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TIME PERSPECTIVES IN NURSING PRACTICE

A Thesis presented in partial
fulfilment of the requirements
for the degree of Master of Arts
in Nursing Studies at Massey
University

Charmaine Hamilton
1982

ABSTRACT

This study examines the relationship between the concepts of time and nursing practice. This study was designed to:

- ascertain which of the two time perspectives best represented the view of time held by a selected group of nurses
- generate data which would give an indication of the way in which these nurses view time in its totality
- examine the relationship between cyclic and linear time and six selected job components common to all nursing practice

Data was obtained from 346 nurses employed in two hospitals and a maternity annex using a self report questionnaire. The items in the questionnaire were developed to examine nurses' perception of time in a free choice situation, their perception of cyclic and linear time in a forced choice situation and their perception of time as it related to six components of their work.

The results indicate that:

nurses in this study did not view the concepts of cyclic and linear time as mutually exclusive entities. At the time of this study approximately two thirds of subjects viewed time as predominantly linear and the remaining third viewed time as predominantly cyclic.

Nurses in the more senior employment categories are more likely to have a linear view of time than those in the more junior employment categories. This is supported by the result indicating that a greater percentage of nurses within senior employment categories selected the diagram representing the concept of linear time, than those in the more junior categories. It is also supported by results indicating that while nurses in all employment categories perceived their work as involving some routine duties and that established procedures exist as a basis for practice, nurses in the more senior employment categories perceived their work as involving a greater degree of forward planning and decision making than those in the more junior employment categories.

13.68% of the total population of two hospitals could not define clearly their personal definition of the word 'time'. 23.44% of respondents viewed time as a unit of measure, while 12.06% saw it in terms of its availability and a further 12.06% related it to the concepts of life and existence.

ACKNOWLEDGEMENTS

The writing of this page affords me extreme delight and pleasure. Delight as it heralds the finale of this my thesis and much pleasure as it creates an opportunity for me to give special thanks to the army of people who have all supported and constructively assisted me to make this thesis a reality.

My supervisor Dr Nancy J. Kinross who provided so much incentive, patience, assistance and continual encouragement, without which this page could not be written.

Mrs Ann Craig who delivered application far beyond the perimeters of her normal typing duties in her untiring help, constant courtesy and in keeping me up with my schedule.

My brother Bruce, who has given support and encouragement throughout.

My colleagues and friends in Waipukurau and to the staff of Raymond Annex.

The nursing staff of Base and Barrett Street Hospitals, New Plymouth.

Mrs J.O'B. Beckett for the generous study award given by her in memory of her sister Rachel Simpson.

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CHAPTER 1

In this chapter the purpose of the study is outlined. The subjects of time and nursing are introduced and the relevant elements of these are identified and briefly discussed.

BACKGROUND TO THIS STUDY

The need for such a study derives from the author's view that a subject as important as time perspective, involving as it does a patient's intellectual social and physical being, must have implications for nursing practice. This has been confirmed by the interest shown by nurses who are not directly involved in this study. These nurses come from all levels and all areas of nursing. Each seems to respond to the author's comment that her thesis has as a central theme the subject of time, with their own interpretation of this subject. Some see it immediately as measured time controlled by clocks and calendars, others as life itself, yet others as an abstract concept difficult to grasp and almost impossible to define. It is the willingness to discuss the subject, the variety of interpretations and the almost universal belief among these nurses that the topic is of importance that has led to this research.

PURPOSE OF THIS STUDY

This study has been undertaken for the primary purpose of ascertaining which time perspectives best represent nurses' view of time. A secondary purpose has been to generate data which would indicate the way nurses view time in its totality and to suggest possible implications of this for nursing practice.

THE PROBLEM AND THE CONTEXT

You would measure time, the measureless
 the immeasurable.
 You would adjust your conduct and even
 direct the course of your spirit
 according to the hours and seasons.
 Of time you would make a stream upon
 whose bank you would sit and watch it
 flowing.
 Yet the timeless in you is aware of life's
 timelessness, and knows that yesterday is
 but today's memory and tomorrow is today's
 dream.

