department and hostel, the dialysis unit and in administration, this data was not able to be obtained.

A record of patient dependency was also taken but has not been used in analysing the data. A wide variety of definitions of dependency were used by the charge nurses, and a number of experiments with the classification of patient dependency were being undertaken in both hospitals during the time of the study. Under the circumstances, it did not seem to be a reliable indicator of structural variations in the organisation of nursing services.

The remainder of the information collected in the baseline interview and in subsequent visits has been treated as behavioural data. It has therefore contributed to the criterion variables in the study. The method of organisation and analysis of this data will therefore be presented with other behavioural material in a subsequent section of this description of methodology.

The collection of this objective data on the type of unit, number of patients and admission/discharge activity was prompted by studies such as that described by Kaluzny, Veney and Gentry (1974), who investigated the differential contribution of various organisational variables affecting the innovation of high-risk versus low-risk health service programmes in hospitals and health departments. Organisational size was found to be a critical factor in programme innovation. In addition, characteristics of the staff, such as cosmopolitan orientation and training were reported in the study as prime predictors for both high-and low-risk programmes in hospitals. As a consequence, questions relating to

changes in job and the number of staff training programmes were included in the biographical inventory. Marram's study on innovation in a North American Hospital (1973) also influenced this study as did Phaneuf's (1972) work on nursing audit.

B. Nursing Organisation Opinion Inventory

This inventory of twenty items on a seven point scale was developed for use in this study (see Appendix C4). Rosner (1968) indicates a clear relationship between administrative controls and innovation. It is therefore probable that perception of the climate of the organisation is an important moderator variable in the study of innovation. A charge nurse who perceives the nursing organisation as flexible and open, regardless of whether this is so or not, may well be more innovative than a charge nurse who perceives the organisation as rigid and authoritarian. Work by Georgopoulos and Mann (1962) and the Work Environment Preference Schedule (WEPS) developed by Gordon (1968) also contributed to the construction of items for the inventory.

The items in the Nursing Organisation Opinion Inventory were developed to test three conceptual dimensions:

1. perception of the nursing organisational structure
   (PNOS Score)
   Items 1, 3, 4, 5, 8, 10, 11, 13, 15 and 18;
2. perception of self in the organisation
   (Poss score)
   Items 2, 7, 9, 12, 14, 17, 20;

3. perception of the charge nurse's role in the organization

(PCNOS Score)

Items 6, 16, 19.

A high score on PNOS indicates perception of a liberal, non-directive, loose organization. It is hypothesised that this score should correlate highly with behavioural measures of innovativeness.

The items for this inventory were pretested in the Alpha Hospital pilot programme (see Appendix A). On the basis of this pretest, items 21, 22 and 23 were added to the original inventory. Responses to this section, however, were frequently not complete and these three items have been deleted from the analysis of data from Beta and Delta Hospitals.

MEASUREMENT OF BEHAVIOUR

Behavioural Information provides the data for input to the criterion variables used in this study. A variety of methods were used to collect behavioural data including: interview, observation, the analysis of Kardex records and patient treatment sheets.

A. Ward Interview: Data was collected pre and post-intervention at Beta and Delta Hospitals. All subjects were interviewed to obtain baseline data (used in Section Three) before treatment using schedule Appendix C2. Subsequent visits were paid to work locations to collect behavioural data using the interview schedule Appendix C3. Although the observation period was originally planned

from November to May (6 months), (see Appendix B1) the last observations were recorded in late July. However, constraints of time, and the data itself, has precluded the statistical analysis of the January and March time samples. For the analysis detailed in Section Four, all the data gathered in November (T1, T2, T3), December (T4) and February (T5) has been included together with sections of the data collected in the final visit in July (T6).

In January, a number of charge nurses from Beta Hospital were on leave and several wards were closed. The data from these visits has been analysed and will be used for comparative purposes in discussing the statistical analysis of time samples T1 to T6 which are presented in Section Four of this thesis.

The information recorded for the baseline data (Section Three) and in the subsequent interview schedules (Section Four) has been derived from two sources:

a) direct observation by the researcher;

b) responses from the charge nurse or acting charge nurse at the time of the ward/unit/department audit.

At the first baseline interview, structured open-ended questions were used and the answers recorded verbatim by the researcher. Each charge nurse was asked two key questions "What changes have occurred" and "What has stayed pretty much the same?" These questions were repeated at each subsequent visit to the ward, unit or department. It was assumed that the material asked for in the

baseline interview would set a pattern for responses in the future. Charge nurses were asked to keep a record of events that they thought would "interest" the researcher, and the two questions on change were asked to prompt recall of these events. Thus, bias in future responses (used in Section 4 but not Section 3) was assumed from the beginning and the subjectivity inherent in the researcher / change agent role,was also accepted as part of the research design.

The interview data were analysed using the technique of content analysis described by Holsti (1969). The logic for this decision, and the subsequent transformation of this data into a perceived innovativeness score, rests on arguments already presented, in the literature sections of this thesis. As discussed, (p. 55) Schein (1970) points out that the organization faces the problem of how to create an environment and a set of management policies which will not only get the task performed but which will stimulate creative thinking and innovation. Schactel (1969) is quoted by Getzels and Jackson (1970) as stating that adults who are creative are able to "encounter and perceive the new, that which transcends the label of his "patterned" experience be it in a new object or in an object encountered many times". Foshay's (1961) four criteria of the creative process, openness, focus, discipline, and closure also influenced the treatment of the interview data.

The responses from the ward interview were therefore treated as input to a general criterion variable, the perceived general innovativeness score, and analysed using Holsti's (1969) methodology.

The detailed coding schedule is included as Appendix G. The categories used to classify the content of these interviews were adopted from Leavitt's (1965) criteria of task, structure, technology and human approaches in organizational change. In this categorisation by theme; 14 task themes were identified; 9 structural themes; 7 technology themes; 9 human relations themes; time; change; researcher comment; and reference to the training programme. The themes were enumerated by the number of times the themes appeared in the interview notes, counting by phrases.

The total theme count arrived at by this method, for each subject, did not give a clear statement which could be used as evidence in the study of innovative behaviour. In collapsing this mass of data into one score, a number of themes had been included which were not associated with innovative behaviour. Consequently, the score was refined by summing the scores for categories concerned with specific aspects of nursing practice and ward management. These were:

patient dependency, work load score;

nursing care plans, patient history;

patient treatments;

philosophy and/or objectives;

research, trial, survey, study, development;

record keeping, reporting;

decision making, responsibility;

analysis of work;

reading, theory as basis for practice;

team nursing, patient assignment, primary nursing;

charge nurse, beginning/returning/leaving;

equipment;

furnishings.

These scores were then weighted by the negative : positive change ratio obtained from the theme counts for these two categories (f1 = negative change, f2 = positive change). The subsequent distribution of scores ranged from negative to positive. Hereinafter, this weighted score is referred to as the IPGSC (perceived general innovativeness score). This derived score is used in the data analysis to establish the ranking of each subject on a continuum of perceived innovativeness.

IB Ward (IBW)

In addition to the content analysis of the interview data, an actual item score was derived from the responses. IBW is the actual item score of innovative behaviour in the ward, unit, or department. It is derived from the changes specified by the ward charge and recorded by the researcher in relation to nursing practice, patient treatments, or allocation of nursing work. General hospital changes such as staffing (nursing, medical), pharmacy reorganization and the redistribution of patients were all excluded from this item score. This count of items designated by the ward charges and the researcher as innovative behaviour in the ward, correlates + .8306 with the derived score IPGSC.

IB Team N The final item that was extracted from the interview sheet as a specific entity was an item relating to team nursing. This score has been used as a criterion variable in the data analysis. The interview responses were inspected to see if team nursing was described by the ward charge or her deputy on first and successive visits to the ward by the observer. A question relating to this type of nursing practice was included in the baseline interview schedule. Responses were analysed on a 6 point scale included as Appendix H3.

The inclusion of this score enabled the researcher to gain some knowledge of the diffusion of an innovation within the nursing organization. Team nursing had been introduced to charge nurses in Beta Hospital around 1970-71. The Assistant Principal Nurse reported a succession of staff training sessions on the topic in 1974. A standard set of information on team nursing was available in the ward office at the time of the first orientation visit of the observer to three wards in September 1976. A selection of this material, including a definition of terms, the responsibilities of the team leader, team members, and the ward "sister", is included in Appendix I.

B. Patient Kardex

1. Nurses' Notes Georgopoulos and Jackson (1970) in their experimental study on patient units, point out that the "patient Kardex" is a major institutionalized source of important day-by-day information about patients and their care. Georgopoulos and Jackson

used the information they obtained from the Kardex entries of 764 patients to examine the behaviour of clinical nurse specialists and 'head nurses' in experimental and control units. They used 22 categories for content analysis of the data and also classified the statements obtained into descriptive and evaluative statements. The latter were further subdivided into statements classified as 'nursing directives' and 'unifying' statements.

In the present study, a number of alternative methods of studying charge nurse behaviour were considered and discarded. Reports by subordinates on changes in leadership style might have been helpful, but it seemed that the study already contained measures of perceived change, which were obtained directly from the charge nurses themselves. It was decided therefore to adapt the technique developed by Georgopoulos and Jackson (1970).

Innovativeness in charge nurses covers a broad area of possible behaviour changes. In order to confine the study within reasonable limits, it was decided that the innovations germane to this study would be those initiated or adopted by the charge nurse, and for which she was responsible. This logic lies behind the selection of the criteria for the IBW score described earlier. Georgopoulos and Jackson (1970) divide their 22 categories into 9 'nurse-dependent' categories (Items 1-9), and 13 'doctor-dependent' categories (Items 10-22). Therefore, if by definition innovations are restricted to those occurring in nursing then, if behaviour change in the ward charge is reflected in the written ward record, changes are more

likely to be observed in the 'nurse-dependent' than the 'doctor-dependent' items.

In this study all 22 categories (Georgopoulos & Jackson, 1970) have been utilized, with suitable modification, for a content analysis by theme (Holsti, 1969) of the Kardex entries. Each theme has been placed in a category and assigned one of three values; descriptive, prescriptive or evaluative. The definitions of the categories and the values are given in Appendix H1 and Appendix H2.

The researcher recorded verbatim complete entries from the nurses' notes on each visit to the ward/unit/department where the charge nurse subjects were working. These entries were taken from the Kardex of patients selected from a random number table on each occasion. In order to reduce bias to a minimum, the Kardex entries recorded were taken from those written on the morning of the day before the visit by the researcher. This precaution also increased the likelihood of recording items written by the ward charge herself or by the team leader while the ward charge was on duty.

The number of entries collected in this random sample varied according to the number of patients in the ward.

15+ patients ... 3 items were collected per visit

5-14 patients ... 2 items were collected per visit

1-4 patients ... 1 item was collected per visit.

2. Reliability of Kardex Coding Three judges, P. Q and R, were used to code all the Kardex entries. Each judge coded items from all the Kardexes included in the study. These judges were

registered nurses completing their theses for the Master's programme in nursing, Nursing Studies Unit, Massey University. An initial period of training of 12 hours was undertaken in which categories were discussed and the location and value of items agreed upon (refer Appendix J1 and Appendix J2).

A composite reliability coefficient (Holsti, 1969) was computed at the beginning and half way through the coding.

$$\text{Composite reliability} = \frac{N \text{ (average inter-judge agreement)}}{1 + ((N-1) \text{ (average inter-judge agreement)})}$$

Holsti, 1969, p.137.

Table 8.6 Average Inter-judge Agreement and Composite Reliability Scores

	Average Inter-judge Agreement		Composite Reliability Coefficient	
	T_1 A	T_2 r	T_1 A	T_2 r
Themes	0.96	0.94	0.99	0.98
Categories	0.84	0.75	0.94	0.90
Values	0.84	0.70	0.94	0.88

A high level of agreement exists between the three judges.

3. Criterion Variables derived from the Kardex Scores

A total of 31 behavioural variables have been derived from the Kardex coding of items into categories by theme and by value. A total of 4290 themes were coded. The first 9 of the categories used for coding (IBK1 to IBK9) could be said to represent the written

expression of charge nurse (and subordinate) behaviour that is concerned with observational and expressive aspects of nursing practice (Skipper & Leonard, 1965). The next 13 variables (IBK10 to IBK22) are related to doctor-dependent (Georgopoulos & Jackson, 1970) aspects of practice which are more instrumental than expressive (Skipper & Leonard, 1965). The subsequent 9 variables (IBKDESTH to IBKPREDR) have been derived from theme counts in these two broad categories and the values associated with them.

4. Analysis of the Kardex Treatment Sheet In addition to the nurses' notes written in the Kardex on the morning, afternoon and night shifts, most patients have a more permanent record, the treatment sheet (or blue card), kept for reference in the Kardex. The nursing experience of the researcher led her to believe that rating of this treatment sheet on a 7 point scale might yield useful information about the degree to which an innovation "team nursing" had been adopted by the charge nurses of Beta and Delta Hospitals.

Accordingly, each treatment sheet was rated on a seven point scale (refer Appendix H3). This scale was developed after the first orientation visit to Hospital Beta, where an inspection of the ward Kardex in three wards revealed a wide variation in the use of this section of the patients' records. The IBTS (Innovative Behaviour Treatment Sheet) scale ranges from a treatment sheet with classification detail only at one end of the scale to a treatment sheet which includes a nursing care plan and a nursing history rated at 7 on the top end of the scale. Plan and history are normally

associated in the literature (Yura & Walsh, 1973) with the successful implementation of nursing process. This, in turn, is an integral part of a case-assignment type of nursing practice such as team (as defined in this study), or primary nursing. The IBTS score actually included in the analysis has been derived from the modal score for the treatment sheets of the three randomly selected patients from the Kardex at each visit. That is, the same three patients for whom a verbatim record of the nurses' notes was obtained.

Description of Variables

The raw data obtained by the methods outlined in the preceding pages of this chapter, have been developed into 104 variables. The names of each variable and their descriptions are presented on pages 160 to 170 of this thesis.

ANALYSIS OF THE DATA

The Statistical Package for the Social Sciences (Nie et al., 1975) has been used for all analyses. Information on the distribution, variability, and central tendency of variables has been obtained and is presented where appropriate.

This study uses theoretical constructs to examine people in their natural environment. Figures 1.3 and 7.1 demonstrate clearly the complexity of such an examination. In order to reduce this complexity, the multivariate procedure of factor analysis has been used to examine the relationships among variables.

Cooley and Lohnes (1971), in the introduction to their text on multivariate statistical procedures, point out that such procedures can be used to fit linear functions to complexes of variables and to explain relationships between variables, as well as fulfilling the more usual role of statistics in hypothesis testing. Cooley and Lohnes (1971) describe the process by saying "in a young science the heuristic use of these procedures are far more important than the hypothesis testing uses (although the two uses are usually intertwined)" (p.5). Weiss (1976) sets out decision criteria for the selection of multivariate procedures pointing out the rationale, interpretations and limitations in each case.

In the study presented here, the multivariate procedure of factor analysis has been used to study the relationships of 67 predictor, moderator and criterion variables. The number of variables was reduced from 104 to 67, by excluding nominal variables from the procedure. The subprogramme FACTOR (using principal components) of the Statistical Package for the Social Sciences (Nie et al., 1975), has been used for the analysis.

In this study, oblique, rather than orthogonal rotation was the rotation method of choice. There were several reasons for this decision. In the first place, the method of factor analysis was chosen as a way of looking at patterns of relationships between variables, rather than for the function of isolating factors. As it turned out, nine clusters of variables were extracted from the principal components analysis. A summary of the possible

consequences of this finding has been included as Appendix I2.

In the second place, oblique rotation was selected because it could not be assumed by the researcher that the clusters were independent. Fruchter (1954) supports this decision in discussing the advantages claimed "by those partial to oblique axes", where he states "a number of measures, as they commonly appear in nature, tend to be related" (p.196). Cattell (1954) puts the case even more strongly. He states: "Orthogonality and positiveness are merely tidiness compulsions in the mathematical, but not scientific mind ... Factors in nature do not function in separate universes, but are likely to have some mutual influence and to be somewhat correlated" (p.210).

This argument is even more pertinent to the present work. In this case, the interest is in identifying clusters of variables, which takes precedence over the identification of new factors and their structure. Thus, while 'clusters' may correlate, this correlation is largely irrelevant to the present work, where the finding of the clusters is a major goal.

In this study, oblique rotation, using direct oblimin loadings was used to obtain pattern and structure matrices. Harman (1976) discusses this class of oblique factor transformations. This particular procedure allows a "primary-factor pattern to be obtained directly, without involving an intermediate reference structure" (p.320). The term 'oblimin' is derived from the involvement of oblique factors (clusters here) and a minimizing criterion. Other statistical manipulations involved in the methodology are described in Section Four.

Table 8.7 VARIABLES USED IN DATA ANALYSIS

Name of Variable	Description
ID	Identification number of case 101---199 Hosp. Beta 201---299 Hosp. Delta.
I P G S RANK	Rank of each case on perceived innovativeness score.
TRAINGR	Group in which training took place or did not take place. 1. Group A. (Beta) 2. Group B. (Beta) 3. Group C. (Delta)
MARSTAT	Marital status. 1. Never married (NM) 2. Married (M) 3. Not now married (NNM) 4. Other (O)
FINSUP	Financial support of others. 1. Yes. 2. No.
EMPLOYD	Employment designation 1. Supervisor 2. Ward Charge 3. Staff Nurse.
INCOME	Job primary source of income. 1. Yes. 2. No.
EDUCGEN	Highest level of general education achieved. 1. Up to 3 years secondary but not school certificate. 2. School Certificate 3. Sixth form certificate 4. University entrance 5. Undergraduate diploma 6. Undergraduate degree 7. Postgraduate diploma 8. Postgraduate degree.

Name of Variable	Description
EDUCPRO1	First levels of professional education achieved from a. Three year general (including maternity) b. Three year psychiatric/ psychopaedic c. Three year polytechnic. 1. Only (a) 2. Only (b) 3. Only (c) 4. a and b 5. None of these.
EDUCPRO2	Second levels of professional education achieved from a. midwifery b. post certificate course c. postbasic diploma 1. Only one qualification 2. Two qualifications 3. Three qualifications 0. No qualifications achieved.
EDUCPRO3	Highest level of professional education achieved from 1. (a) University undergraduate diploma 2. (b) University undergraduate degree 3. (c) Postgraduate diploma 4. (d) Postgraduate degree 0: No qualifications achieved. 5. Other papers stated. 6. Other.
WORKINNZ	Actual number of job changes as qualified nurse in New Zealand.
WORKEXNZ	Actual number of job changes as qualified nurse outside New Zealand.

Name of Variable	Description
INSERV	Actual number of staff training programmes study days and seminars stated as attended in last 3 years.
MEMNZNA	Membership of NZNA stated. 1. Yes. 2. No.
MEMHEORG	Actual number of memberships health related organisations, other than NZNA.
MEMOORG	Actual number of memberships other organisations.
INFORM	Sources of new information related to nursing practice normally used (other than people) Actual number of times F, VF or 0 entered.
INFORMP	Actual number of times F, VF, or 0 entered for people sources of information.
LOCAT	Work location (099 Left Hospital) 001 ---079 Hosp. Beta 080 ---095 Hosp. Delta
PATLOCAT	Actual number of patients on day of visit.
DESLOCAT	Description work location 1. Medical 2. General surgical 3. Intensive treatment units 4. Orthopaedic 5. Specialist (Gynae, Eye, ENT) 6. Paediatric 7. Obstetric 8. Geriatric 9. Hospital admin/teaching

Name of Variable	Description
	Main designation column 61. Sub designation column 62.
CHALOCAT	Change in work location since last visit of researcher. 1. Yes. 2. No.
DISLOCAT	Average number of daily discharges in work location in month of visit (including transfers).
ADLOCAT	Average number of daily admissions in W.L. in month of visit (including transfers).
AOBLOCAT	Average occupied bed rate month of visit.
STALOCAT	Staffing on day of visit (Actual number over 24 hours).
RSTLOCAT	Number of registered staff from three year programmes (or equivalent) employed in work location on day of visit (actual number) - including ward charge or acting ward charge. Hours of work not considered as a factor.
CARDNUMI	Data file card number.
	Social interaction variables from CPI scale. Actual scores.

Name of Variable	Description
	Class I
CPIDom	Dominance
CPICs	Capacity for status
CPISy	Sociability
CPISp	Social presence
CPISa	Self-acceptance
CPIWb	Sense of wellbeing
	Class II
CPIRe	Sense of responsibility
CPISo	Socialization
CPISc	Self control
CPITo	Tolerance
CPIGi	Good Impression
CPICm	Communality
	Class III
CPIAc	Achievement through Conformance
CPIAi	Achievement via Independence
CPIIe	Intellectual Efficiency
	Class IV
CPIPy	Psychological mindedness
CPIFx	Flexibility
CPIFe	Femininity
	Scores from POI self-actualisation scale.
POITI	Time incompetent lives in past or future.
POITC	Time competent lives in present.
POIOD	Other directed, seeks support of others' views, dependent.

Name of Variable	Description
POIID	Innerdirected, independent, self-supportive.
POISAV	Self-actualising value. Measures affirmation of a primary value of self-actualising people.
POIEx	Existentiality - ability to situationally or existentially react without rigid adherence to principles.
POIFr	Feeling reactivity Measures sensitivity of responsiveness to one's own needs and feelings.
POIS	Spontaneity. Freedom to react spontaneously or to be oneself.
POISr	Self Regard. Measures affirmation of self because of worth or strength.
POISA	Self-acceptance. Measures affirmation or acceptance of self in spite of weaknesses or deficiencies.
POINC	Nature of Man. Measures degree of the constructive view of the nature of man, masculinity, femininity.
POISY	Synergy. Measures ability to transcend dichotomies.
POIA	Acceptance of Aggression. Measures ability to accept one's natural aggressiveness as opposed to defensiveness, denial and repression of aggression.

Name of Variable	Description
POIC	Capacity for Intimate Contact Measures ability to develop contactful intimate relationships with other human beings unencumbered by expectations and obligations.
EMPLOYT	Length of time in present employment position by work location. 1. Less than 1 month. 2. 1 month to less than 3 months. 3. 3 months to less than 6 months. 4. 6 months to less than 12 months. 5. 12 months to less than 24 months. 6. 24 months to less than 36 months. 7. 36 months to less than 60 months. 8. 60 months to less than 84 months. 9. 84 months to less than 120 months. 10. Over 120 months.
EMPLOYR	Category of person case states she is responsible to: 1. Principal nurse. 2. Assistant Principal Nurse. 3. Block supervisor 4. Medical Supervisor 5. Surgical Supervisor 6. Paediatric Supervisor 7. Obstetric Supervisor 8. Charge Nurse.
AGE	Subjects ages in frequency ranges at time of first interview for project November, 1976. 1. 20-24 2. 25-29 3. 30-34 4. 35-39 5. 40-44 6. 45-49 7. 50-54 8. 55-59 9. 60-64 10. 65 and over.

Name of Variable	Description
PNOS	Perceived nursing organisation score derived from items 1, 3, 4, 5, 8, 10, 11, 13, 15 and 18 of Nursing Organisation Opinion Inventory.
POSS	Perceived organisational self score derived from items 2, 7, 9, 12, 14, 17 and 20 of Nursing Organisation Opinion Inventory.
PCNOS	Perceived charge nurse organisational score - role of ward charge in organisational structure derived from items 6, 16 and 19 of Nursing Organisation Opinion Inventory.
CARDNUM2	Identification number of second card for each case = 2.
IDI	Identification number of case 101 --- 199 Hosp. Beta 201 --- 299 Hosp. Delta.
IPGSC	Perceived general innovativeness score derived from content analysis of interview of case in work situation.
IBW	Actual item score of innovative behaviour in the ward, unit or department. Changes specified by the ward charge relating to changes in nursing practice, patient treatments, allocation of nursing work. General hospital changes such as staffing (nursing, medical, pharmacy etc) patient mix all excluded. Items related to meal service and drug round included.

Name of Variable	Description
IBTeamN	Team nursing as a specific item of innovative behaviour as described by ward charge or her deputy. 1. Implemented and going well. 2. Implemented but continuing with difficulty. 3. Implemented but discarded. 4. Referred to by ward charge deputy but never implemented. 5. Not referred to by ward charge or deputy. 6. Variable not applicable to this case.
IBTS	Treatment sheet score on 7 point scale. 1. No specific detail except classification categories of religion, name, diagnosis, address, doctor(s), age, hospital number, admission date and sex. 2. Classification categories plus routine delegated medical care e.g. medication, chest x-ray, physiotherapy and lab tests. 3. Classification categories, delegated medical care plus routine comments on nursing care e.g. bathing, bed/ambulation fluid balance, T.P.R. 4. Classification categories, plus delegated medical care, routine nursing care plus either a) social history or b) specific medical care and nursing care specific to patient e.g. play with toddler. 5. Classification categories, routine delegated medical care, routine N.C., specific medical and nursing care plus nursing care plan.