Gibran (1972 p.56)

TIME

"Time" is elusive. It is in one sense created by man, in another it is of man. It is of life and it is life. For some people it is conceived of as a circle, for others it is seen as an infinite line, its length only limited by man's inability to comprehend infinity. In this study the author has sought to identify and measure indicators that would suggest that these two differing views of time are present in a population of nurses working in New Zealand hospitals. The possible effects of such divergent viewpoints on nursing practice are presented and discussed. In writing this study the author is aware that her own concept of time intrudes. It is not possible to be objective, for the time she is discussing is as much a part of her as it is of her subjects and of her readers. Time cannot consciously be dispatched or compensated for, as can prejudice and pain for example. Nor can time easily be defined. Rama Rao (1977 p.17) states that:

There is a variety of times. There is the time of the hour glass, there is time immemorial, the time being, the time of the poet, the time of the philosopher, the time of the pregnant woman, the time of the patient waiting for the doctor to call, the time of the man in the dentist's chair, the time of newly-weds on honeymoon, the time of the student preparing for an examination and so on. It is difficult to define time as we would weight, colour and brightness. It is an experience. Time is a continuing, compelling, universal experience of our lives. It is one of the primary threads which combine in the weave of our experiences. All our perceptual, intellectual, social and emotional experiences are intertwined with time.

TIME AND NURSING

The infinite mystery that is time is linked in this study to the concept of nursing. They are two concepts with much in common. As time is an elusive concept, so is nursing. Nursing is created by man and is of man. It is of life and cares for life. It is one of the primary threads which combine in the weave of our experiences. All our perceptual, intellectual, social and emotional experiences are intertwined with nursing. Nursing to me is a part of me, as I of all men. Like time, it cannot be dispatched or compensated for. It is always with us. Everything that is done by man to defend, nurture and preserve his body and the life contained in it is nursing.

Denbigh (1975 p.15) writing on time could have been referring to nursing when he wrote:

It is a concept that is built up from several interwoven strands and is by no means unitary. Some parts of the overall concept have their origin in what is observable in the external world, while others depend upon introspective experience.

Stevens (1979 p.7) writing on nursing could have been referring to time:

The locus of nursing is a mental construct rather than an extant arena of real events.

Fraser (1975 p.9) writing on time states:

To the distant observer the nature of time appears to be intuitively obvious, as though it were an object totally revealed to searching eyes. As he approaches this object he finds himself separated from it by a transparent wall which did not interfere with the earlier view taken from a distance.

This applies equally well to nursing. Both concepts have their origin in the consciousness of man. They are both pre-scientific in origin. They are inextricably linked through the medium of the family. Whether man's consciousness of time preceded or succeeded his consciousness of nursing is debatable. That such a consciousness did develop is evidenced by the literature devoted to both subjects today. At first glance both appear to be concrete and discrete subjects. A man asked the question 'What is time?' may refer to a clock or other measuring instrument. Another asked 'What is nursing?' may refer to the work done by a person designated as a nurse. Man tends to define both these concepts in terms of physical objects associated with these concepts.

Man, for the purpose of communication, tends to interpret the object as the concept. The reason for such confusion is captured in Watson's (1981)¹ definition of time as 'an illusory reality'; a definition that I believe could equally well apply to nursing.

Nightingale (1859 Preface) saw 'every woman as a nurse', thus defining nursing as a function of femininity in much the same way as Calder described time as 'the function of the occurrence of events' Watson (1973 p.291) Both are workable definitions of convenience but they do not capture the totality of the mind concepts of nursing or time.

Nightingale's (1859) comment is still valid today:

McCaulay somewhere says, that it is extraordinary that, whereas the laws of the motions of the heavenly bodies, far removed as they are from us, are perfectly well understood, the laws of the human mind, which are under our observation all day, every day, are no better understood than they were two thousand years ago.

Given the impossibility of defining these concepts in anything other than operational terms of convenience, the usefulness of research linking these two concepts² may be debated. The author has chosen to conduct this investigation in the belief that any contribution that can add to man's knowledge of himself, however small, is worthwhile. Like Stevens, the author intuitively feels that the concepts of nursing and time are related. It is this intuition that has led to this present study.