Name of Variable	Description
	6. All above plus nursing care plan changed daily. 7. All above plus, nursing history.
	3 items selected from Kardex. Modal score for the three items has been used for SPSS variable IBTS.
IBK	Innovative behaviour Kardex. 22 categories, 3 values per category.
	Categories IBK
IBK1	1. Functional status
IBK2	2. Physical care
IBK3	3. Psychosocial care
IBK4	4. Patient progress
IBK5	5. Patient participation
IBK6	6. Ability/disabilities
IBK7	7. Patient preferences/interests
IBK8	8. Pain
IBK9	9. Sleep
IBK10	10. Medications
IBK11	11. Patient diet
IBK12	12. Patient activity
IBK13	13. Blood pressure
IBK14	14. Weight
IBK15	15. Intake and output
IBK16	16. T.P.R.
IBK17	17. Treatments
IBK18	18. Specimens
IBK19	19. Tests and procedures
IBK20	20. Precautions
IBK21	21. Artificial drainage methods
IBK22	22. Artificial intake methods.
	IBK Theme values.
IBKDesTh	Actual number of descriptive themes.
IBKPreTh	Actual number of prescriptive themes.

Name of Variable	Description
IBKEvTh	Actual number of evaluative themes.
IBKNURST	Actual number of "nurse dependent" themes.
IBKDRT	Actual number of "doctor dependent" themes.
IBKEVNT	Actual number of evaluative values for the "nurse dependent" themes.
IBKEVDR	Actual number of evaluative values for the "doctor dependent" themes.
IBKPRENT	Actual number of prescriptive values for "nurse dependent" themes.
IBKPREDR	Actual number of prescriptive values for "doctor dependent" themes.

CHAPTER 9

PROCEDURE AND SETTING

In this chapter, the procedure followed in implementing the design and method is described in chronological sequence.

APPROACH TO THE ORGANIZATION

As a result of an initial approach (Appendix B1) to the Chief Nursing Officer of the hospital board, permission was given for the researcher to undertake a research study at Beta Hospital. Subsequently, interest from the Principal Nurse, Delta Hospital, prompted a modification of the original design to include another group: the 16 charge nurses from Delta Hospital. This has since proved to be a very useful decision which has added considerably to the richness of the data available for analysis and to the reliability of the conclusions that can be drawn from the data (see Section Four).

PHASES IN THE PROGRAMME OF RESEARCH

A detailed timetable of the research programme has been included in Appendix B2. A summary of the time sequences is presented in Fig 9.1. Of these sequences the first three have particular relevance to Section Three of this thesis, and the remainder, to Section Four.

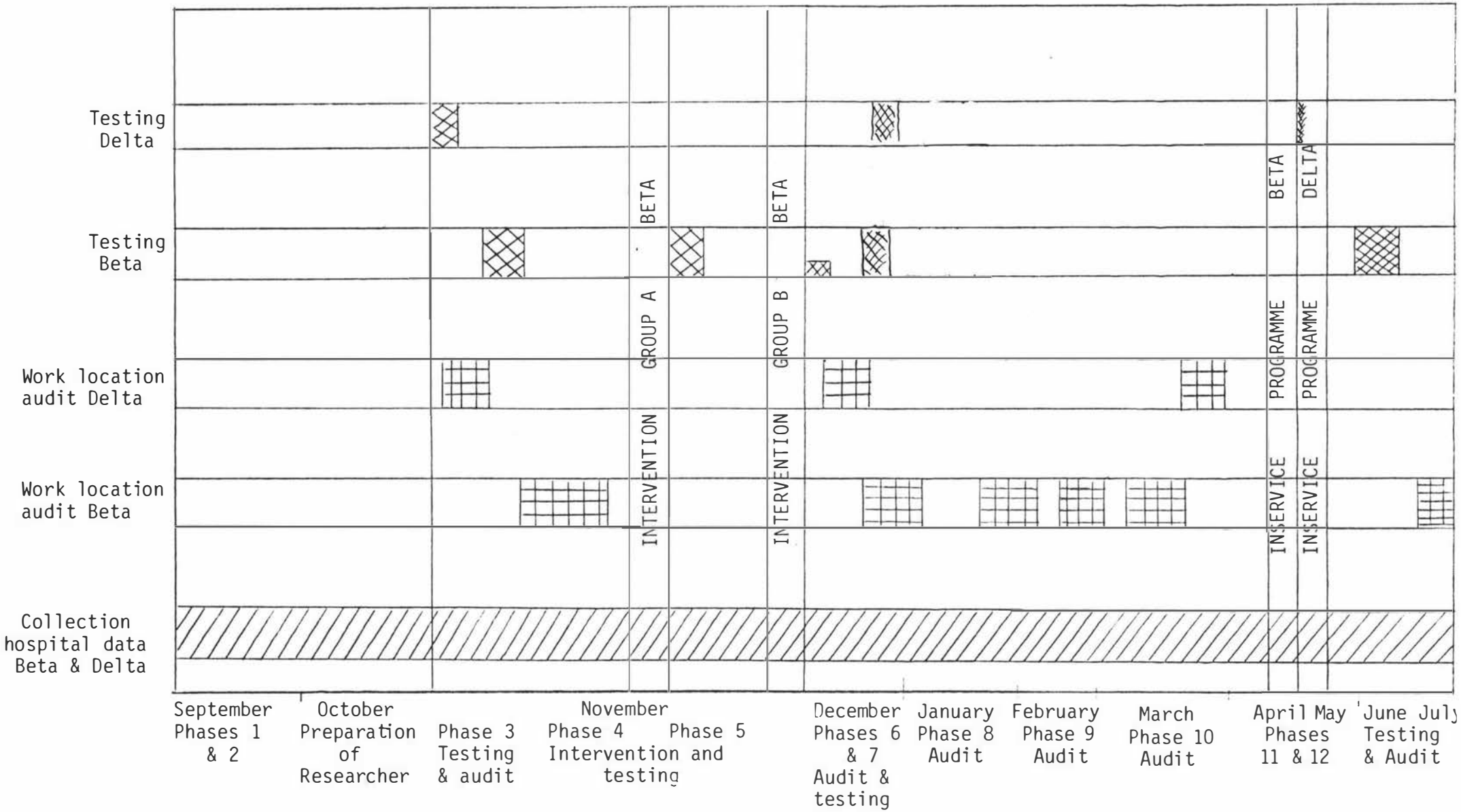

Figure 9.1 Time Sequences for the Empirical (Phases 1-3) and Intervention (Phases 4-13) sections of the study.

Phase 1 - Introduction (September 15th, 1976)

In this phase, the researcher met with the chief nursing officer, the Principal Nurse, Beta Hospital and with the Charge Nurses of Beta Hospital. An explanation of the project was given to these nurses who were meeting for a regular 2 monthly inservice education study day. The explanation included an outline of a research proposal in which the objectives were stated as follows:

> to examine and measure the relationships between the structural and training components of a hospital organisation, and the specific aspects of the work that charge nurses do.

A copy of the original research proposal made available to Beta Hospital is attached as Appendix B3. The amended programme of research made available to Delta Hospital is attached as Appendix B4.

It will be noted that the 'specific aspects' of charge nurse behaviour have not been identified as innovativeness. That this was the specific item of behaviour being examined was never discussed, as such, with the nurse administrators or the charge nurses. At this first meeting, however, the charge nurses were fully informed about what the programme of research would entail:

> regular visiting by the researcher to wards/units and departments;
>
> tests to be completed by the ward charges

approximately every 3 weeks from September to December or later;

one week inservice programme for all ward charges.

The response from the group ranged from reasonably accepting to enthusiastic response to the proposal.

The investigator was known to most of the charge nurses as a teacher and administrator in nursing. This undoubtedly helped their motivation to participate in a study, the data from which were to be used (at least in part) to fulfil the requirements of a Ph.D. thesis. The prospective participants were also informed that the results would be made available to them and that they would have feedback on the profiles obtained from the psychological testing.

Phase 2 - Orientation (September 24th, 1976)

Detailed information was obtained about the organisation of Beta Hospital from the nurse administrator. Orientation visits were made to one paediatric, medical and surgical ward. At this stage the variation in the application of the principles of team nursing was noticed. Patient dependency ratings were also kept in all 3 wards, and these also showed wide variations. All 3 wards had 12 nurses assigned over 16 hours (a.m. and p.m. shifts) despite differing work loads. It was also noted that trained staff gave out drugs to patients. These observations led the investigator to include the implementation of team nursing as a

criterion variable and to include the number of staff and description of work location as structural variables. Administrative staff agreed to retain the daily patient records of condition and progress for use in the study. Adjustments were made to the treatment sheet score scale at this time.

Phase 3 - Collection of Baseline Data (November 2nd - 7th)

Criteria for the selection of charge nurses to participate in the study had been given to the principal nurses of both hospitals during the Phase Two visit. Charge nurses working in the accident and emergency, outpatient and operating areas of the hospital were specifically excluded (refer p.134,Chapter 8).

At the beginning of Phase 3, lists of charge nurses willing and eligible to participate in the project were given to the researcher by the administrative nursing staff of both hospitals. The charge nurses at Beta Hospital were randomly assigned to one of two groups (Group A, with an inservice programme 8-12 November, or Group B, with an inservice programme 22-26 November). However, the realities of sickness, annual leave and patient needs, forced arbitrary changes in the allocation. Location audit and testing were carried out on all these charge nurses. The groups are only of relevance to Section Four of this thesis, but the procedure for the allocation has been included here for completeness. Descriptions of certain characteristics of Groups A (N=22) and B (N=20) from Beta Hospital and Group C (N=16, Delta), are presented in the opening pages of Section 4, where the intervention is described and its effects analysed.

Administration of tests. The California Psychological Inventory, the Personal Orientation Inventory and the Nursing Organizational Climate Inventory were all administered under supervised conditions to obtain the baseline information. This practice was continued in later testing, although one or two subjects who were on annual leave at the time of the group testing completed the tests in unsupervised conditions. A record was kept of these cases. Biographical information was also obtained at this time.

Baseline work location data (refer Figure (9.1). This was obtained for all subjects at both Beta and Delta hospitals in the week prior to the first inservice programme (intervention) for Group A.

Phase 4 - Intervention and post intervention (November 8th-12th & 15th-16th).

The planned intervention for one group of charge nurses was undertaken at this stage. A post-intervention testing (Nov 15th) was carried out at Beta Hospital (CPI, POI & NOI) on all the charge nurses.

Organizational location audits were not carried out in this phase, as it was thought that there had been insufficient time (a 2 day weekend) for any effect of the intervention to manifest itself. General information about the hospital and nursing organizations continued to be collected. This general information is presented in the last section of this chapter (pp 178 to 189).

Phase 5 - Second Inservice Programme (November 22nd-29th).

In this phase, a second 5 day inservice programme was carried out. This programme replicated all the content and events that had occurred during the other group programme. The CPI, POI, and NOI were administered to this group of nurses on the first weekday immediately following the end of the course. This followed the procedure for the first group, but did not include these first group of charge nurses in the testing.

Phase 6 (December 5-10th)

The organizational audit planned for Beta Hospital at the end of November was not carried out. Instead, location audits were completed for all 58 subjects between December 5th - 10th. Data was collected regardless of whether or not the charge nurse was present in the ward at the time of the researcher's visit. In addition, the CPI, POI, and NOI tests were administered to the 16 subjects at Delta Hospital.

Phase 7 (December 20th)

The fourth testing (CPI, POI, & NOI) was carried out on all 42 subjects at Beta Hospital. This completed the first post-intervention phase of data collection.

Phase 8 (January 6-12th, 1977)

Location audits were carried out, wherever possible, for all subjects at Beta and Delta Hospitals. Data was not able to be obtained on 12 subjects at Beta Hospital and 5 subjects at Delta Hospital. In some cases, wards were closed, in others the subjects

were on annual leave. In view of the amount of missing data, the January audit has been omitted from the data analysis except where the information obtained has been used descriptively in the presentation or discussion of results.

Phase 9 (February 11-14th)

Location audits were obtained for all subjects remaining on the staff three months after the initial audit, and the first training programme; three subjects had left the staff from Beta Hospital and one from Delta. Three further subjects had dropped out of the Delta programme as they were no longer in acting charge nurse, or charge nurse positions.

Phase 10 (March 17-20th)

Location audits were carried out at Beta Hospital. By this time, 5 subjects had left the staff. All the former geriatric wards had been closed, and the staff (and patients) relocated in new wards in a refurbished area of the hospital.

Phase 11 (April, 1977

At the request of the supervisors and administrative staff at Beta Hospital, a two day inservice programme was held on April, 12-13th. This programme followed the general pattern of the charge nurses programmes in November. The participants agreed to complete CPI, POI, and NOI testing schedules (results not presented in this thesis).

Phase 12 (May, 1977)

The staff at Delta Hospital, who had patiently acted as a control group (see Section 4), also requested an inservice programme. Location audits were carried out in May, as well as a testing programme.

Phase 13 (June-July, 1977)

Post-intervention testing and location audits were carried out on 28 charge nurses still remaining from the original sample of 42.

ORGANIZATION OF THE DATA

The method of organizing the data has already been described in detail. All the data from September to February inclusive has been used for the study reported in this thesis. Portions of the later time sequences have been included in Section Four where they are used to extend explanations or validate findings.

THE SETTING

Beta Hospital is a large metropolitan hospital. The average occupied bed rate at Visit 1 (September 15th) was 754 (including the obstetric beds). The hospital offers a complete range of general, psychiatric and obstetric services together with the intensive treatment areas of coronary care, intensive treatment and dialysis units. The nursing staff return for the month of March preceding Visit 1 is attached as Appendix D1. A total of 891 staff (full time equivalents)

were employed. Of these, 44 were in the charge nurse category. These figures do not include the qualified staff for the obstetric unit which totalled 20 full-time and 26 part-time staff who normally contribute between 16 and 32 hours each week. Of these, 12 were in the charge nurse category.

Figure 9.2 sets out the organizational chart by function and structure of the nursing service organization at the time of the first visit of the observer. The supervisors of Special units meet with the Principal Nurse once weekly. At this time, the first Assistant Principal Nurse was also responsible for staff training which was reported to be held on a regular 2 monthly basis with nurses from outlying hospitals also attending from time to time.

The hospital has imprest systems of drugs, linen, sterile supplies and intravenous equipment. A method of Ganymede food service had been implemented shortly before this first visit and dietary staff were reported to be responsible for meal service. Most wards have clerical, bathing and hospital aid assistance for a variety of tasks designated by the administration as non-nursing. The ward receptionists located in every ward (at least on the general side of the hospital) appear to carry a great many of the normal clerical tasks associated with running an in-patient care unit.

Staff selection is largely a matter for the Principal Nurse and her assistants. Applicants for the position of charge nurse are usually interviewed by the Principal Nurse and the appropriate head of the nursing department, to which the charge nurse is to be

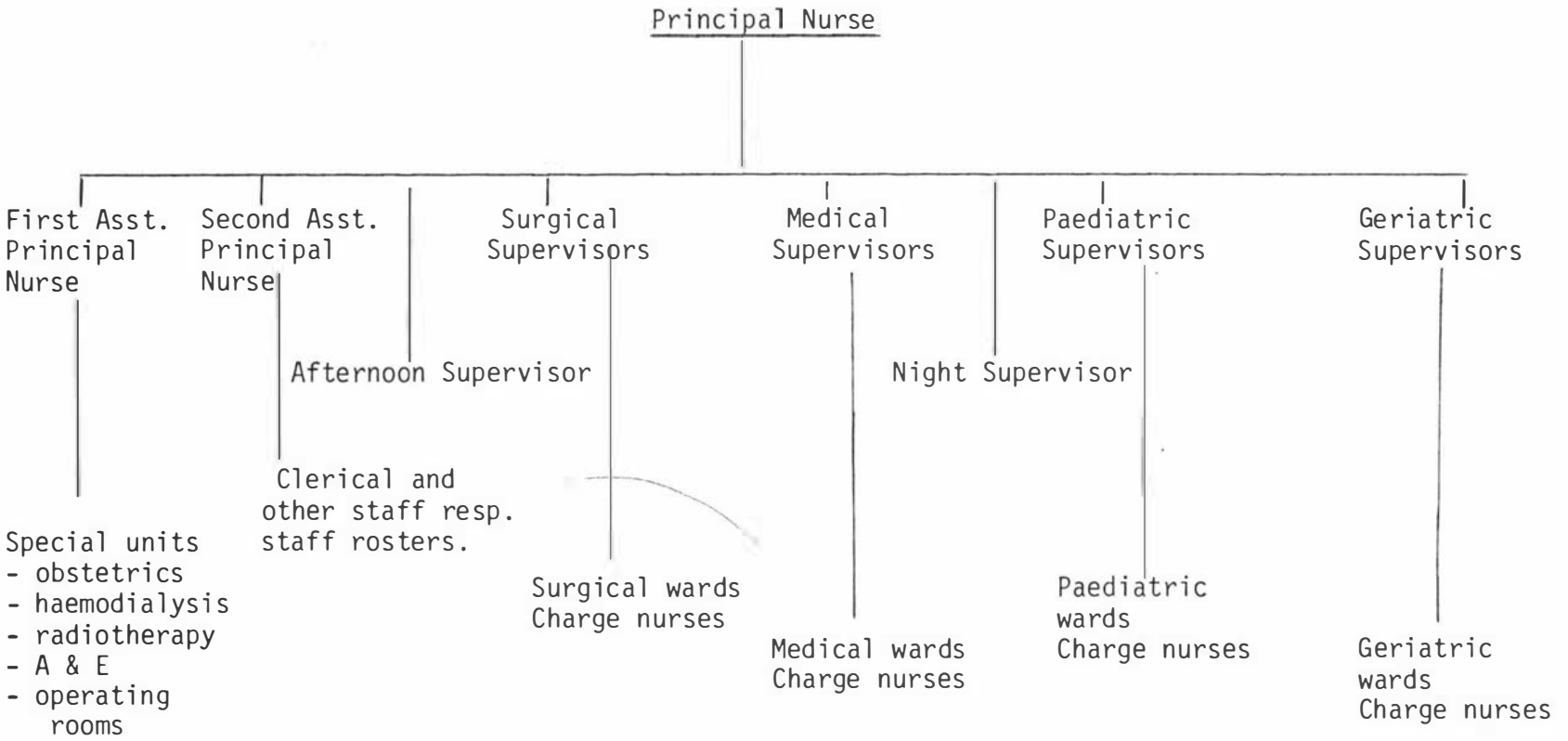

Figure 9.2 Structure of Nursing Service Organisation, Beta Hospital. (as at 1st Visit of Observer).

appointed. A job description for a surgical charge nurse is included (Appendix D3).

At the time of the first visit of the observer/researcher, the administrative nursing staff were asked to report on any activities, other than routine patient care / staff allocation / staff training activities which were taking place, or which were likely to take place in the hospital over the next few months. As with the charge nurses, the Principal Nurse and her administrative staff were asked to keep a record of any changes from one visit of the researcher to the next. The type of change was also not specified in this case.

Activities reported at this first visit are listed below:

- the Ganymede method of food service;
- 2 research studies by a member of the board office staff, and the Principal Nurse, in fulfilment of requirements for the Diploma in Health Administration
  a) measurement of nursing workload
  b) patient expectations and satisfaction in relation to nursing care
- development of a nursing index for paediatric wards;
- development of an evaluation schedule for charge nurses;
- investigation of methods of measuring patient care in surgical wards;
- evaluation of methods of patient reception in A & E Departments;

- two weekly charge nurse meetings (surgical wards);
- case conferences;
- visits of medical lecturers (e.g. gerontologist);
- national paediatric conference (November 14th-19th);[1]
- regular monthly meetings of administrative and charge nurse groups.

Nursing Administration

The nurses working in this area are divided into Team X and Team Y, together with groups of night and afternoon supervisors. The teams alternate weekends on day duty and are generally responsible to the Principal Nurse for the day-to-day running of the hospital. This organizational structure does not include the staff of the obstetric unit which functions largely as a separate unit. The 1st Assistant Principal Nurse, who leads Group X, is very interested in alternative methods of nursing practice and in staff training. This interest is reflected by the team in the comments of the ward changes in relation to the implementation of team nursing. The 2nd Assistant Principal Nurse, leader of Team Y, is responsible for staff allocation.

Both teams have a similar organization of the working day. At 8 a.m. the night report is read and staffing adjustments made in

1. Note: The timing of this conference resulted in the rescheduling of the second charge nurse training programme by one week.

patient units for sickness or high work load (as shown by dependency ratings). Each supervisor does rounds of her area during the day and compiles a daily report which is also used by the afternoon and night staff. This report includes information on:

deaths;

all acute admissions;

operating theatre patients;

seriously ill patients;

intravenous therapy;

under waterseal drainage;

bookings;

any change in condition;

non-attendance (of medical staff) following appeals for help. (refer Appendix D2)

The administrative staff were asked to keep copies of the daily admission, discharge and patient number forms, together with the used patient report forms.

On the obstetric side of the hospital, an interview with the supervisor in charge yielded the following list of changes and activities in the past 8 years:

- improvements in antenatal care;
- more sophisticated technology;
- opening of a midwifery school;
- caesarean theatre;

- demand feeding and bonding;
- increase in the use of phototherapy;
- reduction in perinatal mortality;
- building and equipping new women's hospital.

The obstetric unit supervisor reported a staff meeting weekly. This supervisor was at first reluctant to release charge nurses for a week long inservice programme. She cited work load, shortage of qualified staff, midwifery examinations and the need to cover delivery suite as reasons for non-release. However, as discussion developed, it proved possible to arrange staffing to release 6 obstetric charge nurses for Group A and 6 for Group B. Random selection of subjects was not possible under these circumstances. As this was the normal method of selecting staff for staff training, it seemed reasonable to include obstetric charge nurses on this basis. The consequences of this decision are discussed in Section Four.

At the second orientation visit (September 25th) some anxieties were expressed about the project and whether the charge nurses would benefit from participation. This anxiety was expressed through the supervisor group as the researcher had deliberately restricted contact with the charge nurses at this stage to the initial group interview and the orientation visit to three wards. The supervisors were anxious to tell of the changes over the past years. It was from this source that a great deal of knowledge was gained about the introduction and spread of 'team nursing' as a method of delivering care. By the third visit, 'team nursing' had been identified as an issue which could

serve as a discriminatory measure of innovativeness. It was therefore included (IB Team N) as a specific item of innovative behaviour in the analysis of the baseline data. Connected with this measure, but separate from it was the treatment sheet score (IBTS) which was also included in the analysis of the baseline data in Section Three, but which could also be carried on in the location audit measures over treatment and time.

In addition to the general information elicited from the nurse administration group over time, specific information was obtained from charge nurses, or their deputies during the location audit.

It should be noted that a non-directive method of interviewing was used to obtain the descriptive information presented in this section. Three statements were used by the researcher:

tell me about your job;

what has changed in the time you have been in your job;

what has stayed the same.

These questions elicited a variety of information. They were useful in that the non-directive method enabled the researcher to record those matters which were perceived by the charge nurse, or her deputy as important changes at the time of the visit. As a result, changes in nursing practice were recorded at the first visit, prompted probably by the more specific questions in the first interview sheet. At subsequent interviews, however, charge nurses related the matters that were really on their minds at the time. In the December interview, these were matters of medical and nursing

staffing rather than nursing practice. It was the use of this technique that allowed the researcher to discriminate so clearly between the changes perceived by charge nurses as important and those that really were associated with innovative behaviour nursing practice.

Delta Hospital is an urban general hospital of 362 beds. At the time of the first visit of the researcher (October 14th), the principal nurse had been in charge for 14 months. Since her arrival, she reports that she has been occupied with such matters as:

- establishing a basic pattern for the staff establishment;
- locating and defining problems in the patient care and support systems of the hospital;
- developing clinical experience plans for student nurses with tutors in the school of nursing;
- developing job descriptions for senior nursing staff;
- establishing a nursing service committee to look at problems and define policy (e.g. security of the delivery of medications to patients; trial scheme for dependency ratings) (Refer Appendices E1, E2, E3, E4 and E5).