THE ELEMENTS OF TIME AND NURSING

The author has identified seven elements that constitute the general framework of this study. Each element is chosen intuitively. Each is justified in its inclusion. Each is related to the others. All are linked to the concepts of time and nursing. Each may be thought of as a spoke in a wheel. The hub is time itself and the rim represents man's need to impose a finite view on an infinite subject, in an attempt to understand at least a little of it.

1. This definition was given in a B.B.C. Radio programme entitled "The Arrow of Time". This was broadcast twice on the National Programme of Radio New Zealand in 1981.

2. That is the concept s of time and nursing.

Each element is identified and briefly discussed. In order that such discussion is possible each is identified and discussed separately, but this is an artificial division created by the author for the purpose of discussion only. In reality each may be viewed both as context and subject. For example, events, communication and perception all occur within the framework of time and/or nursing. An individual's view of time and nursing is influenced by his perception of life, the events that occur in his and other lives and his ability to communicate those perceptions to others.

The Elements

The elements are identified below. Carefully selected quotations are used throughout this section. Such is the complexity of the elements selected that this author has chosen to present the original comments of various authors rather than seek to interpret and reword. The authors' original works reflect their understanding of the topic. To reinterpret them is only to add another interpretation to the original.

Cyclic time

"In my beginning is my end"

Eliot (1969 p.177)

Linear time

"There is no end, only addition"

Eliot (1969 p.185)

Events

"Time is a function of the occurrence of events"

Calder quoted in Watson
(1973 p.291)

Perception

"With blissful simplicity we say that we perceive time"

Fraser (1975 p.72)

Communication

"A uniform direction of time is therefore an essential condition of intersubjective experience"

Lucas (1973 p.45)

Life

"The life of each of us is permeated in every moment, in every experience and in every expression by the mystery of time"

Tillich quoted in Elton &
Messel (1978 p.98)

Nursing

"The key to nursing rests in the concept of time"

Stevens (1979 p.262)

In the following pages, each element is discussed and its relationships examined.

Cyclic Time

Cosmic forces appear in cyclical patterns, to which life learnt to respond. The strongest responses are naturally linked to the shortest cycles, those which produce the greatest number of changes in a given period. The most fundamental and familiar of all changes to which life is subject are those produced by the movement of earth around its axis.

Watson (1973 p.11)

Linear Time

Everything else in the universe is unidirectional, it becomes increasingly difficult to accept and impossible to prove that time should be the sole exception. Biologists have hardly begun to think about it. The notion of time as an arrow, as a long straight line; is part of all evolutionary thinking. Palaeontologists draw charts to show the linear descent of the modern horse from a little marsh living mini-horse with more than one digit on the end of every leg. Geneticists trace more complex, but still linear patterns of inheritance from generation to generation, all neatly numbered in sequence.

Watson (1973 p.292)

Cyclic Time and Linear Time - represent not the event but a view of the event. The two views are quite different. The first, represents time as unitary and repetitive, the second as continuous and non-repetitive. A day for example, may be seen as a single unit of time that is repeated over and over again. We say there are 365 days in a year, i.e. 365 days each identically repeated 365 times. On the other hand we may say that a day is a single unit of time that is derived from the past, contains elements of the past but is not totally a replica of the past, but also contains new elements. A cyclic view of time contains the notion of repetition, a linear view the notion of novelty. This is the essential difference between the two. One sees in the present a repetition of the past, the other sees the present as being built on the past. One sees the future as being a repetition of the present, but the other sees the future as being built on the present.

Events are the elements that identify the passing of time and with it the passing of life itself. They may be viewed by society as a whole, or by an individual alone but they occur only because man perceives them as occurring.

An event is delineated by change. For the purpose of this thesis the author has chosen to define an event as any dynamic process that can be observed and measured. It is delineated by a perceived beginning and a perceived end. An event has the property of determining past (that which has gone before) and future (that which is to come).

Philosophers have used other definitions.

Whitehead (1978 p.80) defines an event as:

a nexus of actual occasions inter-related in some determinate fashion in some extensive quantum: it is either a nexus in its formal completeness or an objectified nexus. One actual occasion is a limiting type of event.