Nursing Administration

The nursing service organization chart is presented in Figure 9.3. Staff allocation (as at Beta Hospital) is carried out from the central nursing administration office and is the special responsibility of the 2nd Assistant Matron. Staff training is not as well developed

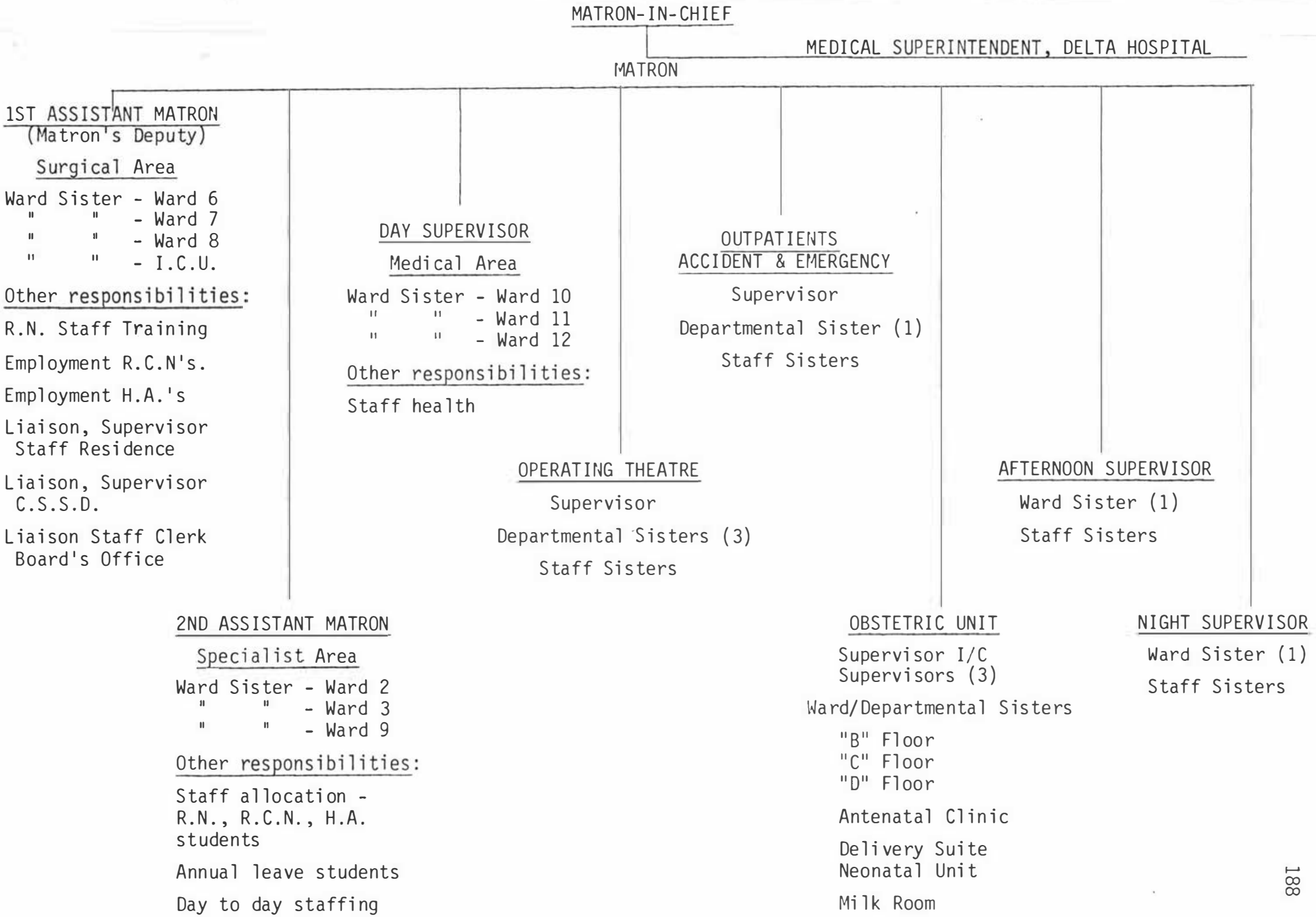

Figure 9.3 Structure of Nursing Service Organisation; Delta Hospital (as at 1st visit of observer)

as at Delta Hospital, although the monthly staff meetings with agenda and minutes appear to cater for both information giving by the principal nurse, and feedback on changes by the charge nurses. The Nursing Service Committee was certainly active during the eight month period of visits by the researcher.

In January 1976, objectives were set for nursing service in Delta Hospital for that year. These outline planning and policies in the areas of nursing administration, nursing service, nursing education and staff welfare. It should be noted that one of the objectives of forward planning was:

> to introduce a system of planned individual care by using the patient assignment method in the general ward area (refer Appendix E2).

Thus, both Beta and Delta Hospitals were in the process of changing their systems of delivery of nursing care to patients at the time this research was being caried out.

A new first Assistant Principal Nurse was appointed to Delta Hospital just before the programme of testing began. She had come from a hospital where primary nursing had been introduced to two wards.

The administrative staff at Delta Hospital were also asked to retain their working records on patient turnover for use in the project. This data was then developed into the structural moderator variables of number of discharges, number of admissions, and average occupied bed rate.

On the obstetric side of the hospital, an interview with the supervisor in charge yielded the information that, after two months in the job, she was concerned with:

- the social consequences of the position;
- understanding the dynamics of change;
- locating and defining problems;
- organising deliveries of imprest equipment (e.g. sterile supplies);
- establishing a patient assignment method of delivering nursing care to mothers and babies;
- redefining doctor-nurse relationships in the unit.

Again, the non-directive method of interviewing was used to obtain the information presented here in summary form. The Principal Nurse was asked (as at Beta Hospital) to keep a record of the changes that she considered important and to recount these to the researcher at the next visit. In this way, knowledge of organisational influences on the charge nurses could be extended beyond the analysis of available records. To some extent changes can be seen reflected in the data used for the perceived innovativeness, ward behaviour team nursing, treatment sheet, and perceived organisational climate scores. The amount of influence is, however, unknown although it is a recorded and acknowledged part of this investigation.

SECTION THREE

THE APPLICATION OF THE RESEARCH PARADIGM: AN EMPIRICAL STUDY

Here, perceptual and objective data are combined to produce a composite picture of the characteristics of charge nurses, including some aspects of their behaviour at work.

CHAPTER 10

A BASELINE ANALYSIS OF CHARGE NURSE BEHAVIOUR

CHAPTER 11

THE INTERPRETATION AND DISCUSSION OF THE BASELINE DATA

CHAPTER 10

A BASELINE ANALYSIS OF CHARGE NURSE BEHAVIOUR

In this section of the thesis, the clustering variables drawn from the individual and organizational parts of the design model (Fig 7.1) is examined using the multivariate statistical technique of factor analysis.

The linking of these two groups of variables follows the theoretical arguments set out in Chapter 1 which highlights the influences of Kohn and White (1976), Donabedian (1973), and Dunnette (1966) on the design of this research (Figs 1.3 and 7.1).

The choice of charge nurses as a target group has already been justified. It is the characteristics of this group that are now being examined. In Chapter 11, the key question already raised in Chapter 4, is discussed in the light of the clustering and correlations of variables presented here. This key question is:

> Does such a group of nurses, readily identifiable by reason of formal job category indeed equate with the change agents / innovators / early adopters postulated by Jacoby (1976) after Rogers (1962) [Chapter 4, p78].

If this is so, then it seems likely that evidence of the adoption of innovations should be obtainable from observation and measurement of charge nurse behaviour. As discussed (Chapter 8) this data has been obtained from the content analysis of baseline interviews, from

item counts of perceived change, and from the content analysis of written ward records (Kardex and treatment sheet).

Variables Selected for the Baseline Analysis

The 104 variables in the system file INNOVAT (Chapter 8) have been reduced to 67 for the multivariate analysis, using the following rationale:

- all nominal predictor and moderator variables have been excluded from the analysis;
- the 22 Kardex themes category variables have been reduced to 8 for the purpose of this baseline analysis. These 8 were selected because they most frequently occurred during the study (Chapter 10, p.195).

The predictor variables used in this empirical section of the study include the number of job changes since qualification inside and outside New Zealand; the number of staff training programmes undertaken; the number of people and non-people sources used for information about new ideas; the length of time in present employment; and age. 18 CPI variables and 14 POI variables are also included here.

The moderator variables examined here are derived from the organizational climate and structure (Fig 7.1). They include the three derived scores from the Nursing Organization Index (NOI) together with the structural variables of actual number of patients on day of baseline interview; average number of admissions by

location in month of baseline interview; average occupied bedrate of ward / department / unit in month of baseline interview; and the number of registered nursing staff (3 yr) on day of baseline interview.

The criterion variables used in this analysis, include the derived perceived general innovativeness score (Chapter 8, p.151); the number of items of innovative behaviour recorded at baseline interview; the team nursing innovation score; and the treatment sheet score.

It should be noted that the Kardex variables used in this analysis were those 8 that occurred most frequently during the total study. Tables 10.1 and 10.2 show the frequency, percentage distribution, and the ranking of the categories by theme in Beta and Delta hospitals. This evidence is offered here, as it supports the rationale for treating the 58 charge nurses as one population, which was outlined in Chapter 8 (p.133). Note that the theme value scores and nurse/doctor dependent scores have all been included. These have been derived from the total scores across the 22 Kardex categories.

Table 10.1 PERCENTAGE DISTRIBUTION OF CATEGORIES

BY THEME GROUPED DATA

	Beta Hospital %		Delta Hospital %	
1. Functional status	9.58	(268)	11.19	(167)
2. Physical care	8.22	(230)	10.05	(150)
3. Psychosocial care	5.82	(163)	7.17	(107)
4. Patient progress	8.54	(239)	7.24	(108)
5. Patient participation	1.29	(36)	1.61	(24)
6. Ability/Disabilities	1.43	(40)	1.14	(17)
7. Patient preference/ interests	0.11	(3)	0.07	(1)
8. Pain	1.46	(41)	1.67	(25)
9. Sleep	0.71	(20)	1.00	(15)
10. Medications	5.36	(150)	6.30	(94)
11. Patient diet	3.22	(90)	6.03	(90)
12. Patient activity	7.47	(209)	6.10	(91)
13. Blood pressure	2.21	(62)	2.48	(37)
14. Weight	6.36	(10)	0.94	(14)
15. Intake and output	8.33	(233)	9.85	(147)
16. T.P.R.	2.82	(79)	3.69	(55)
17. Treatments	7.15	(200)	5.56	(83)
18. Specimens	0.96	(27)	0.54	(8)
19. Tests and procedures	18.26	(511)	12.60	(188)
20. Precautions	0.79	(22)	0.94	(14)
21. Artificial drainage	1.68	(47)	0.80	(12)
22. Artificial intake	4.22	(118)	3.02	(45)
	100	(2798)	100	(1492)
		$\bar{x}$ = 127.18		$\bar{x}$ = 67.82

r = 0.93

Note: the numbers in brackets give absolute frequencies

Table 10.2 COMPARISON OF THE DISTRIBUTION OF CATEGORIES FOR TWO HOSPITALS BY RANK

	Hospital Beta	Hospital Delta
1. Functional status	2	2
2. Physical care	5	3
3. Psychosocial care	8	6
4. Patient progress	3	5
5. Patient participation	17	15
6. Ability/disabilities	16	16
7. Patient preference/interests	22	22
8. Pain	15	14
9. Sleep	20	17
10. Medications	9	7
11. Patient diet	11	9
12. Patient activity	6	8
13. Blood pressure	13	13
14. Weight	21	18[=]
15. Intake and output	4	4
16. T.P.R.	12	11
17. Treatments	7	10
18. Specimens	18	21
19. Tests and procedures	1	1
20. Precautions	19	18[=]
21. Artificial drainage	14	20
22. Artificial intake	10	12

$r_s = .99$

$t = 44.27, p < .001$

Thus it is extremely likely that these categories are associated in Hospital Beta and Hospital Delta.

VARIABLE CLUSTERS IDENTIFIABLE IN THE CHARGE NURSE DATA, BETA AND DELTA HOSPITALS

An analysis of 67 variables has been carried out using sub-programme FACTOR of the Statistica Package for the Social Sciences (Nie et al., 1975). Input is from the SPSS system file INNOVAT developed for this project (see Chapter 8).

Table 10.3 below presents the initial factors (variable clusters) extracted from the unrotated correlation matrix. Nine clusters were identified and these accounted for all the variability in the data.

Table 10.3 Initial Factor Matrix

(using Principal Factoring without iteration)

Factor (Cluster)	Eigenvalue	Percent of Variance	Cumulative percentage
1	14.26442	21.3	21.3
2	11.47671	17.1	38.4
3	10.09641	15.1	53.5
4	0.41229	12.6	66.1
5	6.39046	9.5	75.6
6	5.76395	8.6	84.2
7	4.57794	6.8	91.0
8	3.47541	5.2	96.2
9	2.54242	3.8	100.0

Because the interest here is in identifying clusters of variables (Chapter 9), oblique rotation, using direct oblimin loadings, Kaiser normalization, and Delta at zero, has been used to obtain pattern and structure matrices (see Nie et al., 1975). The complete matrices with 67 variables and 9 factors are presented in Appendix I1. Although correlations from the structure matrix have been included in the tables presented here, it is the patterning or clustering of variables which is the prime concern in this presentation. Deductions regarding the nature of the factors, based on inspection of the structure matrix, have been placed in Appendix K2.

The figure of $\pm$0.4 has been taken as the cut off point for the consideration of major loadings on variables and hence, for identifying the major patterning or clustering of variables.

Tables 10.4 to 10.13 show the loadings of the variables on each of 9 clusters identified on Table 10.3. These will now be examined in turn.

THE CLUSTERING OF SELECTED VARIABLES

An inspection of Table 10.4 shows that the highest loading occurs on the variable intellectual efficiency. Associated with this variable, are the CPI variables of sociability, social presence, and achievement through independence (all with loading above +.69). While the Kardex theme category of patient progress is positively associated with the CPI predictor variables, age is negatively related to this group of variables.

This particular cluster of variables together account for the highest percentage (21.3%) of variance in the data.

In summary, Cluster 1 represents measures of poise, interpersonal adequacy, and achievement (Gough, 1969) relating to the people input in the models depicted in Figures 1.3 and 7.1.

CLUSTER 1

Table 10.4 MAJOR LOADINGS OF VARIABLES (> ± 0.40)

	Variable	Pattern	Structure
	Number of job changes in NZ	-0.4082	-0.4823
	CPI Capacity for status	0.5764	0.6820
**	CPI Sociability	0.7126	0.7612
**	CPI Social presence	0.7151	0.7662
	CPI Sense of wellbeing	0.5878	0.6063
	CPI Sense of responsibility	0.5651	0.6378
	CPI Tolerance	0.5924	0.7238
	CPI Achievement through conformance	0.3555*	0.4862
**	CPI Achievement through independence	0.6987	0.4795
**	CPI Intellectual efficiency	0.9206	0.9438
	CPI Psychological mindedness	0.4601	0.5894
	CPI Flexibility	0.5227	0.6238
	POI Time incompetent	-0.5264	-0.5578
	POI Time competent	0.5455	0.5576
	Length of time in present employment	-0.5858	-0.6308
**	Age	-0.8557	-0.8996
	Perceived nursing organisation	0.5019	0.5700
	Kardex categories		
**	patient progress	0.6926	0.6152
	intake and output	0.5700	0.4432
	Kardex theme value prescriptive (nurse-dependent)	-0.3828*	-0.4618

Percentage of Variance = 21.3%

* These scores have been included to complete the cluster of variables.

** Variables carried forward to next chapter (see Table 11.1 p.239).

Table 10.5 shows the clustering of the POI variables inner other directedness, existentiality, spontaneity, and acceptance of aggression. The pattern matrix shows the negative relationship of the CPI variables self-control and good impression with this cluster of POI variables. The high negative loading on the Kardex theme category, physical care, is an interesting aspect of this pattern matrix which will be carried through into Section Four.

In summary, Table 10.5 shows a cluster of variables representing feelings and attitudes. These could be described as "person-perception" variables (Fig 7.1).

Table 10.5 MAJOR LOADINGS OF VARIABLES (> ± 0.40)

	Variable	Pattern		Structure	
	Number of job changes outside NZ	0.4026		0.4878	
	Sources of information (non-people)	0.4073		0.3989	
	Average daily admission	0.4173		0.4254	
**	CPI Self-Control		-0.6418		-0.6710
**	CPI Good impression		-0.6330		-0.7030
	CPI Communality	0.5079		0.5460	
**	CPI Achievement via conformance		-0.6132		-0.5957
**	CPI Femininity	0.6643		0.7549	
**	POI Other directed		-0.9359		-0.9345
**	POI Inner directed	0.9117		0.9201	
**	POI Existentiality	0.7435		0.7678	
	POI Feeling reactivity	0.3232*		0.4606	
**	POI Spontaneity	0.7370		0.7183	
	POI Nature of man		-0.4483		-0.3480*
**	POI Acceptance of aggression	0.7946		0.7889	
	POI Capacity for intimate contact	0.5567		0.5570	
	Kardex categories physical care		-0.8079		-0.8772
	patient progress		-0.3438*		-0.4493
	Kardex themes Number Nurse-dependent themes		-0.4185		-0.5012

Percentage of variance = 17.1%

* These scores have been included to complete the pattern of variables.

** Variables carried forward to next chapter (see Table 11.1).

The pattern and structure of the variables in Cluster 3 is shown in Table 10.6. This eclectic pattern shows relationships between biographical, psychological, organizational climate and Kardex variables. This factor pattern highlights the relationships discerned from the unrotated correlation matrix (refer Appendix I1). That is, the relationship between the POI variables of time competence and self-acceptance, the Kardex category of artificial intake methods and the number of descriptive themes in the Kardex. The negative cluster of POI time incompetence, POI self-actualizing and prescriptive nurse dependent themes should also be taken into account. In summary, this cluster represents aspects of the interrelationship of biographic, psychologic, and organization variables (Fig 7.1).

Table 10.6 MAJOR LOADINGS OF VARIABLES (> ± 0.40)

	Variable	Pattern		Structure	
	Number of job changes in NZ	0.5053		0.5623	
**	Sources of information (people)		-0.5867		-0.4983
	Number of patients in ward		-0.4012		-0.4421
	CPI Dominance		-0.4978		-0.4250
	CPI Social presence		-0.4162		-0.4730
	CPI Self-Control	0.5049		0.4973	
	CPI Femininity	0.4137		0.4018	
**	POI Time incompetent		-0.8095		-0.7717
**	POI Time competent	0.8065		0.7711	
**	POI Self-actualizing		-0.7868		-0.8411
	POI Self-regard		-0.5271		-0.4987
**	POI Self-acceptance	0.8343		0.8259	
	Perceived organizational self score	0.4065		0.4099	
	Kardex Categories				
	Functional status	0.3032*		0.4497	
	Intake and output	0.3861*		0.4755	
**	Artificial intake methods	0.6386		0.6222	
	Theme value				
**	Descriptive theme	0.7958		0.8430	
	Evaluative theme	0.4309		0.4972	
	Doctor-dependent themes	0.5194		0.6273	
	Evaluative nurse-dependent themes	0.3760*		0.4752	
	Evaluative doctor-dependent themes	0.4477		0.4863	
**	Prescriptive nurse-dependent themes		-0.6967		-0.7363

Percentage of variance = 15.1%

* These scores have been included to complete the pattern of variables.

** Variables carried forward to next chapter (see Table 11.1).

In Table 10.7, the structural moderator variables have the highest loadings in this cluster. In particular, the high negative relationship between the daily occupied bed rate and the number of registered staff is highlighted. The pattern of the Kardex categories and the evaluative theme value variables is also clearly shown.

Table 10.8 demonstrates the clustering of CPI and POI predictor variables with the predictor variables of job change and one criterion variable, the perceived organizational score. The high negative relationships of CPI flexibility and POI ability to transcend dichotomies confirms that these two variables may be related to similar psychological behaviour. The most interesting feature of this table is the grouping of the number of job changes within New Zealand, the CPI variables of wellbeing and communality, POI self-regard, and particularly POI capacity for intimate contact.

Table 10.7 MAJOR LOADINGS OF VARIABLES (>± 0.40)

	Variable	Pattern	Structure
	Number of job changes outside NZ	0.5198	0.5394
	Number of inservice education programmes	0.4627	0.4731
**	Sources of information (non-people)	-0.6094	-0.6491
**	Number of patients in ward on day of visit	0.8154	0.8572
**	Average number of admissions perday	0.6158	0.6465
**	Daily average occupied bed rate on day of visit	0.9410	0.9209
**	Number of registered staff	-0.8468	-0.8393
	CPI Sense of responsibility	-0.3310*	-0.4507
	CPI Socialization	-0.3938	-0.4056
	Age	0.2435*	0.4062
	Perceived general innovativeness score	-0.3085*	-0.4350
	Kardex categories		
	Physical care	0.4129	0.3683*
	Patient diet	0.3275*	0.5048
	Treatments	0.5407	0.6639
	Artificial intake methods	0.5226	0.5783
**	Kardex themes Number evaluative themes	0.6178	0.7127
	Number evaluative nurse themes	0.4660	0.5941
**	Number evaluative doctor themes	0.6967	0.7617

Percentage of variance = 12.6%.

* These scores have been included to complete the pattern of variables.

** Variables carried forward to next chapter (see Table 11.1).

CLUSTER 5

Table 10.8 MAJOR LOADINGS OF VARIABLES (> ± 0.40)

	Variable	Pattern		Structure	
**	Number of job changes within NZ	0.5992		0.6435	
	Number of job changes outside NZ		-0.4354		-0.4096
**	CPI Sense of wellbeing	0.6766		0.6928	
**	CPI Communality	0.6905		0.6416	
	CPI Achievement through Conformance	0.4069		0.3628*	
**	CPI Flexibility		-0.7949		-0.8015
**	POI Self-regard	0.6089		0.5679	
**	POI Ability to transcend dichotomies		-0.8764		-0.8985
	POI View of nature of man	0.4327			
**	POI Capacity for intimate contact	0.7468		0.7716	
	Perceived organizational-self score	0.3153*		0.4003	

Percentage of variance = 9.5%.

* These scores have been included to complete the pattern of variables.

** Variables carried forward to next chapter (see Table 11.1).

Table 10.9 demonstrates a relationship between the perceived nursing organization score and the criterion variables of perceived general innovativeness, innovative behaviour in ward or department, and the treatment sheet score. The negative correlation with innovative behaviour as demonstrated in the team nursing variable confirms the strength of this relationship. This particular variable has not been shown in the correlation matrices as the scoring moves in the opposite direction from all other scores included (see variable list, Chapter 8).[1] However, in the consideration of this pattern of variables, IB Team N has been included in the cluster to illustrate the relationship between general and specific innovativeness and the perception of the nursing organization, as measured in this study.

In summary, Cluster 6 demonstrates the interaction of psychological and climate variables with the criterion measures of perceived general innovativeness and specific innovative behaviour (IB Team N and IBTS), (refer Fig. 7.1).

1 Note that raw scores of 6 for this variable were not included in the factor analysis.

Table 10.9 MAJOR LOADINGS OF VARIABLES (> ±0.40)

Variable	Pattern	Structure
Number of inservice education programmes	-0.3303	-0.4188
CPI Dominance	0.4897	0.5986
CPI Sociability	0.5254	0.6070
CPI Tolerance	0.3540*	0.5124
CPI Good impression	0.4156	0.5285
CPI Achievement via Conformance	0.3015*	0.4587
POI Existentiality	0.3979	0.4076
** Perceived nursing organization score	0.7052	0.7625
Perceived role of ward charge	0.3990	0.5251
** Perceived general innovativeness	0.7892	0.8142
** Innovative behaviour in ward/unit/department	0.8913	0.8966
** Innovative behaviour team nursing	-0.8159***	-0.8018
** Innovative behaviour treatment sheet	0.7895	0.8550
Kardex		
Number of descriptive themes	0.4062	0.3647*

Percentage of variance = 8.6%.

* These scores have been included to better identify the patterning of variables.

** Variables carried forward to next chapter (see Table 11.1).

*** Should be interpreted as a positive result of the same order as the other innovativeness variables.

Table 10.10 demonstrates the relationship of the Kardex criterion variables with each other and with five predictor variables. This particular grouping of variables brings out the strong relationship between the Kardex categories of functional status, patient diet, tests and procedures with the prescriptive value of themes recorded in the Ward Kardex. This is particularly true for the 13 categories of themes designated as doctor-dependent.

This cluster (7) also shows positive relationships ($> + 0.20$ to $< + 0.40$) in the pattern matrix (Appendix J1) on the following variables: CPI capacity for status; POI existentiality; POI feeling reactivity; length of time in employment; the Kardex category, intake and output; number of nurse-dependent themes; and the number of evaluative nurse themes.

In summary, this chapter represents the Kardex groups of criterion variables depicted in Figure 7.1.

CLUSTER 7

Table 10.10 MAJOR LOADINGS OF VARIABLES (> ± 0.40)

	Variable	Pattern		Structure	
	Average number of admissions per day	0.4033		0.6058	
	CPI Sense of responsibility		-0.3962		-0.4575
	CPI Socialisation	0.4281		0.2754	
	POI Feeling reactivity	0.3417*		0.4155	
	Perceived organisational self score		-0.3987*		-0.3280*
	Kardex categories				
**	Functional status	0.8079		0.8311	
**	Patient diet	0.7096		0.7993	
	Treatments	0.4679		0.5775	
**	Tests and Procedures	0.6457		0.7335	
	Kardex Themes				
**	No. of prescriptive themes	0.9937		0.9231	
	No. of evaluative themes	0.2394*		0.4181*	
**	No. of doctor-dependent themes	0.5840		0.7077	
	No. nurse-dependent evaluative themes	0.3635*		0.4987	
**	No. doctor-dependent prescriptive themes	1.0206		0.9660	

Percentage of variance = 6.8%

* These scores have been included to better identify the patterning of variables.

** Variables carried forward to next chapter (see Table 11.1).

Table 10.11 demonstrates the negative relationships of a cluster of predictor variables. The most interesting of these is the inclusion of the number of inservice education programmes and people sources of information. POI feeling reactivity has a high positive loading in this cluster. An inspection of the pattern matrix (Appendix I1) shows positive loadings (> + 0.20 to < + 0.40) on the variables: number of jobs outside New Zealand; CPI femininity; POI self-actualizing; POI self-acceptance; POI view of nature of man; Kardex categories treatments, tests and procedures; intake and output; and number of evaluative doctor themes. Negative loadings (> -0.20 to < -0.40) occur with the variables: CPI capacity for status; CPI self-acceptance; CPI socialisation; CPI self-control; CPI good impression; length of time in present employment; age; perceived general innovativeness score; innovative behaviour in the ward/unit/department; the Kardex category of functional status; patient diet; artificial intake methods; and number of evaluative themes.

In summary, this cluster represents the interaction between the biographical and predictor variables depicted in Fig. 7.1. This cluster also shows up the moderate negative relationship of nurse dependent themes in the Kardex with POI feeling reactivity. A relationship which will be further discussed in Chapter 11.

CLUSTER 8

Table 10.11 MAJOR LOADINGS OF VARIABLES (> ± 0.40)

	Variable	Pattern		Structure	
**	Number of inservice education programmes		-0.6860		-0.7013
	People sources of information used		-0.5188		-0.4981
	CPI Sense of responsibility		-0.4362		-0.4375
	CPI Self control		-0.3507*		-0.5241
	CPI Good impression		-0.3032*		-0.4315
	CPI Communality	0.4260		0.4361	
	CPI Femininity	0.3665*		0.4143	
**	POI Feeling reactivity	0.7546		0.7630	
	POI Spontaneity		-0.3983		-0.2965*
**	Length of time in present employment		-0.5518		-0.5057
	Kardex				
	Number of nurse-dependent themes		-0.4059		-0.4934
	Number of evaluative nurse dependent themes		-0.4226		-0.4989

Percentage of variance = 5.2%

* These scores have been included to complete the pattern of variables.

** Variables carried forward to next chapter (see Table 11.1).

Table 10.12 highlights the relationships between CPI socialization, perceived organizational self and the number of nurse dependent themes in the Kardex. However, the negative clustering allows some interesting insights into the possible association between CPI capacity for status, psychological mindedness, perception of the charge nurse role in the organization and CPI socialization (see next chapter).

The pattern matrix (Appendix I1) shows that this cluster also has positive loadings on variables: number of inservice education programmes; number of non-people information sources used; daily average number of admissions; POI acceptance of aggression; length of time in employment; the Kardex category physical care; and the number of nurse-dependent prescriptive themes. Cluster 9 has negative loadings (> -0.2 to < -0.4) on variables: number of jobs outside New Zealand; CPI social presence; CPI achievement via conformance; innovative behaviour treatment sheet score; Kardex category patient treatments; and number of evaluative doctor themes.

In summary, this cluster of variables represents the interaction of the individual with the environment (refer Fig 7.1).

Table 10.12 MAJOR LOADINGS OF VARIABLES (> ±0.40)

	Variable	Pattern	Structure
	People sources of information used	0.4235	0.3418
	CPI Dominance	-0.5112	-0.6167
**	CPI Capacity for status	-0.6236	-0.7479
	CPI Social Presence	-0.3051	-0.4892
**	CPI Self-acceptance	-0.8035	-0.9170
**	CPI Socialization	0.7141	0.7055
	CPI Tolerance	-0.3590	-0.5300
**	CPI Psychological mindedness	-0.7073	-0.8269
	POI Spontaneity	-0.3675	-0.5097
	POI Self-regard	-0.4325	-0.5142
	POI Self-acceptance	0.3411*	0.4078
**	POI Nature of man	-0.6865	-0.6456
**	Perceived organizational self score	0.5917	0.6547
**	Perceived charge nurse organizational role score	-0.8123	-0.8363
	Kardex categories		
	Patient progress	0.4618	0.4189
	Intake and output	0.4727	0.4524
	Kardex themes		
**	Nurse-dependent themes	0.5583	0.6126

Percentage of variance = 3.8%

* These scores have been included to complete the pattern of variables

** Variables carried forward to next chapter (see Table 11.1)

Comment

Most variables have clear positive or negative relationships to only one cluster, CPI synergy appears in Clusters 1 and 6; CPI responsibility has a positive relationship with Cluster 1 and a negative loading in Cluster 8; CPI self-control has a negative loading in Cluster 2 and a positive loading (+0.50) with Cluster 3; CPI femininity has positive loadings in Clusters 2 and 3; POI time competence relates to Cluster 1 and Cluster 3; length of time in employment is negatively related to Clusters 1 and 8; perceived nursing organization score relates to Cluster 1 (+0.5) and Cluster 6 (+0.7) and IBK4 patient progress has positive loadings on Clusters 1 and 9.

Variables with high loadings in a particular cluster, are regarded as representative of that cluster. Some of these variables are used as the basis for the "before and after" analysis presented in Section Four. Clustering is also used as the basis for Chapter 11 (refer Table 11.1 p.239).

The correlation matrix showing the relationships among the nine clusters of variables is present in the Appendix I1. As it happens, none of these clusters of variables are highly correlated and could be regarded as independent. This may prove useful for future researchers wishing to go the further step of proposing new dimensions of measurement, rather than, as in this study, only identifying variable clusters.

INTERCORRELATION OF VARIABLES

A study of the correlation matrices reproduced in toto in the appendices accompanying this thesis (I1) shows details of one to one relationships of variables identified in the clustering. In this section of Chapter 10, relationships are demonstrated and certain intercorrelations are highlighted as they serve to reinforce the comments made on the patterns of clusters and specific variables within those clusters.

The format in which these results are presented refers back to the design model (Fig 7.1).

BIOGRAPHICAL PREDICTOR AND CRITERION RELATIONSHIPS

In Table 10.14, the intercorrelations of the predictor variables concerning the number of job changes, present employment, sources of new information, and age are considered in relation to each other and to the 20 criterion variables derived from observation, interview, and analysis of the Kardex. Specific reference is made to the positions of these variables within the clusters, where this adds to the discussion of the intercorrelation matrix.

Table 10.14 Intercorrelations of Selected Predictor and Criterion Variables (N = 57) *
Charge Nurse Data

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1.	Number job changes within N.Z.																										
2.	Number job changes outside N.Z.	0.09																									
3.	Sources of information (non-people)	0.18	-0.07																								
4.	Sources of information (people)	-0.09	-0.40	-0.13																							
5.	Length of time in Present employment	0.56	0.05	0.41	0.29																						
6.	Age	0.54	0.20	-0.07	0.27	0.68																					
7.	Perceived general innovativeness	0.07	-0.31	0.55	0.08	-0.01	-0.38																				
8.	Innovative behaviour ward	0.04	-0.29	0.33	0.20	-0.14	-0.09	-0.52																			
9.	Treatment sheet score	-0.45	-0.15	0.04	0.00	-0.62	0.45	0.58	0.73																		
10.	K_1** Functional status	0.30	0.23	0.55	-0.08	0.59	0.03	0.30	-0.15	-0.20																	
11.	K_2 Physical care	-0.19	-0.27	-0.48	0.29	-0.42	0.18	-0.23	-0.10	0.41	-0.42																
12.	K_4 Patient progress	-0.13	-0.60	-0.27	0.11	-0.34	-0.47	-0.07	0.23	-0.06	-0.37	0.41															
13.	K_{11} Patient diet	0.35	0.43	-0.08	0.21	0.61	0.45	-0.29	0.17	-0.46	0.68	-0.03	-0.31														
14.	K_{15} Intake & output	0.42	-0.09	0.11	-0.18	0.19	-0.31	0.07	0.25	-0.47	0.37	-0.19	0.57	0.26													
15.	K_{17} Treatments	0.35	0.59	-0.42	-0.68	0.03	0.23	-0.15	-0.12	-0.11	0.27	-0.07	-0.45	0.59	0.02												
16.	K_{19} Tests and Procedures	0.02	0.83	0.02	-0.38	0.13	0.04	-0.37	-0.19	-0.30	0.54	-0.31	-0.50	0.63	0.11	0.60											
17.	K_{22} Artificial intake methods	0.66	0.53	-0.24	-0.21	0.07	0.31	-0.08	-0.03	-0.07	0.23	0.15	-0.27	0.52	0.21	0.81	0.43										
18.	Number descriptive themes	0.57	0.05	0.39	-0.08	0.31	0.07	0.07	-0.09	0.22	0.45	-0.30	-0.11	0.17	0.34	0.12	-0.12	0.41									
19.	Number prescriptive themes	-0.06	0.16	0.04	0.15	0.18	-0.07	-0.14	-0.30	-0.21	0.62	-0.19	-0.24	0.64	0.13	0.47	0.63	0.11	-0.26								
20.	Number evaluative themes	0.48	0.53	-0.38	0.09	0.39	0.47	-0.17	0.25	-0.28	0.34	0.01	-0.30	0.77	0.21	0.76	0.42	0.74	0.42	0.16							
21.	Number nurse dependent themes	0.07	-0.24	0.24	0.50	0.43	0.17	0.13	-0.04	0.05	0.47	0.44	0.15	0.52	0.13	-0.18	-0.06	0.03	0.34	0.26	0.20						
22.	Number doctor dependent themes	0.55	0.42	0.11	-0.08	0.37	0.12	0.30	-0.16	-0.09	0.73	-0.30	-0.49	0.66	0.36	0.75	0.50	0.73	0.64	0.44	0.74	0.19					
23.	Number evaluative nurse dependent th.	0.50	0.36	-0.29	0.20	0.54	0.49	-0.17	0.36	-0.37	0.46	0.04	-0.17	0.88	0.31	0.63	0.36	0.64	0.42	0.25	0.96	0.41	0.72				
24.	Number evaluative doctor dependent th.	0.44	0.63	-0.42	0.02	0.26	0.43	-0.16	0.16	-0.20	0.23	-0.02	-0.34	0.66	0.12	0.81	0.44	0.78	0.39	0.09	0.98	0.03	0.71	0.87			
25.	Number prescriptive nurse dependent th.	-0.09	-0.29	-0.15	0.54	0.03	0.42	-0.43	0.12	-0.13	-0.46	0.40	0.03	-0.10	-0.46	-0.20	-0.26	-0.23	-0.60	0.08	-0.33	0.08	-0.55	-0.29	-0.36		
26.	Number prescriptive doctor dependent themes	-0.03	0.23	0.08	0.03	0.18	-0.17	-0.03	-0.33	-0.17	0.72	-0.21	-0.25	0.66	0.24	0.51	0.68	0.21	-0.11	0.97	0.24	0.24	0.57	0.32	0.17	-0.15	

* One case was excluded from the Statistical Analysis because of invalid POI scores.

** Kardex Theme count by category.

Biographical Predictor/Predictor Correlations

Although the variable number of job changes within New Zealand does not load to any noticeable degree (>0.50) on any of the clusters, it does show intercorrelations with the length of time in present employment (+0.56) and with age (0.54). It does not seem to be associated with the number of job changes outside this country.

Criterion/Criterion Correlations

The Kardex criterion variables, artificial intake methods, the number of descriptive themes and the number of doctor dependent themes all show correlations with the number of changes within New Zealand in the + > 0.50 to + < 0.70 range.

The number of job changes outside New Zealand shows a correlation of +.83 with the Kardex theme variable, tests and procedures. It also correlates with patient progress (-0.60); patient treatments (+0.59); artificial intake methods (+0.53); the number of evaluative themes in the Kardex (+0.53); and the number of evaluative doctor dependent themes.

Non-people sources of information does not appear to be associated with any of the Kardex criterion variables except functional status, but does show a correlation of +0.55 with perceived general innovativeness. It does not, however, appear in Cluster 6, where perceived general innovativeness is one of the high loading variables (> 0.70). Not surprisingly, people sources of new information also correlates with this variable at +0.55 level but has little

relationship with any other criterion variable. The predictor variable, age, appears in Table 10.4 for Cluster 1, in which it demonstrates a high negative loading (-0.86). Age will be further considered in Section Four, where variables representative of each cluster identified in the foregoing analysis are brought forward for examination after an intervention and over time.

Biographical Predictor/Criterion Correlations

The three innovativeness variables included in this table all appear with high loadings.

By contrast, the length of time in present employment correlates with the treatment sheet score (-0.62); functional status (+ 0.59); patient diet themes in the Kardex (+ 0.61); and the number of evaluative nurse dependent themes (+ 0.54). The "length of time" variable loads at -0.59 in Cluster 1, for which the most representative variable is CPI intellectual efficiency at +0.94.

One of the most noticeable features of this table is the relatively low correlation of age with most of the criterion variables. Age has a positive correlation (+0.45) with the treatment sheet score, a positive correlation (+0.45) with the Kardex theme category of patient diet, and to the variables relating to the number of evaluative and prescriptive themes in the Kardex (> 0.40). As has already been pointed out (p.219), age has its highest correlation with length of time in present employment. It should be noted that age has a negative correlation of -0.38 with perceived general innovativeness in Cluster 6. Innovative behaviour in the ward has a negative relationship to

perceived general innovativeness (-0.52) but shows a correlation of +0.73 with the treatment sheet score. An inspection of the correlation matrices included as Appendix (I1) shows that the variable IB Team N correlates at the -0.53 level with the variable IBW.

The eight Kardex theme categories (see Table 10.14, p.219), show varying degrees of relationship. Those relationships worth noting are those between the Kardex category of functional status, patient diet and tests and procedures. This variable is highly correlated (+0.73) with the number of doctor-dependent themes. Physical care has a low correlation with all other criterion variables. The Kardex category of patient progress is negatively related (> -0.40) with treatments and tests and procedures. It is, however, positively correlated with the Kardex theme category of intake/output.

Patient diet has a high positive correlation with nearly all other criterion variables except intake and output, descriptive and prescriptive theme values. The high correlation (+0.86) between patient diet related themes in the Kardex and the number of evaluative nurse dependent themes should be noted. Intake and output correlates only with the number of prescriptive nurse dependent themes at the +0.40 level.

The variable, K_{17}, patient treatments shows high positive relationships with artificial intake methods and the number of doctor-dependent evaluative themes. K_{19}, tests and procedures is linked with the variables for the doctor-dependent themes, and the doctor-dependent prescriptive themes. K_{15}, tests and procedures shows

similar relationships.

The Kardex theme value variables show a high positive correlation (+0.97) between the number of prescriptive theme values and the number of doctor-dependent prescriptive values. The evaluative nurse-dependent and doctor-dependent variables have an obvious high correlation with the number of evaluative themes.

PSYCHOLOGICAL PREDICTOR/CRITERION RELATIONSHIPS

The intercorrelations of the CPI and POI test scores with eight selected criterion variables are presented in Table 10.15 and Table 10.16. In this part of the presentation of the results, the inter-correlations of the selected criterion variables with the 2 sets of psychological predictor variables derived from the CPI and POI raw scores is examined in some detail.

Psychological Predictor Relationships (CPI)

Following the general pattern evident in the above results, the notable intercorrelations among the CPI variables are presented here.

Intellectual efficiency which shows a very high positive pattern loading in Cluster 1 (+0.92) shows positive correlations > +0.60 with the CPI variables: capacity for status; sociability; social presence; sense of wellbeing (+0.75); sense of responsibility; tolerance; and achievement via independence. All of these variables contribute to Cluster 1 with loadings greater than 0.55.

By contrast, CPI femininity which is present in Cluster 2 (+0.66), correlates with no other CPI variable, except negatively (-0.44) with

Table 10.15 Intercorrelations of Selected Predictor (CPI Scores) and Criterion Variables (N = 57)*
Charge Nurse Data

CPI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Dominance																										
2. Capacity for status	0.60																									
3. Sociability	0.51	0.49																								
4. Social presence	0.41	0.81	0.47																							
5. Self-acceptance	0.68	0.75	0.25	0.61																						
6. Sense of wellbeing	-0.13	0.31	0.49	0.30	0.22																					
7. Sense of responsibility	-0.08	0.29	0.49	0.37	-0.12	0.40																				
8. Socialization	-0.24	-0.30	0.24	-0.12	-0.60	0.07	-0.01																			
9. Self control	0.08	-0.09	0.51	-0.24	-0.13	0.43	0.41	0.05																		
10. Tolerance	0.65	0.80	0.85	0.59	0.54	0.40	0.46	-0.07	0.29																	
11. Good impression	0.34	0.01	0.64	-0.02	0.04	0.31	0.45	0.08	0.88	0.42																
12. Communality	-0.48	-0.08	-0.24	0.22	0.08	0.35	-0.21	0.18	-0.50	-0.26	-0.47															
13. Achievement via conformance	0.41	0.33	0.68	0.32	0.30	0.60	0.31	0.23	0.65	0.54	0.79	-0.10														
14. Achievement via independence	0.05	0.62	0.42	0.59	0.13	0.18	0.77	-0.14	0.07	0.60	0.08	-0.15	0.05													
15. Intellectual efficiency	0.00	0.61	0.67	0.70	0.28	0.75	0.60	0.13	0.20	0.66	0.22	0.32	0.48	0.63												
16. Psychological mindedness	0.49	0.84	0.51	0.59	0.82	0.59	0.29	-0.50	0.19	0.78	0.20	0.00	0.43	0.31	0.63											
17. Flexibility	0.37	0.66	0.32	0.48	0.21	-0.22	0.31	-0.16	-0.11	0.57	-0.13	-0.43	-0.15	0.33	0.31	0.39										
18. Femininity	-0.15	0.09	-0.22	0.00	0.25	-0.13	-0.16	-0.29	-0.42	0.08	-0.40	0.42	-0.44	-0.01	0.10	0.21	0.15									
19. Perceived general innovativeness	0.22	0.04	0.58	-0.05	0.20	0.37	0.14	0.10	0.36	0.53	0.49	0.11	0.40	0.16	0.33	0.35	-0.33	0.40								
20. Innovative ward behaviour	0.42	-0.06	0.34	-0.08	0.40	0.09	-0.19	-0.09	0.24	0.29	0.49	0.08	0.40	0.05	-0.01	0.24	-0.16	0.31	0.83							
21. Treatment sheet score	0.68	0.26	0.61	0.22	0.44	-0.05	0.05	-0.09	0.43	-0.56	0.69	-0.35	0.54	-0.04	0.16	0.33	-0.36	0.07	0.57	0.73						
22. Kardex number prescriptive th.	-0.25	-0.34	0.15	-0.56	-0.15	0.31	0.09	-0.14	0.57	0.08	0.37	-0.06	0.05	-0.19	0.05	0.13	-0.25	0.35	0.67	0.48	0.22					
23. Number prescriptive themes	0.15	0.20	0.00	-0.05	0.02	0.03	-0.52	0.45	-0.22	0.09	-0.35	0.07	0.04	-0.34	-0.04	0.02	0.13	-0.10	-0.14	-0.22	-0.21	-0.26				
24. Number evaluative themes	-0.14	-0.07	-0.21	-0.40	0.07	0.24	-0.24	-0.46	0.28	-0.16	-0.11	-0.20	-0.18	0.05	-0.19	0.23	-0.08	-0.11	-0.17	-0.19	-0.28	0.42	0.15			
25. Number nurse dependent themes	-0.04	-0.50	0.20	-0.66	0.65	-0.11	-0.05	0.52	0.53	-0.09	0.38	-0.54	0.11	-0.24	-0.34	-0.47	-0.13	-0.48	0.13	0.00	0.05	0.34	0.26	0.20		
26. Number doctor dependent themes	-0.13	0.01	-0.02	-0.39	0.14	0.38	-0.35	-0.14	0.26	0.09	-0.12	0.09	-0.04	-0.15	0.05	0.35	-0.10	0.32	0.32	0.15	-0.09	0.64	0.44	0.74	0.19	

* One case was excluded from the Statistical Analysis because of invalid POI scores.

achievement via conformance. It appears that this variable is measuring a quality more compatible with the POI variables such as POI inner directed (+0.91), other-directed (-0.93), existentiality (+0.74), all of which also appear with high loadings in Cluster 2 (see Table 10.5). Self-acceptance which appears in Cluster 9 with a high negative loading (-0.80) is shown in Table 10.15 to be positively related at > +0.60 to CPI dominance, capacity for status and social presence. The two latter variables contribute to Cluster 1 (Table 10.4). While CPI dominance is found (-0.4) in the patterning of variables listed in Cluster 3 (Table 10.6), it also contributes a positive loading (+0.49) to Cluster 6 (table 10.9).

CPI self control which contributes moderately to Cluster 2 (-0.64; Table 10.5) shows no high correlations with other CPI variables. It does show intercorrelations at +0.51 with sociability and +0.43 and +0.41 respectively with sense of well-being and sense of responsibility.

Tolerance is associated with a number of other CPI variables. This can be discerned from the marked difference between the structure and pattern matrix loadings shown in Cluster 1 which indicates that this variable contributes to the factor structure (refer Appendix I 1) through other variables. The medium to high positive correlations of tolerance with dominance, capacity for status, sociability, social presence, self acceptance, sense of wellbeing and sense of responsibility are clearly shown in Table 10.15.

The variable CPI good impression which appears to be negatively

related to the cluster of variables in Table 10.5 (Cluster 2) has a notably high correlation (+0.88) with CPI self control. This is indicative of its grouping in the CPI manual (refer Section 2, Chapter 9, p.143), and is consistent with its negative loading in Cluster 2.

Achievement via conformance appears to relate to several different aspects of the organizational behaviour of charge nurses. It contributes to clusters 1, 2, 5 and 6 in varying degrees, all of which associate organizational and behavioural variables. The large number of positive correlations (> +0.4) with other CPI variables supports this view. Achievement through independence loads at (+0.70) on Cluster 1. Although it does correlate at > +0.60 with the variables capacity for status, social presence, sense of responsibility, and tolerance, it can be regarded as a variable which selectively loads on one particular cluster. This will prove to be important in Section Four.

Psychological mindedness, which contributes to Cluster 9 and to a lesser extent to Cluster 1, is clearly related to most other CPI variables except communality, and, to a lesser degree, self-control (see Table 10.15). As it is one of the highest loading variables in Cluster 9 (-0.70 pattern matrix) it can be regarded as one of the representative variables for this cluster. However, its relationship to other variables is clearly shown in the "structure" loading (-0.83). The significance of this is shown in Appendix I1 where the structure of factors has been described.

Finally, CPI flexibility is found with a high negative loading in Cluster 5 (-0.80) and a moderate loading in Cluster 1 (+0.5). This variable is related (loadings > 0.5) to CPI capacity for status and CPI tolerance in Cluster 1.

Psychological Predictor Intercorrelations (POI)

Table 10.16 sets out the intercorrelations of variables developed from the POI raw scores.

The variables time competence / time incompetence are indeed mirror images of each other and correlate -0.98. They are found mainly in Cluster 3 (±0.81) and to a lesser extent in Cluster 1. Together with POI self acceptance (+0.83) and POI self actualizing (-0.79), which also have high loadings, they can be considered representative variables for Cluster 3. (Refer Section Four, p. 244). Similarly, the pair of variables POI inner directed / other directed correlate at -0.93 and contribute the highest loadings to Cluster 2. Here they are associated with a number of other POI variables including existentiality, feeling reactivity, spontaneity, nature of man, acceptance of aggression and intimate contact. They have moderate to high negative or positive correlations with these variables except for nature of man (-0.13 and 0.28 respectively).

Existentiality is clearly an important variable in the patterning of variables designated as Cluster 2. It appears to a lesser degree in the patterning of variables represented by the item count for innovative behaviour in the ward/unit/department (Cluster 6). It correlates with POI inner directedness (+0.77), spontaneity (+0.66),

Table 10.16 Intercorrelations of Selected Predictor (POI Scores) and Criterion Variables (N = 57)*

Charge Nurse Data

POI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Time incompetent																						
2. Time competent	-0.98																					
3. Other directed	0.13	-0.12																				
4. Inner directed	0.00	0.03	-0.93																			
5. Self-actualizing value	0.46	-0.44	-0.26	0.31																		
6. Existentiality	-0.23	0.26	-0.65	0.77	0.02																	
7. Feeling reactivity	0.00	0.00	-0.48	0.51	0.11	0.20																
8. Spontaneity	-0.05	0.04	-0.79	0.73	0.21	0.66	-0.05															
9. Self regard	0.04	-0.35	-0.51	0.48	0.54	0.06	0.03	0.65														
10. Self acceptance	-0.47	0.50	0.20	-0.16	-0.72	-0.07	0.20	-0.48	-0.61													
11. View of nature of man	0.00	-0.04	0.16	-0.13	0.28	-0.22	-0.27	0.10	0.57	-0.35												
12. Synergy	-0.06	0.05	-0.12	0.20	0.32	0.51	0.06	0.08	-0.33	-0.36	-0.23											
13. Acceptance of aggression	0.13	-0.17	-0.62	0.59	0.22	0.48	0.43	0.29	0.04	0.60	-0.38	0.29										
14. Capacity for intimate contact	-0.15	0.16	-0.64	0.59	-0.10	0.35	0.06	0.68	0.33	0.13	0.12	0.65	0.30									
15. Perceived general innovativeness	-0.45	0.50	-0.14	0.26	-0.14	0.37	-0.35	0.33	-0.02	0.28	0.13	0.02	0.06	0.47								
16. Innovative ward behaviour	-0.09	0.16	0.03	0.21	0.06	0.35	-0.36	0.19	0.13	0.16	0.37	-0.06	-0.02	0.36	0.83							
17. Treatment sheet score	-0.01	-0.31	0.29	-0.08	0.19	0.18	-0.35	-0.13	-0.10	0.06	0.45	0.25	-0.45	-0.18	0.57	0.73						
18. Kardex number descriptive themes	-0.01	0.65	-0.05	0.07	-0.71	0.38	-0.30	0.05	-0.36	0.77	-0.25	-0.29	-0.01	0.48	0.67	0.48	0.22					
19. Number prescriptive themes	0.33	-0.30	0.00	0.13	-0.03	0.18	0.14	0.02	0.08	-0.07	-0.14	-0.06	-0.07	-0.05	-0.14	-0.22	-0.21	-0.26				
20. Number evaluative themes	-0.34	0.08	-0.12	0.10	-0.60	-0.55	0.10	0.13	0.02	0.37	-0.31	-0.51	-0.29	0.34	-0.17	-0.19	-0.28	0.42	0.16			
21. Number nurse dependent themes	0.12	0.04	0.65	-0.58	-0.47	-0.23	-0.33	-0.51	-0.65	0.45	-0.49	-0.14	-0.35	-0.32	0.13	0.00	0.05	0.34	0.26	0.20		
22. Number doctor dependent themes	-0.27	0.32	-0.29	0.37	-0.54	0.40	0.29	0.27	-0.00	0.54	-0.24	-0.41	-0.50	0.56	0.32	0.15	-0.09	0.64	0.44	0.74	0.19	

* One case was excluded from the Statistical Analysis because of invalid POI scores.

synergy (+0.51), and acceptance of aggression (+0.48). Spontaneity correlates with other / inner directedness at the -0.79 / 0.73 level and with existentiality, self regard, and capacity for intimate contact > +0.60. Spontaneity is a highly loaded variable in Cluster 2, where it is found with these other POI variables.

POI self regard is present in Clusters 3 (-0.5) and 5 (+0.6) where it is one of the higher loaded variables. It is associated in Cluster 5 with the remaining POI variables; ability to transcend dichotomies (synergy) (-0.87), view of nature of man (+0.43) and capacity for intimate contact (+0.75). Except for the variable, synergy, POI self regard correlates with the other two POI Cluster 5 variables at +0.57 and +0.58 respectively.

Comment on POI

In relation to this thesis, the variable POI self actualizing, is important. It is part of the quality of openness postulated as important in a study of creativity. According to Schweer and Gebbie (1976), the element of difference between problem solving and creativity lies in the component of self actualizing. This variable is seen as representative of Cluster 3 where it has a high negative loading (-0.79) in contrast to another representative variable POI self-acceptance. The correlation matrix confirms this relationship with a correlation of -0.72 between these two variables.

Feeling reactivity is also seen as an important quality for charge nurses, if nursing is indeed caring for people. It appears as the variable with the greatest positive contribution to Cluster 8.

Ironically, the only other high loading variable in this cluster, is the number of inservice education programmes (-0.69). From the matrix of intercorrelations (Table 10.16) feeling reactivity demonstrates only one intercorrelation with another POI variable greater than ±0.50. This is with inner-directedness (±0.51).

Summary of Psychological Intercorrelations

In summary, most of the CPI predictor variables seem to be associated with organizational behaviour. They include measures of achievement, intellectual efficiency, self acceptance, socialization, and sociability. Those CPI measures which are associated with feelings and attitudes such as psychological mindedness and femininity correlate with POI variables and are associated with them in the Clusters. The majority of POI variables, however, are found in Cluster 2. They are frequently found negatively associated in other clusters, and highlight the dichotomy between the "organizational self" and the "person self" of the charge nurses. A distinction also found in the three NOI measures.

The notion of two aspects to the psychological response of the individual is useful in Section Four.

This assertion that the CPI and POI tests are largely measuring two different sets of individual variables is illustrated by the correlation (or lack of it, at -0.22) between the CPI score for self acceptance and POI self acceptance.

As many of the attitudes and feelings measured by the POI have been traditionally associated with "good" nursing practice

the lack of association evident in the cluster patterns between the psychological variables measured by the CPI and POI respectively, could be important in explaining difficulties in changing nursing practice where self actualization of the nurse is a goal. It seems highly likely that organizationally directed behaviour will take precedence over inner directed behaviour. This comes close to Kelman's internalization in relation to change[1].

In view of these arguments, correlations between these psychological predictor variables and the criterion variables should show similar patterns.

Criterion/Psychological Predictor Correlations

In the light of the foregoing discussion, the correlation (> +0.50) of the derived variable, perceived general innovativeness, with the CPI variables, sociability and tolerance, is not surprising. Correlation at this level, with the POI variables of time competence and existentiality also fits this pattern. As does a negative correlation of -0.45 with the POI score of time incompetence. However, the "feeling" variables of CPI good impression (+0.49), CPI femininity (+0.40) and POI capacity (+0.47) for intimate contact also have intercorrelations with this variable. This could be said to fit with the perceptual nature of this general innovativeness measure.

Again, in line with the principle argument (p.230) the item score for innovative behaviour has its highest correlations with CPI dominance (+0.42), CPI self acceptance (+0.40), CPI good impression

1 Refer Section 1 of this thesis.

(+0.49), CPI achievement and through conformance (+0.10). To clinch the argument, it should be remembered that this variable (IBW) correlates at +0.62 with the moderating variable perception of the charge nurses' role in the organization (PCNOS) (refer Appendix I 1).

Not surprisingly, the treatment sheet score (IBTS) has low correlations with most of the POI variables, except POI view of nature of man (+0.45). This variable also correlates at > +0.40 with CPI dominance, CPI self acceptance and CPI achievement via conformance.

Lastly, the intercorrelations of the variable IB Team N (the level of implementation of the innovation "team nursing") illustrate the relationship between general and specific innovativeness scores and the predictor psychological variables. For simplicity the correlation signs for this variable have been transposed (refer Appendix I1), and previous comment p. 209. The degree of implementation of team nursing (for details see Appendix C5) is positively associated with CPI dominance (+0.59), CPI sociability (+0.55), CPI good impression (+0.57), CPI flexibility (+0.40), POI existentialism (+0.5), POI synergy (+0.40). To complete the picture, it should again be recorded here that this variable correlates with the moderating NOI variables at +0.61 (perception of organization PNOS), at -0.58 (perception of self in the organization) and at +0.39 for the perception of charge nurse role.

The theme value Kardex variables have also been included in Table 10.16. These are briefly summarised here.

The number of descriptive themes in the Kardex correlates positively with CPI self-control (+0.57) and negatively with CPI social presence. It also has a negative correlation (-0.45) with acceptance of aggression and a positive relationship (+0.45) with POI view of nature of man. The number of prescriptive themes in the Kardex correlates with POI feeling reactivity (+0.44) and CPI socialisation (+0.45). Finally, the number of evaluative themes in the Kardex correlates negatively (-0.40) with CPI social presence, and CPI socialisation, POI self-actualising value (-0.60) and POI existentiality (-0.55).

The number of nurse-dependent themes in the Kardex has a reasonably high correlation with the POI score for other directedness (+0.65) and a negative correlations -0.49 with the POI variables, inner-directedness, self-actualisation, spontaneity, self-regard, and view of nature of man. The positive correlation of +0.45 with POI self-acceptance completes an interesting picture of the intercorrelations of this variable.

Relationships with the CPI variables include a positive correlation with self-acceptance (0.65), socialisation (0.52) and self control (0.53). This variable has negative correlations (-0.47) with CPI psychological mindedness, femininity, communality, and social presence.

The doctor-dependent theme in the Kardex has a reasonably high negative correlation (-0.64) with the POI self-actualising value. It has very low correlations with the CPI variables, but does show a positive relationship with the POI variables, existentiality (+0.40),

self-acceptance (+0.54), and capacity for intimate contact (+0.56).

In summary, it is apparent that, the criterion variables of general and perceived innovativeness and the distribution of descriptive and evaluative themes for doctor and nurse dependent Kardex categories are positively related to the CPI set of predictor variables. The moderator variables (NOI) appear to underline (or enhance) this relationship.

MODERATOR/CRITERION RELATIONSHIPS

In this final part of the presentation of the baseline analysis, the relationships of 4 structural (plus one biographical) and 3 NOI organizational moderator variables with 20 criterion variables are described, with the view of highlighting the roles and relationships of these variables. Table 10.17 shows the correlation matrix for these selected variables.

Moderator/Moderator Correlations

As expected, the average occupied bed rate shows the highest intercorrelation of the structural variables, (+0.95) with the number of patients on the day of visits. This indicates that the number of patients in wards/units/departments on the day of baseline interview was nearly always a true reflection of the "normal" work load. This also reflects on the "normalcy" of Kardex and treatment sheet entries on the day of the baseline visit. This variable (AOB) represents the highest loading on Cluster 4 where it is associated with other

Table 10.17 Intercorrelations of Selected Moderator and Criterion Variables (N = 57)*

Charge Nurse Data

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1.	Number of staff training programmes																												
2.	Number of patients day of visit	-0.63																											
3.	Average number of admissions	0.45	0.34																										
4.	Average occupied bed rate	0.32	0.95	0.44																									
5.	Number of registered staff in work location	-0.36	-0.49	-0.49	-0.86																								
6.	Perceived nursing organisation score	-0.06	-0.16	-0.21	-0.18	0.05																							
7.	Perceived organisational self score	0.64	-0.18	0.13	0.01	0.04	-0.18																						
8.	Perceived charge nurse organisational score	-0.37	-0.07	-0.23	-0.08	0.11	0.47	-0.55																					
9.	Perceived general innovativeness	-0.26	0.46	-0.31	-0.53	0.44	0.78	-0.14	0.48																				
10.	Innovative ward behaviour	-0.40	-0.04	-0.41	-0.16	0.23	0.61	-0.27	0.61	0.83																			
11.	Treatment sheet score	-0.53	0.03	-0.49	-0.01	-0.10	0.66	-0.38	0.61	0.58	0.73																		
12.	K_1 Functional status	0.07	-0.39	0.44	-0.44	0.13	0.15	-0.14	0.10	0.30	-0.01	-0.20																	
13.	K_2 Physical care	0.12	0.39	-0.19	0.47	-0.58	0.08	0.31	-0.18	-0.23	0.02	0.41	-0.42																
14.	K_4 Patient progress	0.28	-0.32	-0.33	-0.15	0.13	0.17	0.60	-0.57	-0.07	-0.29	-0.06	-0.37	0.41															
15.	K_{11} Patient diet	0.55	0.26	0.79	0.26	-0.45	-0.14	0.10	-0.14	-0.29	-0.39	-0.46	0.68	-0.03	-0.31														
16.	K_{15} Intake and output	0.39	-0.59	-0.29	0.41	0.35	0.12	0.60	-0.47	0.07	-0.40	-0.47	0.37	-0.19	0.57	0.26													
17.	K_{17} Treatments	0.11	0.47	0.62	0.44	-0.32	0.09	-0.19	0.33	-0.15	-0.04	-0.11	0.27	-0.07	-0.45	0.59	0.02												
18.	K_{19} Tests and procedures	-0.09	0.13	0.73	0.16	-0.29	-0.26	-0.36	0.06	-0.37	-0.47	-0.30	0.54	-0.31	-0.50	0.63	0.11	0.60											
19.	K_{22} Artificial intake methods	0.16	-0.26	0.59	0.33	-0.23	0.00	0.25	0.18	-0.08	0.01	-0.07	0.23	0.15	-0.27	0.52	0.21	0.81	0.43										
20.	Number descriptive themes	0.19	-0.39	0.12	-0.35	0.26	0.45	0.37	0.37	0.67	0.48	0.22	0.45	-0.10	-0.11	0.17	0.34	0.12	-0.12	0.41									
21.	Number prescriptive themes	-0.06	0.13	0.46	0.06	-0.25	0.04	-0.42	-0.16	-0.14	-0.22	-0.21	0.62	-0.12	-0.24	0.64	0.13	0.47	0.63	0.11	-0.26								
22.	Number evaluative themes	0.64	0.38	0.69	0.41	-0.41	0.04	0.25	0.20	-0.17	-0.19	-0.28	0.34	0.01	-0.30	0.77	0.21	0.76	0.42	0.74	0.42	0.16							
23.	Number nurse dependent themes	0.44	-0.05	0.19	-0.02	-0.39	0.16	0.34	-0.29	0.13	0.00	0.05	0.47	0.44	0.15	0.52	0.18	-0.18	-0.06	0.03	0.34	0.26	0.20						
24.	Number doctor dependent themes	0.19	-0.06	0.59	-0.08	0.00	0.34	-0.01	0.34	0.32	0.15	-0.09	0.73	-0.30	-0.40	0.68	0.36	0.75	0.50	0.73	0.64	0.44	0.74	0.19					
25.	Number evaluative nurse dependent themes	0.73	0.27	0.66	0.29	-0.38	0.02	0.34	0.05	-0.17	-0.25	-0.37	0.46	0.04	-0.17	0.36	0.31	0.63	0.36	0.64	0.42	0.25	0.96	0.41	0.72				
26.	Number evaluative doctor dependent themes	0.53	0.44	0.68	0.47	-0.41	0.06	0.17	0.30	-0.16	-0.13	-0.20	0.23	-0.02	-0.34	0.66	0.12	0.81	0.44	0.78	0.39	0.09	0.98	0.03	0.71	0.87			
27.	Number prescriptive nurse dependent themes	0.12	0.55	-0.06	0.53	-0.39	-0.47	0.03	-0.50	-0.43	-0.05	-0.13	-0.46	0.40	0.03	-0.10	-0.45	-0.20	0.26	-0.23	-0.60	0.08	-0.33	0.08	-0.55	-0.29	-0.36		
28.	Number prescriptive doctor dependent themes	-0.07	-0.01	0.47	-0.07	-0.16	0.15	-0.43	-0.04	-0.03	-0.21	-0.17	0.72	-0.21	-0.25	0.65	0.24	0.51	0.68	0.21	-0.11	0.97	0.24	0.24	0.57	0.32	0.17	-0.15	

* One case was excluded from the Statistical Analysis because of invalid POI scores

structural variables. The other highly representative variable of this cluster is the number of registered nurses in the ward/unit/department, which demonstrates a high negative correlation (-0.86) with the average occupied bed rate. A phenomenon recognized (and complained about) by most charge nurses during this study.

The three derived climate variables are distinguished by the presence of the perceived nursing organization (climate) Clusters 6 and 1 and the presence of perceived organizational self and charge-nurse role variables in Cluster 9. In particular, the perceived charge nurse organizational role score contributes the highest loading (-0.81) to this particular cluster.

Of these three variables, the perceived organizational self score correlates positively with the number of staff training (in service) programmes (+0.65) and negatively with the perceived charge nurse role score (-0.55). The charge nurse role score, on the other hand shows a positive correlation (+0.47) with the perceived nursing organization (climate) score located in Clusters 1 and 6. This finding will be discussed further in Chapter 11.

Criterion/Moderator Correlations Structural Variables

The relationships of the 4 moderator structural variables to the behavioural criterion variables clearly demonstrates the relationship between organizational factors and innovativeness.

Innovativeness (as measured by the derived general perceived score) has a negative correlation with the number of patients on day of visit (-0.46). The same pattern is followed for the number of

admissions and the occupied bed rate. However, general innovativeness correlates +0.44 with the number of registered staff in the ward/unit or department. It can be concluded therefore, that a certain level of qualified staff is required for changes to take place. This can be linked to a decreased need for prescription and proscription of practice where more qualified staff are employed. The organization may therefore be perceived by charge nurses as easier to change.

To a lesser degree, the number of items reported changed in the ward (IBW) and the degree of implementation of team nursing follow the same pattern. However, the number of registered staff appears to have little or no relationship to these variables. This could be a reflection of the central role the charge nurse plays in the implementation of change.

The 8 Kardex theme category variables also show relationships with this block of 4 moderator variables. The average number of admissions in the month of this baseline visit correlates with the number of functional status themes (+0.41), the number of patient diet themes (+0.79), the number of treatment themes (+0.62), the number of test and procedure themes (+0.73) and the number of artificial intake themes (+0.59). This relationship is supported by the greater numbers of these themes found in the entries for new admissions.

The number of patients on the day of visit, and the average occupied bed rate do not show the same level of relationship with

these variables. The correlations above +0.41 are: number of patients with intake/output themes (-0.60), and treatment themes (+0.47); average occupied bed rate with functional status themes (-0.45); physical care themes (+0.47); intake/output themes (-0.42); and treatment themes (+0.44). These correlations indicate that an increase in the number of patients is not necessarily associated with an increase in the number of frequently occurring Kardex themes. To rephrase the view expressed earlier (p.237), the "category" of the patient (as represented for example by the designation "new admission") influences the frequency of themes in the Kardex rather than the actual number of patients in the ward.

The intercorrelations of the nine value theme categories with the four structural moderator variables bear out the relationship between the number of admissions and the Kardex variables. This variable correlates at +0.46 with the number of prescriptive themes in the Kardex; at +0.69 with the number of evaluative themes; at +0.59 with the number of doctor dependent themes; at +0.66 with the number of evaluative doctor dependent themes; and at +0.47 with the number of prescriptive doctor dependent themes. Thus a picture is built up of patients being seen by the house surgeon after admission after which the medical orders are transcribed into the Kardex for treatments, diet, tests and procedures to be carried out by the nursing staff. It seems clear that this variable works against innovative behaviour in the ward setting. A conclusion suggested by a correlation of -0.31 with perceived general innovativeness,

-0.41 with items of innovative ward behaviour and -0.49 with the treatment sheet score.

NOI Variables

Of the three scores derived from the nursing organization index, the relationship between the perception of the organization and perceived general innovativeness (+0.78) has already been noted and discussed. This variable also correlates with the number of items of innovative ward behaviour (+0.61) and the treatment sheet score (+0.66). It has little or no relationship with any of the Kardex variables except the number of prescriptive nurse dependent themes -0.47.

It should also be noted that this important climate variable is associated with measures of self assurance (CPI Sociability +0.88, CPI Wellbeing +0.61); maturity (CPI Tolerance +0.78, CPI good impression -0.63); achievement (CPI Acceptance via conformance +0.69, CPI Intellectual efficiency +0.58) and with the interest mode of CPI psychological mindedness (+0.63). It has a high positive correlation with the perceived innovativeness score (+0.78) and with other innovativeness measures > +0.60. It has little or no association with any Kardex criterion measures, except for the number of descriptive themes in the Kardex (+0.45). It is not highly correlated with the two other measures derived from the Nursing Organization Index i.e. perception of self in the organization (-0.18) and perception of the charge nurse role (+0.47).

The perception of self in the organization however, correlates

at +0.60 with patient progress, (a nurse dependent variable) and intake and output (+0.60). Perceived charge nurse role follows the same pattern as for perception of the organization including -0.50 on the number of prescriptive nurse dependent themes.

Thus, it appears that the NOI variables have little relationship with Kardex behaviour. This seems to be strongly influenced by the structural patient number variables, particularly the number of admissions (refer Fig 7.1). Perception of the climate of the organization however, appears to be directly related to perceived general innovativeness.

SUMMARY

In this first chapter of Section Three, relationships between 67 of the baseline variables have been established and identified.

The statistical analysis yielded 9 distinct clusters of variables. Examination of these clusters, and of the relationships between particular variables, led to the identification of specific combinations of variables. These were consistent with previously proposed relationships indicated and discussed in Section 1 and illustrated in Figs1.3 and 7.1.

Whenever possible, reference has also been made to the relative importance of the variables within the clusters. As indicated on Tables 10.4 to 10.12 an assortment of variables, representative of each cluster, are carried forward, as a basis for discussion, to

Chapter 11. From these 60 variables, 30 have been selected for Section Four. This selection permits a highly refined and detailed study of the specific effects of the intervention, and gives a firm basis for the propositional extension of this research.

CHAPTER 11

THE INTERPRETATION AND DISCUSSION OF THE BASELINE DATA

In this chapter, the relationship of charge nurses to their environment is discussed in terms of the design model (Fig 7.1, p.131) and key concepts from Section 1. The results, presented through the grouping of variables in clusters and the inter-correlation matrices representing the one to one relationships of these variables, are used as a basis for presenting this discussion.

The content of this chapter falls into two main areas:

- a summary of the application of relationships between variables in terms of the clusters and intercorrelations
- the interpretation of results in the light of the literature review (Chapters 1-4 and the models 1.3 and 7.1).

THE APPLICATION OF RELATIONSHIPS BETWEEN VARIABLES: A SUMMARY

Table 11.1 (over) presents the collation of 60 of the 67 variables in the rank order in which they appear in each cluster. Those variables that contribute pattern loadings to the cluster of $> \pm$ 0.60 are included here. An inspection of the pattern matrix (Appendix I1) shows that the seven missing variables are: the number of job changes outside New Zealand; CPI dominance; CPI sense of responsibility; CPI tolerance; Kardex intake/output themes (IBK 15) : Kardex treatment themes (IBK 17); and Kardex number of evaluative nurse dependent themes. These variables will be included in the discussion of intercorrelations between members of clusters if the need arises. Detailed comment has already been presented in Chapter 10.

Clustering of Variables

The variables appearing in Table 11.1 can be regarded as representative of the main thrust of each cluster. Generally, the clusters which emerge are independent of each other and support the earlier comment (p.217) that none of the clusters are highly correlated (refer Appendix I1).

Cluster I

CPI intellectual efficiency and its accompanying CPI variables, social presence, sociability, and achievement through independence, together with age and Kardex patient progress, contribute 21.3% of the variance in the data. The importance of these variables has already

Table 11.1 Highest Loading Variables in Clusters ($> \pm 0.60$) (carried forward from Chapter 10)

Variables (N=60) In load rank order for each cluster		Category	1(% of v = 21.3)	2(% of v = 17.1)	3(% of v = 15.1)	4(% of v = 12.6)	5(% of v = 9.5)	6(% of v = 8.6)	7(% of v = 6.8)	8(% of v = 5.2)	9(% of v = 3.8)
CPI Intellectual efficiency	*	P	+								
Age		P	-								
CPI Social presence	*	P	+								
CPI Sociability		P	+								
CPI Achievement through independence	*	P	+								
K patient progress	*	C	+								
POI Other directed		P		-							
POI Inner directed	*	P		+							
K Physical care	*	C		-							
POI Acceptance of aggression	*	P		+							
POI Existentiality	*	P		+							
POI Spontaneity		P		+							
CPI Femininity		P		+							
CPI Self Control		P		-							
CPI Good impression		P		-							
CPI Achievement via conformance		P		-							
POI Self acceptance		P			+						
POI Time incompetent		P			-						
POI Time competent	*	P			+						
K Descriptive theme value	*	C			+						
POI Self actualizing	*	P			-						
K Prescriptive nurse dependent theme value		C			-						
K Artificial intake methods		C			+						
People sources of new information		P			-						
Daily average occ. bed rate		M				+					
Number of registered staff	*	M				-					
Number of patients in ward day of visit	*	M				+					
Daily av. No. of admissions		M				+					
K No. evaluative doctor dependent themes		C				+					
K No. evaluative Kardex themes	*	C				+					
Non-people sources of information		P				-					
POI Ability to transcend dichotomies (synergy)	*	P					-				
CPI Flexibility	*	P					+				
POI Capacity for intimate contact	*	P					+				
CPI Communality		P					+				
CPI Sense of wellbeing		P					+				
POI Self-regard		P					+				
No. of job changes within NZ		P					+				
Innovative behaviour in ward/unit/dept.	*	C						+			
Innovative behaviour team nursing		C						-			
Innovative behaviour treatment sheet	*	C						+			
Perceived general innovativeness		C						+			
Perceived nursing organization	*	M						+			
K No. of doctor dependent prescriptive themes		C							+		
K No. of prescriptive themes	*	C							+		
KI Functional status themes	*	C							+		
K11 Patient diet themes	*	C							+		
K19 Tests & procedures themes		C							+		
K No. doctor-dependent themes		C							+		
POI Feeling reactivity	*	P								+	
No. inservice educ. programmes		P								-	
Length of time employed in present work location		P								-	
Perceived charge nurse organizational role score	*	M									-
CPI Self acceptance	*	P									-
CPI Socialization		P									+
CPI Psychological mindedness	*	P									-
POI Nature of man		P									-
CPI Capacity for status		P									-
Perceived organizational self score	*	M									+
K No. nurse-dependent themes	*	C									+

_ (should be read as same direction (+) as other variables in this cluster (refer p.210,Ch.10)).

Note: P = predictor variable
M = moderator variable
C = criterion variable

* Variables carried forward into Section Four.

been discussed in Chapter 10, p.200. It is highlighted here by the association of these variables with the Kardex theme criterion variable of patient progress.

This variable (ΣBK 4) is one of the nurse dependent groups of Kardex categories (refer Appendix H1 p.65). Kardex Themes in this category are described as:

> any statements concerning changes over time, whether positive or negative, in the patients' condition or hospitalization stage and status.

Patient progress is the third most frequently occurring Kardex theme category at Beta Hospital and the fifth most frequently occurring at Delta Hospital. Unlike the other theme variables, it is not positively linked with the structural moderating variables associated with patient number.

It seems likely, therefore, that differences in intellectual efficiency, achievement potential, and interpersonal adequacy, as measured by the CPI are reflected in the progress type judgements made by charge nurses about the patients they care for. Further, the frequency of "patient progress" themes in the Kardex is linked positively to most CPI variables and negatively to most POI variables. This latter finding is highlighted by the negative association of this variable with the ability to situationally react without rigid adherence to principles and to the self actualizing value of inner directedness as measured by the POI.

In summary then, it appears that the ability of charge nurses to make professional judgements rests on learned skills acquired by socialization within the organization. This ability - expressed in this research, by the number of patient progress themes in the Kardex, is associated with the psychological attributes of achievement, intellectual efficiency and self-assurance as measured by the CPI. This ability varies inversely with age, but is positively associated with perception of self within the organization.

Cluster 2

In contrast to Cluster 1, the high loading variables here, represent personal feelings and attitudes. POI inner directedness has a high positive loading (+0.91) in this cluster where it is predominantly associated with other POI variables. Here the Kardex criterion theme count, physical care has a high negative loading (-.80).

Charge nurses do indeed make judgements and prescriptions about physical care for patients. Statements in the Kardex about the patients' positioning, hygiene, grooming, rest and comfort, prosthetic or dental care rank fifth at Beta Hospital and third at Delta Hospital (p.196). Such statements however, are not related to the self actualizing qualities measured by most of the variables in the POI.

An inspection of the correlation matrix for IBK 2 physical care, (Appendix I1 p. 72, Vol 2) shows correlational relationships which substantiate this argument. That is, physical care correlates with POI variables inner-directedness (-0.71); other directedness +0.77; existentiality (-0.76); spontaneity (-0.76); acceptance of

aggression (-0.73); and capacity for intimate contact (-0.53).

It seems, therefore, that statements about physical care for patients follow prescribed rules and formulae and do not reflect the feelings and values of individual charge nurses. There is however, considerable difference between charge nurses in respect of these predictor POI variables, (a few attitude-linked CPI variables), and the criterion variable of physical care. This difference is reflected in the amount of variance (17.1%), for this cluster.

Cluster 3

Here, measures of self-acceptance, time competence/incompetence and self actualization contribute the highest loadings. The Kardex categories and values are representative of a number of Kardex derived variables. POI self acceptance shows high positive correlations (refer Table I1 in Appendix) with the number of descriptive themes (+0.77), the number of artificial intake (+0.68) themes, and the number of evaluative themes (+0.54) in the Kardex. It is negatively associated with the CPI measures of self confidence such as social presence (-0.75), and dominance (-0.5), but has a positive association (+0.70) with the number of job changes within New Zealand.

The criterion variable IBK22 is concerned with those Kardex themes related to:

> intravenous or parenteral fluids, including fluids with medication additives and their administration and management. Also included are the care and functioning of nasogastric tube, subcutaneous infusion etc.

An inspection of the pattern of variables for Cluster 3 demonstrated in Table 11.1 reinforces the argument that descriptive theme values, and theme categories such as IBK22 are not reflecting feeling and other self actualizing values for individual charge nurses. Further, descriptive statements (Appendix H2) are statements of patient condition not elaborated in any way, such as:

slept well

satisfactory

good night

comfortable

sits up in bed

no complaints

up and about

cheerful

no visitors today

usual self

Such statements can therefore be regarded as routine organizationally defined statements to record the state of a patient without affect or involvement. Differences in the pattern and degree to which this occurs account for 15.1% of the variance across charge nurses in the raw data.

Cluster 4

The patterning of high loading variables in this cluster shows the positive relationships between the structural moderating variables (except the number of registered staff) and two of the three evaluative

theme categories in the Kardex. As the evaluative theme category is seen as one of the discriminating variables for detecting change following training/education (refer Georgopoulos and Jackson, 1970), this relationship is important in the context of Section Four of this thesis.

Evaluative themes are defined in Appendix H2 as:

> any statement which contains an element of judgement assessment, or decision making which elaborates the statement (may contain action) e.g. "refer patient to house surgeon"; or statements related to decision making, nursing diagnosis.

Georgopoulos and Jackson (1970) regarded evidence of such judgement in the theme count as a reflection of the independent practice of the more highly educated clinical specialist (as opposed to the regular head/charge nurse of a ward/unit/department). It seems more likely however, from the evidence presented in this study, that this variable is positively associated with organizational size, as shown in Table I1 (Appendix I1). Here it was found that IBKEVTH (number of evaluative themes) is positively correlated with the average number of admissions (+0.69); and the average occupied bed rate (+0.41). The evaluative component of the eight Kardex theme variables can also be identified in IBK11 (patient diet) +0.77, IBK17 (treatments) +0.75, IBK19 (tests and procedures) +0.42 and IBK22 (artificial intake) + 0.75.

Cluster 5

Here, predictor variables concerned with flexibility are negatively associated with feelings of confidence, well being and self worth. It seems that the amount of work experience charge nurses have (measured by the number of job changes within New Zealand) may not contribute to their openness to change, but may well make them more self confident.

This argument is supported by the strong relationships found between the variables in this cluster, as discussed in Chapter 10 and demonstrated in Appendix I1.

This negative patterning of flexibility with self worth and job changes accounts for 9.5% of the variance in charge nurse response.

Cluster 6

In Table 11.1, the representative criterion variables of this cluster are linked with the moderating climate variable, perception of the nursing organization derived from the Nursing Organization Inventory developed for this thesis.

The intercorrelations of this moderating variable with others have been established in Chapter 10. It has been pointed out that this variable moves in the opposite direction from the perceived self organization score derived from the NOI, and has little or no relationship with the Kardex variables (p.209). It does however have high correlations with the criterion measures of general and specific innovativeness with which it is associated in Cluster 6.

Although this cluster of variables contributes only 8.6% of the

variance in the data, the relationships depicted here are important in the context of this thesis. It seems that the perception by charge nurses of the climate of the organization in which they work may be one of the important factors influencing their adoption of innovations. This relationship is confirmed by the positive correlation (Appendix I1) between perception of the nursing organization and the level of the implementation of team nursing by charge nurses. Because of the apparent importance of this moderating climate variable, it is one of three from this cluster being carried forward into Section Four.

Cluster 7

The representative sample of variables from Cluster 7 (displayed in Table 11.1) show the interrelationships of a group of criterion measures. The theme count categories presented in this cluster are fully defined in Appendix H1. In summary these are:

IBK 1 Functional status: any statements referring to symptoms or signs (other than vital signs) manifested by the patient; (nurse dependent variable)

IBK 11 Patient diet: all statements regarding food and nutrition; (doctor dependent variable).

IBK 19 Tests and Procedures: all references to diagnostic tests and related procedures; (doctor dependent variable)

The predominant pattern in Cluster 7 is of doctor linked Kardex entries related to patient diet and diagnostic tests. This recalls the presentation of results in Chapter 10 where the relationships of the number of newly admitted patients to these variables is clearly shown. It was pointed out (p.222) that higher numbers of admissions would increase the frequency of the doctor dependent variables in the Kardex. As the admission procedure is largely related to medical diagnostic procedures and orders for delegated medical care, there is little opportunity for nursing judgement and evidence of change in nursing practice to come through under these circumstances.

Georgopoulos and Jackson (1970) designate "functional status as a category with a particular nursing flavour" (nurse dependent). In the present study, however, it is evident that it is a theme category of the same order as diet, and tests and procedures which are characterized by Georgopoulos and Jackson as "doctor dependent". This could be a reflection of differences between the organization and/or cultural background of the hospitals and nursing organizations investigated in the two studies. It seems more likely, however, that it is related to differences in the process of nursing practice itself. That is, that statements, written by nurses in the Kardex, referring to the signs and symptoms of patients are derived predominantly from medical judgement and comment. This reinforces the impression already recounted in comment on Cluster 1, that statements on the progress of patients contain nursing, rather than medical, judgements. Nursing judgement, therefore, is more likely to be

displayed in written comments and orders on the continuation of care for patients, rather than in the diagnostic admission phase of their stay in hospital (refer comments on IBK 4 patient progress).

Differences between charge nurses in the degree to which doctor dependent items appear in the Kardex contributes approximately 6.8% of the variance in the data. In view of the relevance of this cluster to the nature of nursing practice, three representative variables are carried forward into Section Four.

Cluster 8

In this representative group of predictor variables, the relationships between feelings and attitudes (as measured by the POI), length of time in present position, and study programmes or training offered by the employing organization are highlighted.

Table 10.11 shows the picture even more clearly, as the negative loadings of people sources of new information, and the numbers of nurse dependent/nurse evaluative themes can be added.

The pattern presented by this cluster of variables shows that sensitivity, or responsiveness to one's own needs and feelings, (and the variables associated with this), contributes only 5.2% of the difference among charge nurses. It has already been established in Chapter 10, that this "feeling" variable moves in the opposite direction from most of the organizationally linked CPI variables e.g. CPI self control (-0.60), CPI good impression (-0.77). It is, however, linked with POI inner directed (+0.51) and with IBK 19 tests and procedures (+0.72).

On the surface, this latter finding seems out of place. However, reflection of feeling could be the nursing contribution to what is predominantly a doctor-order linked Kardex item. This is supported by the negative relationships of the representative variable, length of time in present position, in this cluster. The negative relationship of training and feeling is consonant with the comments already made on the relationship between the organizational socialization (as measured by the CPI) and charge nurse behaviour. This is measured here by general and specific innovativeness measures and the frequency and nature of items written in the ward Kardex.

Cluster 9

Predictor, moderator, and criterion variables are conveniently grouped together in this cluster which contributes the least variance in the data (3.8%).

The highest loading variable is the derived perceptual charge nurse role score (-0.81) from the Nursing Organization Index. This moderator measure moves in the same direction as the predictor attitude and feeling measures, and in the opposite direction from the predictor organizational measures. It is here in Cluster 9, that the positive relationship between the perception of self in the organization, the process of socialization and the type of nursing input into the ward information system is clearly set out. This relationship is also evident in the correlation matrix (Appendix I1) where the perceived organizational self score is shown to correlate with: the number of job changes within New Zealand (+0.58); the

number of inservice education programmes (+0.64); CPI dominance (-0.77); CPI capacity for status (-0.67); CPI self acceptance (-0.71); CPI tolerance; POI existentiality (-0.57); POI self acceptance (+0.52); POI synergy (-0.53); NOI perception of charge nurse role (-0.55); IB Team N (+0.58) - a negative relationship; IBK 4 (patient progress, +0.60) and IBK 15 (intake and output, +0.60).

As the variables in Cluster 9 contribute the least variance in the data, it is concluded that this cluster represents a relatively stable baseline situation with few differences between charge nurses. Moreover, it reflects the relationship between the predictor, moderating and criterion variables set out in Table 7.1. Stated simply, it appears that measures of poise and socialization (as measured by the CPI) are related to statements of nursing judgement. But, that this relationship is affected not only by the differences between feelings and attitudes of individuals (as measured by the CPI and POI) but also by differences in perception of themselves and their role within the organization (as measured by the NOI).

In view of the importance of this cluster, five of these variables will be carried forward into Section Four, and discussed more fully there in relation to the intervention.

Summary of Discussion (Table 11.1)

Clusters 1 and 9 complement each other and sum up in general the main points evident in the baseline data. These are:

- the positive relationships between measures of self-assurance and interpersonal adequacy and judgements

made by nurses in the Ward Kardex;

- such judgements appear to be prescribed by the organization and are not a reflection of feelings or reaction to the situation;
- such judgements are influenced by the charge nurses' perception of the organization, a perception which is, in turn, socially prescribed;
- that the charge nurses' perception of their role in the organization is negatively associated with socialization measures and with the perception of themselves in the organizational setting.

Clusters 2 - 8 give light, shade and substance to the above general interpretation. In particular, Cluster 6 demonstrates the positive relationship between the general and specific measures of innovative behaviour and the measure of organizational climate. From the foregoing discussion, it is not surprising that no representative Kardex measures appear in this cluster. For the CPI measure of socialization demonstrates no relationship with any of the general or specific ward innovativeness measures (refer Appendix I1). Therefore, the CPI measures of interpersonal adequacy and assurance tend to reflect individual psychological processes which are related to perceived organizational goals. These goals are not related to change, but to perceived stability within the hospital, and hence the nursing organization.

Therefore, it follows that an intervention (training programme) aimed at changing the charge nurses' perception of themselves in the organization and their perception of the organization should bring perception of role and practice closer together.

AN INTERPRETATION OF THE RESULTS IN THE LIGHT OF FIGURE 1.3

The second major aim of this thesis is to:

> present a comprehensive descriptive analysis of the characteristics of charge nurses at work, which includes an analysis of the climate and structure of the nursing organization (p.124, Chapter 7).

The statistical analysis of the variables yielded useful cluster patterns and intercorrelations of variables which have been used to elaborate on the patterns of variables in the clusters.

In the first, larger part, of this chapter, the consequences of these results have been pinpointed and discussed. Table 11.1 has been used to summarize the important representative variables for each cluster, the direction of their relationships, and whether the variable is designated as a predictor moderator or criteria variable in the light of Figs. 1.3 and 7.1. Indications have been given, in most cases, for carrying forward 30 of these representative variables into the propositional extension of this thesis, Section Four.

This seems an appropriate time, therefore, to reflect on the relationship of the results of this empirical baseline analysis to statements made in the literature review and the connections postulated in Figs 1.3 and 7.1.

The Interaction of People and the Organizational Environment

In Figure 1.3, an interactive relationship is postulated (via a systems approach) between the people working in an organization and their environment. This relationship is supported by the discussion in Chapters 10 and 11 where structural and perceptual organizational variables are studied. In particular, the results in this study support Rosner's (1968) contention that innovativeness varies inversely with organizational slack. That is, that prescription of behaviour (judgement) by rules has led to judgements made in writing which are not a reflection of feelings or reaction to the situation.

The most important set of moderating variables are those derived from the perceived index of organizational climate, organizational role, and the perception of self within the organization. The structural variable, numbers of admissions, is also important. This former finding is in line with discussions in the literature review, e.g. Guion (1973) where the organizational climate is seen as"a set of attributes" of the work environment.

Charge Nurses as the Target Population

As reiterated at the beginning of Chapter 10, the key question to be asked of this section of the thesis is whether this group of

charge nurses (N = 58) does indeed equate with the change agents/ innovations/early adopters postulated by Jacoby (1976).

The criterion variable measuring the degree of implementation of team nursing (Appendices F1 to F5) in wards and departments is the key to this issue. This variable has high loading, (0.81) with other innovativeness variables, in Cluster 6, and with these, contributes to 8.6% of the variance in the data. The degree of implementation of team nursing as a method of delivering nursing care, correlates positively with innovative behaviour in the ward (+0.53); the degree of complexity of the treatment sheet (+0.75); and the perceived innovativeness score (+0.52). The pattern of variables associated with the implementation of the innovation, team nursing, is shown in Table 10.9.

It seems clear, as set out in Tables 1.3 and 7.1, that perception of the organizational climate is associated with innovative behaviour. Variations in perception and level of innovativeness are responsible for 8.6% of the variance in the data. In particular, the degree of implementation of the innovation team nursing varies directly with perception of the organization.

That is, charge nurses who perceive the nursing organization as an open one, where new ideas are encouraged will be more likely to implement new ideas and methods introduced into the organization. The degree to which members of the charge nurse population are spread across an innovativeness continuum is a function of their perception of the organizational climate.

The Nature of Innovativeness

Coleman, Katz and Menzel (1966) did not find that early adopters of "gammanym" favoured innovations of other kinds. As discussed in Section 1, this raises a question about the nature of innovativeness. Is it a general personality trait of the same order as those measured by the POI scales? Or, is it a more specific trait which aligns rather with those characteristics measured in the CPI scale? Is it facilitated, or constrained by individual predictor or organizational moderator variables?

It has already been established (refer previous section) that the individual's perception of the organization is linked with a specific instance of innovative behaviour - the adoption of team nursing. The general innovativeness measure (IPGSC) which reflects the individual charge nurse's perception of the changes she has achieved during her time in the ward, has a high positive correlation (+0.78) with the perception of organizational climate. Thus, variations in levels of adopting new ideas and making changes are a reflection of the way in which the charge nurse views the organization.

It appears, therefore, that levels of general and specific innovativeness vary with the extent to which the organization is seen as facilitating or restrictive. As such, it is a relative concept, linked with social factors which influence perception. In the case of this thesis, the social processes within the organization appear to have a powerful effect on feelings, self actualization and the perception of self. This confirms the discussion in Chapter 1 where

the buffering effect of the organization between sociocultural factors and the medical (nursing) process was put forward as a restraining factor in change. However, it appears that it is not the structure of the organization itself that is so important as the interaction of psychological, social, and perceptual processes of people within the organization (Fig 7.1).

Innovative behaviour, in this baseline study then, is not a trait of the same order as those traits measured by the POI, but has more in common with measures of self assurance, socialization and achievement as measured by the CPI. To that extent, it demonstrates characteristics of the same order as those described by Coleman, Katz and Menzel (1966) which are outlined in Chapter 3.

SECTION FOUR

A FURTHER APPLICATION OF THE RESEARCH PARADIGM: A PROPOSITIONAL EXTENSION

In this section, the planned intervention is presented and discussed. Differences between groups and between selected baseline variables, identified in Section Three, are examined before and after the intervention.

CHAPTER 12

THE GROUPS AND THE INTERVENTION: A NORMATIVE-EDUCATIVE APPROACH TO CHANGE

CHAPTER 13

THE PROPOSITIONAL EXTENSION: PRESENTATION AND DISCUSSION OF RESULTS

CHAPTER 12

THE GROUPS AND THE INTERVENTION: A NORMATIVE-EDUCATIVE APPROACH TO CHANGE

In Figure 7.1, (p.131), the people input to the system (charge nurses) is shown to be modified by individual, environmental and training process factors, over time. Section Three presents an analysis and discussion of the relationships between individual and environmental variables, and among groups of these variables. Section Four addresses itself to the third aim of the thesis, that is to:

> examine the effect of a planned intervention on specific aspects of charge nurse behaviour.

This first chapter of Section Four is concerned with the third strategy outlined in Chapter 7, (p.128): the examination of the process outcome, using a before and after design. As previously stated, this strategy is used to examine the effects of an intervention (a form of planned change) in the normal workday life of the people input to this study. Changes identified after training, are followed up over a time period of approximately six months.

THE POPULATION OF CHARGE NURSES WHO PARTICIPATED IN THE EXPERIMENTAL SECTION OF THE STUDY

Reference is made in Chapter 9 (p.133) to the method of selecting charge nurses to participate in the research study. It was pointed out that charge nurses working in accident and emergency, outpatient and operating areas of the hospital were excluded.

Beta Hospital

Initially, the charge nurses selected from Beta Hospital, included those working in the medical, surgical and paediatric wards and departments. At the request of the administration, the programme of testing and audit was widened to include charge nurses who could be released from the obstetric unit at Beta Hospital. This extension was, however, in line with the overall criteria for participation. That is, that the charge nurses should be in a position to pass on information to other staff.

The 42 charge nurses from Beta Hospital were randomly assigned to one of two groups (A & B). As already pointed out (p. 175 Chapter 9), the realities of sickness, annual leave, and the needs of patients forced arbitrary changes in the allocation. Nevertheless, the time and training schedule already contracted for (see Appendix B3) was adhered to. Data from Group B has been used to highlight the immediate post treatment changes for Group A (refer Figure 13.1). Subsequent material obtained from Group B has been placed in Volume II, Appendix K , pp 116 - 125.

Thus, the intervention described later in this chapter was administered to both Groups A & B (Beta Hospital). Pre and post individual and audit measures were taken of the characteristics and behaviour of charge nurses in both groups. Differences over training and time for thirty representative variables, drawn from these measures, are examined in Chapter 13.

Delta Hospital

The inclusion of 16 charge nurses from Delta Hospital represents an extension of the original two cell design (see Chapter 9). The criteria used for selection were the same as for Beta Hospital. Individual and audit measures were carried out within the same time frame as the two groups at Beta Hospital. This group of charge nurses, Group C, is used as an external control for the post measurement of Group A at Beta Hospital.

Composition of the Groups

Biographical

As organizational constraints modified the original random allocation of subjects to the groups at Beta Hospital, the baseline composition of the three groups of charge nurses is given on the following page.

An analysis of group composition by work location is given in Table 12.1.

Table 12.1 Frequency Distribution of Group Members by Work Location (N = 58)

Location	Groups A	B	C	Total
Medical	3	1	2	6
General surgical	2	3	2	7
Intensive treatment	0	4	2	6
Orthopaedic	1	2	1	4
Specialist	4	5	2	11
Paediatric	2	1	1	4
Obstetric	5	3	4	12
Geriatric	2	2	2	6
Admin/teaching	1	1	0	2
Total	20	22	16	58

The main work-related difference between the three groups lies in the absence of charge nurses from intensive treatment areas in Group A. Leave and staffing requirements rather than randomness, at Beta Hospital created this anomaly.

Table 12.2 shows the length of time spent by group members in their present work locations. This was identified as an important factor in organizational change in Section 1.

Table 12.2 Frequency Distribution of Group Members by Time Spent in Present Work Location (N = 58).

Time in Location	Group A	B	C	Total
Less than 1 month		1		1
1 month to less than 3 months	1	2		3
3 months to less than 6 months	1	2	1	4
6 months to less than 12 months	1	5	1	7
12 months to less than 24 months	2		1	3
24 months to less than 36 months	4	6	3	13
36 months to less than 60 months	3	2	1	6
60 months to less than 84 months	4	3	3	10
84 months to less than 120 months	1	1	4	6
Over 120 months	3	0	2	5
Total	20	22	16	58

Distributions for groups A & C are reasonably similar. Fifty-five percent of Group A and 62.5% of Group C have been in their present job for more than three years. Group B, on the other hand, has only 27.2% of its members in this category.

The professional and general educational qualifications of these three groups show similarities rather than differences.

Table 12.3 Frequency Distribution of Group Members by Level of General Education (N = 58).

Level of Education obtained	Groups A	B	C	Total
Up to 3 years secondary but not school certificate	11	9	9	29
School certificate	2	3	2	7
Sixth form certificate	2	7	2	11
University entrance	3	2	3	8
Undergraduate diploma	0	0	0	0
Undergraduate degree	1	1	0	2
Postgraduate diploma	1	0	0	1
Postgraduate degree	0	0	0	0
Total	20	22	16	58

As has already been pointed out in Chapter 8 Table 8.1, 50% of the total population of charge nurses do not have the (now) minimum qualification of school certificate. In Group A, 75% of the charge nurses have less than university entrance; as do 86% of Group B, and 81% of Group C.

Table 12.4 Frequency Distribution of Group Members by Number of Postbasic Professional Qualifications (N = 58)

Number of Postbasic qualifications	A	B	C	Total
One postbasic qualification	8	9	5	22
Two postbasic qualifications	1	3	1	5
Three postbasic qualifications	2	1	2	5
No postbasic qualifications	9	9	8	26
Total	20	22	16	58

The frequency distribution of postbasic qualifications, shows little difference between the three groups. This variable was not included in the factor analysis, and, as can be seen, it contributes little to differences between the groups.

Similarly, charge nurses in the three groups show mean frequencies of 3.9(A), 4.86 (B), and 4.75 (C) for the actual number of job changes within New Zealand. Of the 13 charge nurses in Group A who had done nursing work outside New Zealand, five had taken more than four different nursing jobs. In Group B, nine had worked outside this country and four reported at least four different types of work experience. In Group C however, 10 out of the 16 charge nurses had had work experience overseas, five with at least four job changes, and one with the impressive total of 15 different kinds of work experience.

Another variable included in the factor analysis was the actual number of staff training programmes attended in the last 3 years.

Of those charge nurses who gave detailed information, by far the greatest number of programmes attended was reported by the members of Group C. In this group, 56% of the members reported attending at least 10 programmes over the three year period. No member of either Group A or B reported attendance greater than 9, and the modal response was one for Group A and two for Group B. Sixteen charge nurses from Beta Hospital (10 A, 6 B) reported "routine study days" but no other detail. The explanation in relation to Group C could lie in the vigorous organizational development programme being undertaken at that hospital during the time of the research study (refer Chapter 9 p.187). Ironically, "staff training" was seen by the researcher as "not well developed at Delta Hospital" (p.187). An opinion obviously not shared by the charge nurses at that hospital!

Age did contribute to variance in the data for Cluster 1 (refer Chapters 10 and 11). It is therefore interesting to compare the three groups on the basis of age distribution.

Table 12.5 Frequency Distribution of Group Members by Age (N = 56)

Age Ranges	A(N =20)	B(N = 21)	C(N = 15)	Total
20 - 24	1	4		5
25 - 29	4	4	1	9
30 - 34	6	1	6	13
35 - 39	2	2	1	5
40 - 44	2	1	1	4
45 - 49	2	5	2	9
50 - 54	2	2	2	6
55 - 59	1	2	2	5
60 - 64	0	0	0	0
65 and over	0	0	0	0
Total	20	21	15	56

In Table 12.5, a pattern consonant with that for length of time at work (Table 12.2) is demonstrated. Here, Group B is again different from the other two groups. Of this group, 38% of its members lie between the modal age range of the charge nurse population (30-34 years). To offset this, and in contrast to the other two groups, the modal age range from Group B is 45 - 49 years.

Although Group B does show differences in age distribution, and length of time spent in work location from Groups A and C, neither of these two variables are seen as important in the demonstration of innovative behaviour (refer Chapters 10 and 11).

Psychological

The following tables illustrate the similarities in group means for the scores of representative CPI and POI, variables brought forward to Section Four, from the clusters (refer Table 11.1).

Table 12.6 Group Means for Representative CPI Variables (refer Table 11.1)

CPI Variable	Cluster	GROUPS A(N=19)		B(N=21)		C(N=15)	
		$\bar{X}$	(S.D)	$\bar{X}$	(S.D)	$\bar{X}$	(S.D)
Intellectual efficiency	1	38.895	(3.71)	37.762	(4.312)	36.400	(6.555)
Achievement through independence	1	18.789	(4.184)	19.952	(3.122)	18.533	(4.470)
Psychological Mindedness	9	10.368	(2.753)	10.905	(2.119)	9.800	(2.808)
Self Acceptance	9	19.421	(3.421)	21.000	(3.479)	17.600	(3.291)
Flexibility	5	9.263	(3.813)	8.381	(4.283)	8.733	(3.240)
Social Presence	1	32.316	(5.588)	32.952	(5.104)	30.067	(5.663)
Socialization	9	38.895	(3.680)	38.819	(3.640)	38.133	(5.139)

An inspection of this table shows that with the exception of CPI self acceptance, the group means for the representative CPI variables all lie within one standard deviation of each other.

Table 12.7 demonstrates group similarities for the representative POI variables.

Table 12.7 Group Means for

Representative POI Variables (refer Table 11.1)

POI Variables	Cluster	A(N=19)		B(N=21)		C(N=16)	
		$\bar{X}$	(S.D)	$\bar{X}$	(S.D)	$\bar{X}$	(S.D)
Inner directed	2	80.632	(8.513)	81.809	(6.129)	79.500	(7.729)
Existentiality	2	19.000	(3.383)	19.476	(3.076)	17.125	(3.481)
Time competent	3	17.684	(2.311)	17.857	(1.852)	17.000	(2.449)
Self actualizing	3	20.263	(2.423)	19.905	(2.468)	20.563	(3.898)
Ability to transcend dichotomies	5	7.368	(1.065)	7.571	(1.121)	6.750	(0.931)
Acceptance of aggression	2	15.053	(3.423)	16.476	(2.400)	14.688	(3.321)
Capacity for intimate contact	5	15.684	(2.88)	18.476	(2.442)	17.250	(2.380)
Feeling reactivity	8	14.211	(2.347)	14.857	(2.032)	13.938	(2.294)

An inspection of this table shows no significant differences between groups in relation to the baseline scores of group members on these POI measures.

Despite these similarities in the representative variables, there are some differences in the group profiles for the CPI and POI measures, both at the baseline testing (T_1) and at subsequent testings (T_n). For completeness, these profiles have been included as Appendix K. However, it is clear that for the representative variables, the groups are essentially similar.

Organizational (Climate)

Table 12.8 demonstrates the similarities between the representative organizational (NOI) variables brought forward from the clusters into Section Four.

Table 12.8 Group Means for

Representative Organizational Variables (refer Table 11.1)

Organizational Variables	Cluster	GROUPS A(N=17)		B(N=18)		C(N=15)	
		$\bar{X}$	(S.D)	$\bar{X}$	(S.D)	$\bar{X}$	(S.D)
Structure							
Number of registered staff	4	3.000	(1.000)	3.950	(2.139) (N=20)	3.938	(2.462)
Number of patients in ward	4	17.588	(9.434)	15.316	(8.347) (N=19)	20.125	(8.663)
Climate							
Perceived nursing organization measure	6	48.313	(4.672) (N=16)	47.150	(5.363)	42.500	(6.633)
Perceived charge nurse organization role score	9	11.588	(2.694) (N=16)	12.333	(2.221)	11.200	(2.484)
Perceived organizational self score	9	26.375	(4.334)	26.611	(5.832)	32.733	(4.200)

An inspection of this table shows that Groups A and B are similar, but C is different in relation to the perception of the nursing organization and perceived self scores. As Group C is located within a separate institution, this difference appears to support Revans' (1971) assertion that individual hospitals have unique organic

qualities (refer discussion p.85) of this thesis . The difference between the Beta (A & B) and Delta (C) Hospital group means demonstrated in Table 12.8 is supported by the group profiles included in Appendix K in Volume II.

Behavioural

Similarities and differences between groups in relation to the representative behavioural variables carried forward from the clusters, are shown in Table 12.9

Table 12.9 Group Means for Representative Behavioural Variables (refer Table 11.1)

Behavioural Variables	Cluster	GROUPS A(N=17)		B(N=18)		C	
		$\bar{X}$	(S.D)	$\bar{X}$	(S.D)	$\bar{X}$	(S.D)
Innovative behaviour ward	6	2.684	(2.518)	4.333	(3.786 (N=21)	2.250	(2.340) (N=12)
Innovative behaviour treatment sheet	6	2.500	(1.401)	3.588	(1.533) (N=17)	2.131	(3.427)
K1 Functional status	7	1.471	(1.625)	1.778	(1.896)	2.563	(2.988)
K2 Physical care	2	0.8824	(1.111)	1.278	(1.809)	1.375	(1.586)
K4 Patient progress	1	3.0588	(4.337)	1.500	(2.684)	2.000	(1.633)
K11 Patient diet	7	0.7059	(1.263)	0.668	(1.085)	0.750	(1.342)
No. nurse dependent themes	9	6.689	(4.418) (N=21)	6.111	(3.596)	7.938	(4.711)
No. of descriptive themes	3	10.6111	(11.252) (N=21)	11.889	(9.505)	10.813	(5.307)
No. of evaluative themes	4	1.444	(1.338) (N=21)	1.3889	(1.787)	3.250	(5.079)
No. of prescriptive themes	7	3.667	(5.099) (N=21)	4.722	(3.953)	3.013	(2.926)

An examination of this table shows more similarities than differences between groups. In the variables brought forward from Cluster 6, Group B shows higher group means, but these both fall within one standard deviation of the measures for Groups A & C.

The results shown for the Kardex variables supplement the data already presented on p.196, Chapter 11, where the Kardex theme categories are shown to be closely associated in Beta and Delta hospitals.

SUMMARY

In this section of Chapter 12, the population of charge nurses who participated in the study has been examined in relation to their group membership, Groups A & B (Beta Hospital) and Group C (Delta Hospital). These groups show no real differences in the mean baseline behavioural scores on measures considered to be representative of the variables identified in clusters (Chapter 10).

Groups A & C are similar in relation to distribution of the work location category and the time spent by members in these work locations. There are more young charge nurses (20-29 years) in Group B, and only 27.2% of the charge nurses in Group B had spent more than three years in their present job.

In the education and training field, the only difference worth noting is the high number of inservice programmes attended by Group C members in contrast with the other two groups. Along with this result, the members of Group C have a lower mean organizational climate score and a higher mean perceived self score. This recalls

the discussion in Chapter 10, p.250, where the inverse relationship between these two variables was pointed out. In other words, the members of Group C view the organization in which they work as more restrictive, than do the nurses in Groups A and B. On the other hand, they view themselves as fitting better in to the organization, than do Groups A and B. In addition, Kaluzny, Veney & Gentry (1974) found cosmopolitan orientation and staff training prime predictors for innovation in hospitals (refer p.145 of this thesis).

THE INTERVENTION:
A COGNITIVE, AFFECTIVE PROGRAMME FOR CHANGE

The rationale for using a normative educative approach to planned change in a nursing organization has already been presented in Section 1. It was emphasized at the conclusion of Chapter 6, that training, in this study, is presented as a process intervention.

The structure and content of the programme is presented here, and reasons given for the inclusion of material. As the main focus of this study, is not on the development and processes of the group, as such, but on the outcome of the training process, (see aims, Chapter 7, p.132), a detailed analysis of the group work has not been included. The original programme is placed in Volume II, Appendix J1, together with the amended programme (Appendix J2) which was undertaken with both Groups A and B in a sequence two weeks apart.

The training experiences planned for the 42 chargé nurses from Beta Hospital (Groups A and B) include a number of the exercises and techniques used by the author in introducing change into organizations. Normally, however, an organizational development approach is used, in which course members participate in the planning of the programme. In this case, the charge nurses did not participate in planning. A second departure from the usual practice of the author was the replication of the same training programme for two groups. The third difference from normal practice was the deliberate introduction of an innovation, primary nursing on the morning of Day IV.

This innovation is described in Appendix J9 p.104, Vol. II.

It can be argued that as the training programmes were two weeks apart (November 8th - 12th and November 22nd - 26th) that Group B could well have received information from Group A. There was certainly no evidence in the discussions that arose in the second week, that any members of Group B had been briefed to any degree about the content of the programme. The members of Group A were asked, at the conclusion of the programme, not to discuss content.

Structure and Content of the Programme

Day I: opened with a general introduction of group members, discussion and modification of the planned programme. The matter of "what do we call each other" took some time to resolve. Group members finally settled for first names. Requests by group members (Group A) for sessions on counselling and reading research articles were added to the programme[1].

The exercise 'Broken Squares' (Pfeiffer and Jones, 1972), was used to sensitize the participants to some of their own behaviours (p.24). The discussion of feelings that arose from this was a useful starting point for the identification and discussion of mutual problems later in the morning. A critical incident technique was used to elicit the task and process work problem identification list included as Appendices J3 and J4. The members of both groups were asked to write down:

1. See Appendix J2 which refers to both groups.

one thing that happened (at work) in the last week that made you feel good; and

one thing that happened (at work) in the last week that made you feel bad.

These incidents were collated on the blackboard after verbal presentation and discussion. In this session feelings about the administration, staff levels, and work load were freely expressed. The afternoon sessions were spent on group work, the dynamics of group process and the consideration of the content of a handout on the functioning of groups (Kinross & Boddy, 1974, Appendix J5). The content for this session included such topics as:

- what is a group?
- characteristics of groups
- content versus process in group work
- Johari window
- communication, specially methods of feedback.

A group decision-making exercise followed the theoretical input by the group leader. The group process skills of members were focussed on in this session using 'Exercise Fishbowl'. The methodology for this technique is set out in the Trainer's Manual (p.6.1) accompanying the Program of Exercises developed by Bass (1974) and his associates. The author's adaptation of this exercise is attached as Appendix J6. As Bass points out, this exercise puts the group member in a situation where he can both experience trust, competition, and the sharing of knowledge and observe the process in other groups.

Day 2: On the morning of Day 2, a selection of texts was made available on desks at the back of the room. Among these were included texts relating to the application of group work to nursing practice (Marram); nursing process (Yura & Walsh); research in nursing (Kinross & Joblin; O'Connor & Winitana); and management of health care systems (Rowbottom).

A feature of the second day was the emphasis on interpersonal skills. A selection of incidents from Appendix J7 was used as a basis for group discussion; the sessions were videotaped and played back later in the day to participants.

The author has used video-feedback as a teaching technique with university students as well as in continuing education and human relations training programmes. It offers a low key method of feedback, particularly if used with role playing or 'modelling' which does seem to stimulate attempts to change behaviour by group members. Walters (1975) reports a study with 135 university students randomly assigned to groups in five experimental conditions to examine the effects of videotape training and group performance. He found that: videotape model presentations resulted in significant performance improvement; that the addition of videotape to modelling resulted in significant but relatively small incremental improvements in performance; and that videotape feedback alone did not result in significant performance improvement. He qualifies this, however, by stating that "feedback, which is highly valued for some purposes,

appears to have little direct and immediate value to training which is as goal specific as the group problem - solving process studied here". In the case of the programme described in this thesis, the objective was to sharpen the observational skills of the group and increase insights into their own behaviour. Written responses to the incidents used for discussion, were, in fact, obtained for both groups before and after training but have not been analysed for presentation in this thesis, where the primary focus is on change of behaviour in the work location, rather than on evidence of short term change in the laboratory situation.

In the afternoon, a multiple role-play technique was used to examine incidents selected from those listed in Appendix J7. Later in the day, both groups moved into role plays on counselling, with direction and modelling by the group leader. The replication of this programme for Group B was as exact as possible, including the simulation of a breakdown with the video recording equipment which had actually occurred with Group A.

Day 3: At this stage, the programme focussed on management and management process. The problems related to the use of patient dependency were discussed. Discussion took place in special interest groups: special units; medical; surgical; obstetric. Group members were set the following task and questions:

You are required to come up with an estimate of the staff required for each of your areas:

(1) identify the information you would need to make the decision;

(2) how did the group come to a decision;

(3) what was the decision?

The results were summarised on the blackboard, and similarities and differences between the groups were discussed.

After lunch, participants joined in an hour long session on the reading of research reports, using the journals of Nursing Research available from the Beta School of Nursing library. The groups discussed the ways in which nursing research could be used as a basis for input to practice.

The last exercise for Day 3 involved special interest subgroups again. These were asked to compile a report to the nursing administration on the standard of nursing practice in their particular work areas. A copy of the reports actually produced is included as Appendix J8. The leader gave the following instructions:

(1) describe how you would go about this task;

(2) give the steps in the process and outline what would take place at each stage;

(3) give a summary of your report under main headings.

Day 4: This session began with the discussion of a handout on systems of delivery of nursing care (Appendix J9). Discussion on the details of primary nursing was encouraged and the text 'Primary Nursing' (Marram, Schlezel & Bevis, 1974) was demonstrated and made available. The groups used for the Day 2 incident discussion were then used for a change/resistance exercise. The instructions were:

(1) you are asked to choose one system of nursing care delivery that you would most like to have in your ward, given the realities of the situation;

(2) divide into your original groups; for the first fifteen minutes, maintain your own position, you cannot change your mind;

(3) you may then shift position if you wish as the group must come to a consensus and then justify the reason for their choice.

The problems arising from a firm stand and the difficulties of reaching consensus, where there is no openmindedness, were fully discussed by both groups.

In the afternoon, nursing practice was looked at from the patient's point of view, using a triadic discussion method. All the members of the group took turns at simulating patient behaviour in a variety of situations. Later, the whole group moved on to self-appraisal using 'Exercise Self-Appraisal' designed by Bass,

Vaughan and Schein, 1974. This exercise is designed to:

> provide 'each' participant (with) the opportunity to assess his own behaviour in three areas: style of learning, style of relating to others, and management style (Appendix J12).

Participants work in pairs so that the exercise can be used to encourage group members to accept, and give feedback, to peers about their own performance.

As homework for Day 4 the members of Groups A and B were given readings (Rodgers, 1973; Benne & Chin, 1970) to consider before the sessions on change.

Day 5: This began with a discussion of strategies of change and the process of change, and was followed up by 'Exercise Future' (Appendix J10). This exercise has been developed by Vaughan (1974) and is another of the exercises presented in the Program of Exercises for Management and Organisation Development. It has been adapted here to suit the particular needs of groups of senior nurses. It is frequently used by the author as a means of promoting interaction between group members when scheduled training sessions are held several weeks or months apart. In this case, the exercise was used as a focus for future movement by the charge nurses in personal and work related behaviour.

At the end of the day, each participant submitted a short evaluation of the course, based on the questions:

- how do you feel about this week?
- grade the usefulness of the week (on a seven point scale) from a personal, professional, and hospital point of view (refer Appendix J11).

Summary of Group Process Observed

Inclusion Group A raised the issue "what do we call each other" early on the first morning. Although they did call each other by first names, they never did get around to referring to the group leader as 'Nancy' or 'Nan'. Group B, on the other hand, did this as soon as the matter of "what do we call each other" had been resolved.

Problem identification Group B appeared to be much more concerned with management issues than Group A (refer Appendix J3 and Appendix J4). This group began the exercise very hesitantly and soon became preoccupied with problems relating to ward administration and staffing. This could have been related to discussions on staffing also being held in the same week by the supervisors. State examinations for nurses were in progress, and outstanding annual leave had to be taken by the end of November. In addition, several members of Group A had been tense, anxious and vocal about leaving their wards for 5 days to come to the course. This feeling was not expressed to the same degree in Group B. However, the interest in management problems could well have been a reflection of the particular mix of people, and their job locations in Group B.

Relation to the leader

Both groups began the week in a defensive, somewhat aggressive mood. At the end of day 1, they were still absorbed in ward problems, particularly the relation of group members to authority, in the form of nursing administration. It is probable that at this stage of the intervention programme the leader was seen as an extension of the administration. By the end of the five days, group members appeared to relate much more easily to each other, and to the group leader. This relationship continued into the ward interview situation where most charge nurses talked freely about their personal feelings and their jobs during ward visits (after the first baseline data collection visit).

In both groups, the issue of the relationship of the group members to the leader reached a crisis point following the Day 3 morning session. In Group A, the death of a patient in a ward unit brought feelings to the surface. In Group B, the members initiated a more direct confrontation when one member mentioned that 'several people are upset by yesterday's videotape and counselling sessions'. ("I did not like yesterday").

In Group A, discussion of feelings was handled in a discussion session on day 4, but a vocal, vigorous session immediately followed Group B's confrontation with the leader.

Group cohesion was evident in both groups by midweek or even earlier. Both groups were disturbed by the videotape feedback session and members intervened in a protective way. By the morning of the

fourth day, leader and members of Group A felt secure enough to talk freely about feelings and problems. This stage occurred earlier with Group B where the group discussed tensions and lack of trust in the group on the afternoon of the third day. This earlier resolving of conflict could have been the result of the leader's experience with Group A, and a quicker recognition of the crisis situation. In this the leader was helped by the perceptive comment of the chief nursing officer after a somewhat silent lunch "You must be at the same stage as you were with Group A at this time". A comment that prompted the leader to recognise the similarity in development of the two groups.

GROUP DIFFERENCES

Although an examination of the quantitative measures identified as important in the clusters, brought to light few differences[1] between Groups A, B, and C, there were qualitative differences between the three groups. Notably, Group C did not receive a training treatment between T_1 and T_4 (refer Figure 13.1). These have been highlighted in the foregoing discussion, and are perhaps best summarized in this comment from Group B:

> "Would you have used different methods with us if you could have changed your programme". The explanation that the content was the same, but the process was different, probably confirmed their own feelings that the two Beta groups were indeed different.

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1. That is, differences in the baseline composition of the three groups.

Thus, while Groups A, B and C were more similar than different, on quantitative measures, they all show qualitative differences.

CHAPTER 13

THE PROPOSITIONAL EXTENSION:

PRESENTATION AND DISCUSSION OF RESULTS

In this chapter, descriptive material is presented and discussed, together with the statistical analysis of the data collected from the charge nurses and their work locations after treatment and over time.

The results presented here are based on 30 of the most representative variables in the nine clusters identified by factor analysis and described in Section Three (Chapter 10). These selected variables have already been identified in Table 11.1 (p.244) but are listed here to emphasize the intention in this section of the study. That is, that this reduction in the number of variables brought forward for the assessment of differences between variables and Groups (A, B, C) decreases the likelihood of obtaining significant differences by chance. Related groups t tests (Nie, et al., 1978) are used to assess differences, before and after, for each of the measures listed in Table 13.1.

Table 13.1 The Distribution of Representative Variables Examined in the Propositional Extension of the Study

Variables (N=30)	Category	Clusters 1	2	3	4	5	6	7	8	9	N
Psychological	Predictor										
CPI Self acceptance										*	
Psychol. mindedness										*	
Flexibility						*					
Intellectual efficiency		*									
Social presence		*									
Socialization										*	
Achievement through independence		*									
POI Inner directed	Predictor		*								
Existentiality			*								
Acceptance of aggression			*								
Time competent				*							
Self actualizing				*							
Synergy						*					
Capacity for intimate contact						*					
Feeling reactivity									*		
Structural											
No. of reg. staff					*						
No. of pts in ward					*						
Climate (NOI)	Moderator										
Perceived nursing organization							*				
Perceived charge nurse organ. role score										*	
Perceived organ. self score										*	
Behavioural	Criterion										
Innovative beh. ward							*				
Innovative beh. Ts.							*				
K Functional status	Criterion							*			
K Patient progress		*									
K Physical care			*								
K Patient diet								*			
K Nurse dep. themes										*	
K Descriptive theme				*							
K Evaluative theme					*						
K Prescriptive theme				*							

The presentation of results in this chapter has been divided into two distinct parts (refer Figure 13.1):

- a before and after examination of the immediate treatment effects on 18 CPI, POI and NOI measures, for Group A (T_1 to T_2); for the purposes of comparison, Group B differences, for the same period are also presented here;

- a before and after examination of the treatment and time effects on 26 selected measures (Group A); for the purposes of comparison, Group C differences for the same period are also presented here, this includes a descriptive account of events that occurred over time, in Beta and Delta Hospitals.

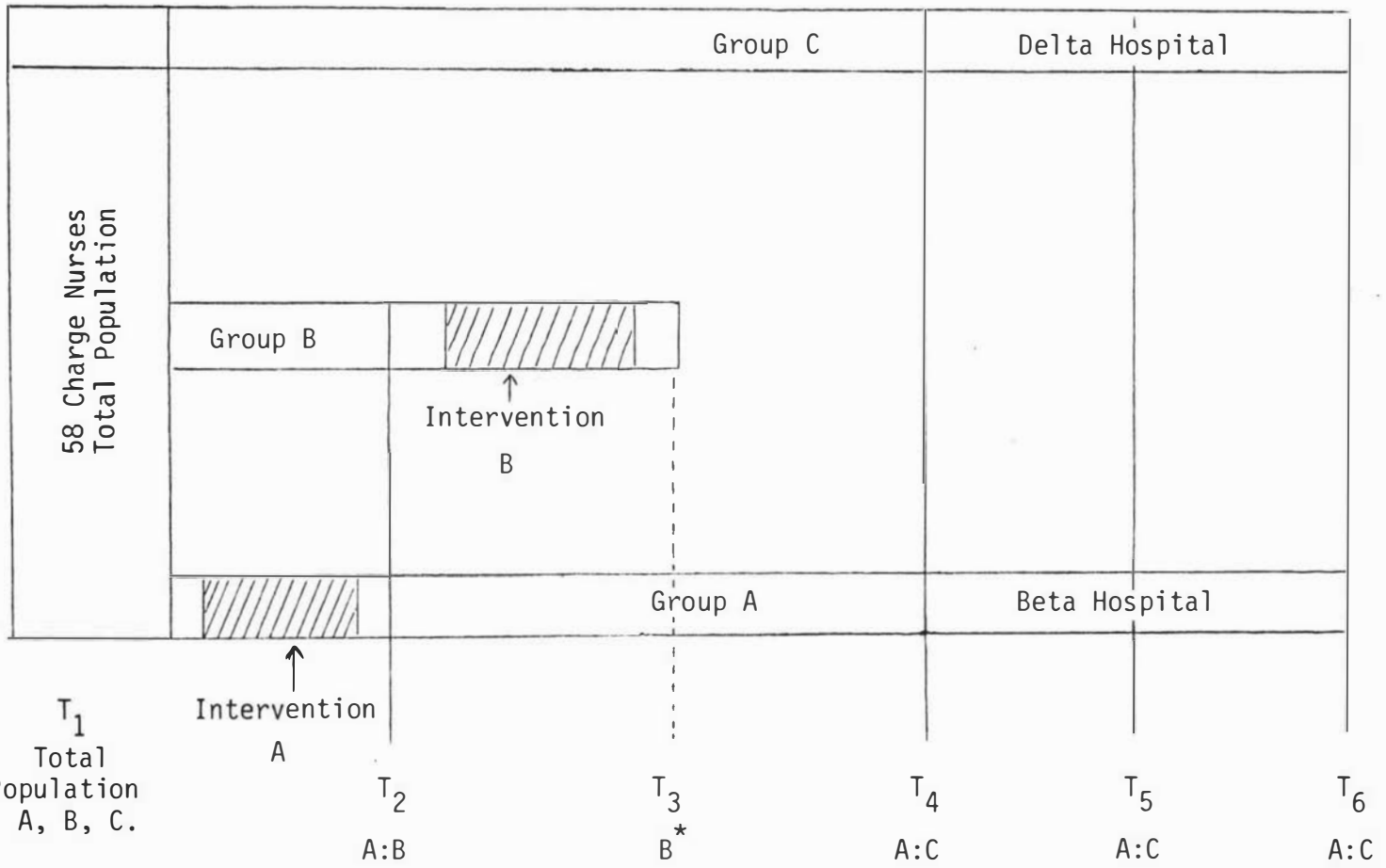

Figure 13.1 Propositional Extension: Sequence of Interventions (time and training) and Analyses.

* Results in Appendix

PART 1: BEFORE AND AFTER TREATMENT, GROUP A

The first administration of the CPI, POI and NOI tests was November 2, 1976 (T_1). The retest was done under the same conditions on 15 November 1976, (T_2) two days after the completion of the first intervention (Group A), and one week before the intervention for Group B. The time sequences are shown in Figure 13.1. The purpose of the test/retest was to examine the changes that occurred in the mean scores for each of these groups in the Beta Hospital setting. The conditions pertaining in the hospital at the time have already been set out in the account of the procedure Chapter 9. The data obtained from this test/retest has been used here to examine differences in Group A (if any), shortly after the training programme was completed. The same test/retest procedure was carried out for Group B (T_2 to T_3). These results, however, are not pertinent to the discussion here (see page 265), but have been placed in Volume II, Appendix K1, p.112).

Tables 13.2 and 13.3 set out the distribution of significant mean differences for seven CPI, eight POI and three NOI variables. These variables are those most representative of the clusters in which they occurred (refer Chapter 10, and Table 11.1).

Table 13.2 Group A (before and after treatment, T_2-T_1)
Significant Mean Difference for Representative Variables
($p < 0.05$) N=19

	Difference (Mean)	Standard deviation	t	df	p (2-tailed)
CPI Test					
Social presence	2.3684	3.670	2.81	18	0.012
Socialization	1.3158	2.262	2.54	18	0.021
Psychological mindedness	1.0526	0.840	2.84	18	0.011
POI Test					
Inner directed	4.3158	6.717	2.80	18	0.012
Existentiality	2.1579	3.096	3.04	18	0.007
Capacity for intimate contact	1.8421	2.141	3.75	18	0.001

Table 13.3 Group B before and after treatment Group A (T_2-T_1)
Significant Mean Differences for Representative
Variables ($p < 0.05$) N=21

	Difference (Mean)	Standard deviation	t	df	p (2-tailed)
CPI Test	(No significant differences occurred)				
POI Test					
Inner directed	3.3333	5.304	2.88	20	0.009
Existentiality	1.2857	2.777	2.12	20	0.047
Capacity for intimate contact	1.0476	2.109	2.28	20	0.034

The results displayed in Tables 13.2 and 13.3 show significant shifts on the same POI variables in both cases. However, Group A demonstrates a significant shift on three CPI variables, in contrast to Group B which shows no significant differences for these variables over the same period. There were no significant differences in the remaining representative variables (refer Table 13.1).

It should be noted that this analysis demonstrates the short term effects on Group A. Testing was done two days (a weekend) after the completion of the training programme and after one morning back at work.

As was described in Chapter 12, this "training" programme was directed at the cognitive aspects of management and nursing practice, together with exercises directed at the affective aspects of behaviour. The changes in the CPI variables, particularly CPI psychological mindedness would indicate a difference in attitude after training, in line with the content and process of the programme. It was pointed out in the discussion on Cluster 9 (p.215 and p.226) that the "Psychological Mindedness" variable is associated with the perceived charge nurse organizational role score, although a significant shift on the variable is not obtained for this variable T_1 to T_2 for Group A. The significant shift in the CPI variables, social presence and socialization is also in line with this argument. These variables load highly on Clusters 1 and 9 respectively in which measures of poise

and interpersonal adequacy are associated. It appears that the training programme, in which Group A members expressed many feelings about the organization, did result in an immediate increase in self confidence for these charge nurses. It is worth noticing that this change in perception is reflected in a later innovation introduced into Beta Hospital by the charge nurses. This occurred in conjunction with Group B after they had completed their training programme (refer Appendix K6).

PART 2: BEFORE AND AFTER TREATMENT AND TIME; GROUP A

Time 1 to Time 4 (refer Fig 13.1)

Significant differences for 30 representative variables identified in Table 13.1 are set out in Table 13.4. For Group A, the mean differences noted in Table 13.2 have been accentuated. For Group C, no significant differences occurred for any of the 30 variables from T_1 to T_4. Thus, there appears to be real treatment differences concerned with feelings about self, organization-related attitude and relationship to the here and now which have occurred as an effect of the training programme[1].

This change in attitude, already identified in the earlier analysis for Group A, is also substantiated by inspection of the POI profiles[2] where both A and B show an upward trend.

Both treatment groups had identified organizational issues during their training week, although Group B was more involved with management issues than Group A. More positive attitudes among the charge nurses after training, particularly those in Group B, are evident from the profiles.

This finding is supported by an organizational change reported by the principal nurse of Beta Hospital and the charge nurses during the

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1 Reference to Group B's results for the same time period supports this finding (Appendix K6, p.125 Vol.II).

2 For CPI, POI and NOI profiles refer Appendices K to K5, Vol.II)

Table 13.4 Group A

Distribution of Significant Mean Differences

before and after treatment and time T_4-T_1 ($p < 0.05$) N=19

	Difference (Mean)	Standard deviation	t	df	p (2-tailed)
CPI Social presence	2.8947	3.999	3.16	18	0.005**
CPI Socialization	1.2105	2.347	2.25	18	0.037*
CPI Psychological mindedness	1.6842	1.493	4.92	18	0.000***
POI Inner directed	5.2105	6.451	3.52	18	0.002**
POI Existentiality	2.3158	1.974	5.11	18	0.000***
POI Acceptance of aggression	1.4737	2.736	2.35	18	0.031*
POI Capacity for intimate contact	2.4211	2.269	4.65	18	0.000***
Innovative behaviour ward	-1.8421	2.433	-3.30	18	0.004**
Number evaluative themes in Kardex	-0.9444	1.434	-2.79	18	0.012*

* Significant at $p < 0.05$

** Significant at $p < 0.01$

*** Significant at $p < 0.001$

Time 4 visit. This change was initiated by the charge nurses immediately following the second training week. It involved the setting up of regular lunch hour meetings between the charge nurses and the principal nurse, from 1 - 2 p.m. every second Tuesday. These meetings continued for the duration of the time the researcher was visiting Beta Hospital. The charge nurses reported some decline in attendance and frequency in the last few weeks of the six month period. This first meeting was chaired by a charge nurse and centred round the decision to meet, as a group, with the senior medical staff, to put the charge nurses' case about medical staff attitudes.

Such a positive and innovative step could be partly the result of the group cohesiveness which developed for both groups of charge nurses at Beta Hospital during their week long training programme. But, as the results in both Tables 13.2 and 13.4 indicate, the shift in POI existentiality shows a marked increase by the charge nurses in Group A to "situationally react without rigid adherence to principles" (Shostrom, 1972) (refer p.142 of this thesis). As indicated in Table 13.1, POI existentiality is a psychological predictor variable with a high loading on Cluster 2, together with POI inner directed which is also highly significant in Table 13.4. An inspection of Cluster 2 (Table 10.5) also shows that POI capacity for intimate contact loads at +0.56 on this cluster. This group of variables have been identified in the discussion in Chapter 10, as "person perception" variables. It is also worth noting that although POI existentiality is concerned mainly with Cluster 2, it is found loading at +0.40 in

Cluster 6 where it is associated with representative variables for innovative behaviour.

The significant difference in the Group A mean for the number of innovative items represents the drop in the number of items new, or changed, in the four week period, close to Christmas. This finding is in line with previous discussion where it was pointed out that time is required for change. It is likely also that innovation occurs at intervals along a time continuum. Similarly, fluctuations in the level, type and quality of Kardex items could be expected to occur in response to changes in patient input and time of year.

In summary, the effects, on a number of variables, observed for Group A T_1 to T_2, were further increased over the four week time period between T_2 and T_4. The effect may have been enhanced by the interaction with the further 22 charge nurses at Beta Hospital (Group B) who completed their training at T_3 and who were working in the system for three weeks prior to T_4. The setting up of the charge nurse meetings suggests that this effect did occur at more than a superficial level. Note that the intention was not to assess the training programme per se but to measure the outcome in terms of changes in charge nurse characteristics and behaviour.

BEFORE AND AFTER TREATMENT

GROUPS A AND C T_4 TO T_5

Table 13.5 (p.306) shows the distribution of significant mean differences ($p < 0.05$) for the Groups A and C from December (T_4) to February (T_5), a time interval of eight weeks. In this analysis, 7 cases have been excluded because the subjects had left or dropped out of the programme, or were now working in areas where the Kardex measures were not applicable. This comparison has been done with representable variables from the clusters which represent the structural moderator variables; innovativeness measures; and Kardex criterion variables. The CPI, POI, and NOI tests were not administered again until T_6.

The settings in which these data were collected are relevant here. For the purposes of this discussion, the description includes Group B.[1]

Beta Hospital: Four of the 42 charge nurses had moved from their original work locations. Numbers of patients had declined during January, when five wards were closed. A number of charge nurses were on leave, had taken leave in January, or were planning to go on leave in March. The surgical supervisor had left at the end of December.

The notes in the researcher's diary for January state "little now going on", except;

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1. Any discussion of the Beta Hospital setting must include all aspects of the nursing organization, which includes the 22 charge nurses from Group B.

(1) charge nurses teaching a new intake of house surgeons and clinical assistants;

(2) decision-making by charge nurses in the absence of medical consultants;

(3) problems of those relieving charge nurses because of the absence of ward receptionists and medical consultants; and the need to assist young doctors and clinical assistants;

(4) uneven distribution of staff;

(5) high occupied bed state and heavy work load in medical wards (the wards closed were in surgical work locations);

(6) no noise or laughter on the medical side compared with an atmosphere of relaxation and laughter in children's and surgical wards.

By the February visit (10-15th) (T_6), activities in work locations were returning to the December level. The principal nurse reported the appointment of a new medical superintendent at the end of January. The lunch time meetings with charge nurses were progressing well and problems about staffing were being openly discussed. One ward had not reopened because staff for twenty-four hour cover were not available. Meetings were still being held between the charge nurses and the medical staff to sort out difficulties.

Several trials of dependency and work load had begun prior to the researcher's first visit. These continued or were completed during this period.

The first sign of the adoption of the innovation 'primary nursing'

occurred during this period. The interview record for the charge nurse of an intensive treatment unit reported that she planned to start a programme of primary nursing in approximately two weeks. The charge nurse initiated discussion with the researcher, who lent her books and information on the subject. This charge nurse was a member of Group B. An interesting point noted was the degree of non-conformance of this unit in relation to the rest of the work locations. Kardex records were not kept for patients in the usual way, and the daily record of events in the unit included social and organizational information as well as treatment information. People treated in this unit were not inpatients for more than 10-12 hours but returned on a regular basis. The unit was staffed by qualified staff.

Delta Hospital

The principal nurse reported the continuing development of the nursing service committee; a spread of patient assignment nursing; the closure of one ward during December/January; problems with staffing; continuing efforts to develop a central sterile supply.

At this visit, a long standing promise to carry out a 2 day programme for charge nurses and a one day programme for supervisors was confirmed. Notes on this visit include the comments:

(1) some charge nurses still on leave;

(2) good atmosphere;

(3) staff shortages, as perceived by the charge nurses, still a "bone of contention".

Comparison: Treatment v Non Treatment Groups

Table 13.5 presents the significant differences in the 15 differences in the 15 representative moderator and criterion variables brought forward to Section Four (refer Table 13.1).

Table 13.5 Distribution of Significant Mean Differences after treatment and time T_5-T_4, Groups A & C ($p < 0.05$) N=26

GROUP	Difference (Mean)	Standard deviation	t	df	p (2-tailed)
GROUP A					
Number of patients on day of visit	-3.3571	4.814	-2.61	13	0.022*
GROUP C					
No. of patients on day of visit	-2.3333	3.798	-2.13	11	0.057*
No. items Innovative behaviour ward	1.2500	1.960	2.21	11	0.049*
Treatment sheet score	1.1667	1.467	2.76	11	0.019
No. of prescriptive themes	-3.4167	5.418	-2.18	11	0.051

*

An inspection of Table 13.5 shows some difference between groups A and C. In particular, the significant positive shift for Group C on the treatment sheet score and the number of innovative items in the ward, confirms the comment by the principal nurse, Delta Hospital that

the charge nurses were indeed developing an individualised type of nursing practice. By contrast, Group A shows none of these developments. This result confirms the subjective impression of the researcher that there was "nothing new going on" in the ward/unit/ or departmental situation.

BEFORE AND AFTER TREATMENT T_5 TO T_6

By 29-31st July 1977, there were only 28 charge nurses at Beta Hospital still under observation. In view of the attrition rate, no statistical tables are given for this time period. During T_5 to T_6, a two day programme for the supervisors was held at Beta Hospital, and a two day staff training programme given to the charge nurses at Delta Hospital. Thus, this time frame is included here for completeness of description, not for comparative purposes.

Events at Beta Hospital that were recorded by the researcher during this period include:

(1) the continuing development of primary nursing in one work location despite the loss of the charge nurse overseas in May, 1977;

(2) the development of grief groups in a specialist unit after the visit of an overseas consultant and overseas experience by the charge nurse;

(3) the appointment of new medical and surgical supervisors;

(4) the development of a nursing service committee begun in January 1977; as one outcome of the charge nurses' meetings;

(5) a series of procedures giving more responsibility to registered nurses, e.g. hyperalimentation; and intravenous narcotics;

(6) hospital based inservice training began again in May 1977; after a lull during the period of the research programme.

Because of the attrition rate in the subjects in the programme over the total seven months it was not possible to accurately examine the decline in the treatment effect observed at T_2 for Group A, which appeared to increase over time to T_4.

In summary, the cognitive affective training programme devised for this study did result in significant shifts in the CPI variables: psychological mindedness; social presence and socialization. These shifts increased over the time period T_1 to T_4. One instance of specific innovative behaviour was demonstrated by a charge nurse at Beta Hospital, together with one example of general innovative behaviour.

SECTION FIVE

A PRESCRIPTION FOR CHANGE

This section comprises the final chapters of this thesis in which conclusions already presented in the empirical and propositional sections are drawn together. This discussion is structured in line with Figure 1.3 and its subsequent development, Figure 7.1.

CHAPTER 14

IMPLICATIONS AND CONCLUSIONS

CHAPTER 14

IMPLICATIONS AND CONCLUSIONS

This thesis has been concerned with charge nurses working within the nursing organizations of two hospitals administered by the same hospital board. A systems framework has been used to examine the relevant literature and as a basis for the design of the study, as set out in Figure 7.1. Aspects of innovative and related behaviours in nursing practice have been used as a measure of difference in outcome for people and for the organization(s) over time.

The study has four main aims (p.124). In summary these are to:

1 examine the relevant literature;

2 present a comprehensive empirical analysis of charge nurses at work;

3 examine the effect of a planned intervention on specific aspects of charge nurse behaviour; and

4 discuss the relevance of the results.

This chapter addresses itself to Aim 4. Here the relevance of the results are discussed in the light of the literature, and the implications for nursing are considered.

The content of this section has been organized to bring together the interpretations of results set out in Chapters 11 and 13.

In this chapter, the integrated content has been placed under headings derived from Figure 1.3. In this model, the environment,

planned change and time are all seen as modifying factors for the process of nursing practice (after Donabedian, 1973). Thus the relationship of people "input" to behavioural "output" is seen as being moderated by a variety of process factors.

Dunette's (1966) argument about the fallacies inherent in linking predictors (of success in personnel selection) directly with measurement of organizational consequences influenced the conceptual base for the model (Fig. 1.3). This also influenced the design for the study (Fig. 7.1). The implications of the results presented in this thesis, are now considered.

INDIVIDUAL CHARACTERISTICS AND THEIR INTERACTIONS

Biographical

The reported research by Dyer, Monson and Drimmelen (1976) linked age and education to quality patient care.

In this study, the biographical variable, age, clearly appears in a negative relationship with the psychological CPI scale measures of poise, interpersonal adequacy, and achievement. These psychological attributes are shown to be important in relation to the kinds of judgements charge nurses make (and write down in the Kardex) about the progress of patients they care for. Here, ability to make these kinds of judgements appears to vary inversely with age. This argument is supported by the positive relationship of age and length

of time in the same job at the time of the study (see Section Three). This finding is important in the context of Schein's (1968) discussion of the dynamic interplay between the stable structural elements of the organization and "parts of the individual in the context of his ongoing career". This concept of dynamic interplay will be discussed further in relation to the CPI psychological variables.

The number of job changes inside and outside New Zealand are not seen as important in the context of this thesis. It should be noted however, that these two variables do represent different effects. The number of job changes within New Zealand is associated in a negative relationship with CPI flexibility (see Cluster 5, Section Three). This variable was one of those that showed a significant difference after the "training" programme. Thus, the experience in nursing positions within New Zealand relates to the ability of charge nurses to "bend the rules". Ability to do this could be an essential ingredient for spontaneous innovative behaviour (Innovative behaviour general, Ig refer Fig 7.1). This argument is supported by the high negative loading of the associated variable POI Synergy (ability to transcend dichotomies -0.88) in Cluster 5.

The number of job changes (i.e. work experience) outside New Zealand demonstrates different relationships. It would appear, as discussed in Section Three, that charge nurses who do have experience outside New Zealand, may be working in acute care wards, with high patient turnover. This could be linked with personnel selection.

Professional and general education, as an influence on charge

nurse behaviour is not a consideration in the context of this thesis. Of the total population, 94.9% had general education to U.E. level only, and of these, 62.1% had school certificate only. There were no differences across the sub groups for this variable. Similarly, the effects of post basic education could not be examined after treatment and time, as the composition of the 3 groups was substantially similar.

Finally, it should be noted that there is no evidence of any interaction of the biographical aspects with training and time.

Psychological

A detailed discussion of the interactions of the baseline psychological variables has already been given in Chapters 10, 11 and 13. To summarize this discussion, (refer p.256), it seems that the CPI scale is measuring charge nurse characteristics which are associated with their place and work in the organization.

Schein (1970) defines the first step in the change process as the development of "alternate assumptions and beliefs through a process of cognitive redefinition of the situation" (refer p.92). In this thesis, such cognitive redefinition is found in the shift after training for the CPI measures.

On the other hand, it appears that the POI scale is measuring feelings and attitudes which may not be linked with the environment in the same way as the CPI. Consequently, no significant differences can be seen in these variables after the administration of the particular cognitive/affective programme used in this thesis.

The comparisons across time, T_1 to T_2, and T_1 to T_4, show significant changes in the POI variables inner directedness, existentiality and capacity for intimate contact. These changes are a function of time alone, particularly for the charge nurses at Beta Hospital. No similar change occurred for the charge nurses at Delta Hospital. It seems likely therefore that these Cluster 2 variables measure feelings and attitudes relating to perception of self, other people, and the environment. The POI intercorrelations set out in Table 10.16 and discussed earlier, supports this view.

That is, the CPI and POI scales are, in general, measuring different psychological characteristics. Traditionally (and in this thesis) the importance of self actualizing behaviour in nursing practice has been emphasized. The present findings indicate that cognitive/affective programmes of the type used here, have little effect on the attributes measured by the POI scale. As pointed out in Section Three, it is likely that organizationally directed behaviour will take precedence over inner directed behaviour.

This then, leads to the conclusion that the level of innovativeness of the organization (refer Section One) is a key issue in the manifestation of innovative behaviour, for those working in it.

Environmental

In the light of the foregoing discussion, the three measures derived from the nursing organization inventory assume some importance. The measure of the charge nurses' perception of the organization in which they work (PNOS) is linked (Cluster 6) with the derived score for level of innovativeness perceived by charge nurses. Thus, the perception by charge nurses of the climate in which they work appears to be one of the important factors influencing their adoption of innovations (Rogers, 1967) and the demonstration of innovative behaviour. In this study, the inverse relationship between "activity controls" and organizational innovativeness postulated by Rosner (1968) has been extended to include an element of perception. This is in line with the concept of organizational climate developed by Pritchard and Karasick (1973). Their definition has application in the context of this thesis and was used as a rationale to develop the Kardex behavioural measures (refer pp32-33). It was suggested in Section 1, that individual differences in climate perception could be expected to influence the way in which charge nurses interpret their particular (unique) organizational situations. The results presented in the empirical section of this thesis clearly support this view. It was further suggested that differences in perception would be reflected in the ward Kardex and in the level of implementation of new ideas. The link with the Kardex will be examined in the behavioural part of this conclusion. The link with innovativeness (the level of implementation of new ideas) has already been

established.

Behavioural

This thesis has examined the human factors in the adoption and implementation of new ideas[1] in an organizational setting. The application of the general concepts concerning innovations, and innovativeness put forward by Coleman, Katz and Menzel (1956); Rogers (1967) and Schein (1968) has already been pointed out in previous sections. It has been shown that these concepts apply in an organizational setting. As set out on p.59, Section 1, it has also been shown that the innovativeness (and the innovative behaviour) of charge nurses is not modified by biographical factors to any degree, but is modified by perception of the organization. The evidence presented in Section Four supports the view that the concepts of individual and organizational innovativeness are relative (as set out by Rogers, 1967) and do vary along a continuum over time (refer p.59).

The extent to which innovative behaviour and levels of innovativeness vary both for individuals and organizations has been established and followed up over time, to some degree, although changes in the organizations and the attrition of subjects limited this. Further studies are required on the relativity of innovativeness and innovative behaviour and the diffusion of innovations in nursing organizations. The Kardex measures and the patients' treatment sheet were used to establish whether the charge nurses in this study do indeed equate with the change agents/innovators/early adopters

1. Innovation (p.58)

postulated by Jacoby (1976) after Rogers (1962). It was argued (p.82) that, if such a situation exists, then the adoption of innovations should be evident in written communication by the charge nurse in the ward/department/ or unit.

As discussed in Section Three, it was shown that the degree of complexity of information on the patients' treatment sheets was related to the measures of general innovativeness and to the level of implementation of the specific innovation "team nursing" introduced several years before the study took place. To this degree, an estimate of diffusion of an innovation over time, was made.

Although the measures developed from the Kardex itself, did not measure innovativeness directly, they did demonstrate a variety of behaviours which are important in distinguishing behaviour which is linked to delegated medical care, and behaviour which can clearly be identified as nursing practice. A summary of the implications of this as already presented in Chapter 11, Section Three, forms the last part of this concluding chapter.

Training and Time

The propositional extension of this thesis (Section Four) examines the effects of training and time on the characteristics, innovative and Kardex behaviour, of 58 charge nurses.

There is evidence that the planned intervention devised for this study did result in significant shifts in the psychological variables: psychological mindedness; social presence and socialization as measured by the CPI.

This shift was detectable shortly after training, and increased over a three week period. The subsequent changes in this effect were not able to be measured, due to attrition of subjects from the groups.

Over a period of seven months, there was evidence that the specific innovation "primary nursing" included in the training programme was adopted and implemented by one charge nurse at Beta Hospital. In the same time period, the charge nurses at Beta Hospital set up regular meetings with the senior administrative staff and the doctors to discuss relevant organizational issues.

The direct effect of training on the innovative behaviour demonstrated by the charge nurses at Beta Hospital is not clear. This could be because the general innovativeness measures were effective in establishing the baseline conditions but were not suitable for comparisons over short term time periods. However, the changes observable at Delta Hospital indicate that they did pick up a positive change in the innovativeness level of charge nurses at that hospital over a time period of several months.

IMPLICATIONS FOR NURSING

The main points evident in the baseline data are:[1]

- that self assurance and interpersonal adequacy influence the judgements made by nurses in the ward Kardex;

1. Refer Chapter 11, Section Three.

- that these judgements are within limits prescribed by the organization and do not usually reflect feelings and reactions to situations;
- that such judgements are influenced by the charge nurses perception of the organization, a perception which is, in turn socially prescribed;
- that the charge nurses' perception of their role in the organization is negatively associated with socialization measures and with the perception of themselves in the organizational setting;
- that there is a clear positive relationship between general and specific innovativeness and the perception of the climate of the organization.

Added to these points, the evidence from the propositional extension clearly indicates that organizationally linked characteristics (as measured by the CPI) can be changed by training.

This thesis then, has established that differences in personal adequacy are reflected in the judgements made by charge nurses about the progress of their patients. Georgopoulos and Jackson (1970) define this type of judgement as one that reflects nursing, not medical practice. It appears that the ability of charge nurses to make professional judgements of this kind rests on learned skills acquired by socialization within the organization. Training programmes aimed at increasing knowledge and self confidence can assist

with this.

It therefore follows, that if the climate of the organization is innovative, or seen by nurses as innovative, then new ideas will be adopted and innovations spread. There will indeed be change in nursing practice.

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GLOSSARY OF TERMS

The key concepts used in this thesis are collected and presented here. The definition given here is the one which best fits the way in which the concept has been generalized, even though a number of other definitions are presented and discussed in the text.

System: an organized complex, functioning, total entity existing for a specific purpose or purposes and derived from the rational application of the scientific method to the organization and administration of this entity.

(Wren, 1974, p.80)

Medical Care Process: A set of rather intimate interactions involving health professionals and their clients.

(Donabedian, 1973, p.58)

Nursing Process: A dynamic model for nursing practice which allows for the assessment, planning, implementation, and the evaluation of nursing practice, adapted from

(Yura and Walsh, 1973)

Organizational Climate: An attribute or set of attributes of the work environment.

(Guion, 1973)

Charge Nurse: A qualified nurse designated by the nursing organization as the person responsible for the administration of a ward/unit/department on a temporary or permanent basis.

Creativity: is defined as the ability to encounter and perceive new patterns in the methods of delivering nursing care to patients, adapted from

(Schactel, 1959)

Openness: The deliberate act of allowing one's self to entertain new unstructured thoughts about a current issue or problem.

(Schweer & Gebbie, 1976)

Innovativeness: A relative term, denoting the process of developing and/or implementing a new product, or a new variation of an old product. In Rogers (1967) terms, it implies the degree to which an individual adopts new ideas earlier than other members of the social system (p.287).

The Process of Innovation: The influence of the individual on the organization whereby the new product becomes accessible to a variety of people, and/or other units of the organization, after

(Schein, 1968)

Innovative Behaviour: The variety of behaviours involved in the process of innovation.

Diffusion of Innovations: The human interaction process in which one person communicates a new idea to another person.

(Rogers, E., 1967)

Continuum of Innovativeness: A scale on which people can be placed indicating their position as innovators, relative to others in the sample, or the population, after

(Rogers, 1967)

Innovator: a person who develops and/or implements a new product or a new variation of an old product.

Intervention: A planned 5 day programme of activities designed to increase the "openness" and confidence of participants in which an innovation is introduced on the fourth day of the programme.

Nursing Kardex: Nursing notes on each patient in which medical and nursing information is passed from one team of nurses to the next, on an eight hourly basis.

Treatment Sheet: Overall medical and nursing care orders and/or plans which act as a framework for nursing practice.

Nursing Team: Two or more nursing personnel who plan and work together under the guidance of a nursing leader, to provide patient centred nursing care (as defined by Beta Hospital).

Primary Nursing: A method of delivering nursing care which involves a nurse taking total responsibility for the complete nursing care of a patient. Such a nurse is called a primary nurse. This is a term usually applied to a hospital setting and contains the elements of casework.

(Marram, Schlegel & Bevis, 1974)

Community general hospital/public hospital: An organization that mobilises the skills and efforts of a number of widely divergent groups of professional semi-professional, and non-professional personnel to provide a highly personalized service to individual patients.

(Georgopoulos & Mann, 1962)