Fraser (1975 p.69) defines an event as:

anything that remains self consistent and identical with itself through a period of time.

Whitrow (1961 p.267) points out that:

We must reckon with the possibility that events can occur in the universe, knowledge of which can never be brought even in principle, to a given observer, however long he lives and so can never enter his temporal experience.

Such definitions embrace that which is observable and consequently measurable and that which is non-observable and consequently non-measurable.

Calder's statement that : 'time is a function of the occurrence events' applies to both states, the observable and non-observable. This author wishes to relate an event not to time in general but to cyclic and linear time in particular. The length of the event is not important, only that it is a dynamic process that can be determined to have a beginning and an end. An event for example may be a minute, an hour, a day, a season, a year, a decade or a millenium. It may be no more than a single spoken word, or it may be a complete sermon. It may be walking the corridor or writing a report. Cyclic time involves the repetition of events, linear time the novelty of events. The concepts are interrelated in terms of the framework of elements used for this thesis. It is the individual nurse's perception of time as cyclic or linear that is the underlying theme of this study, but this perception is in turn influenced by her perception of events and of life itself.

Communication is based on man's ability to identify and objectify events so that knowledge of these events may become the common property of a group of individuals. As such it is subject to analysis and discussion. Such analysis and discussion is only possible within the framework of a common time, and shared perceptions.

Communication

We have no naturally given intersubjective experience of the amount of time passing
We need to set up an objective measured time because our individual senses of the passage of time do not agree.

Lucas (1975 p.15)

The lack of a naturally occurring intersubjective measure of the passage of time has been remedied by the invention of clocks and calendars. This lack of intersubjective experience of time is acknowledged by Park (1980 p.1) in the following quotation:

But I cannot tell you what time is because you already know. St. Augustine began a brilliant analysis with the complaint 'What is time?. If no one asks me I know what it is. If I wish to explain to him who asks me, I do not know'. But really he did know, and the trouble is precisely that his interlocutor knows also and the two knowledges are not the same. For one person sees time as a scale along which events are measured, for another it is the events themselves in their ceaseless flow.

If these two views are seen as opposing ends of a scale, then it follows that communication between individuals depends to a great extent on the exact nature of the viewpoint. Communication among those at the polar ends of the scale would be difficult. It is possible that Park's polarization of people into two groups is correct only in part. It is, I would suggest, more likely that the majority of individuals would vary their place on the scale according to the nature of the events (and their perception of these events), affecting them. This of course would add another element to the subject of communication for the individual view could not be seen as static but in a constant state of movement. It would seem unlikely that an individual's basic view of time as cyclic or linear could be altered completely, rather I suggest one view will predominate. The confirmation of such a viewpoint would require a longitudinal study and as such is outside the scope of this research.

Perception

The problem of human perception has been defined by almost all, if not all, theoretical systems in terms of how objects 'out there' are experienced by a person who is not part of the 'there'.

Ittleson et al.(1974 p.102)

Self reports and observation studies are influenced by this problem.

We literally change the environment by perceiving it for no other reason than that we attribute certain aspects of our own experience to the world around us. Of course this does not mean that we are free to perceive anything we want, or to attribute any characteristics to the environment we experience neither an environment independent of ourselves as participants nor ourselves independent of the situation in which we are participating, but rather we experience ourselves in and out of the environment. It is the total event itself that is perceived.

Ittleson et al.(1974 p.104)

Fraser (1975 p.91) quotes R.L. Gregory as defining perception as a 'gamble of hypothesis'. Fraser (1975 p.91) defines perception as being 'based on expectation derived from memory and operating in the complex experience of the mental present.'

Perception is bounded by concepts of memory and intention. These co-exist and are impossible to separate. There is currently some electrophysical research involving the delineation of perception and response and this may pave the way for the separation of all three concepts in future, e.g. Hausler & Levine (1980). Until recently the perception of time has been confined in the main to the areas of:

- a. orientation
- b. estimation

In the former it is not time itself that is being researched, but the concepts of past, present and future. In the latter it is the concept of time as duration that is being investigated.

This thesis is concerned with the perception of time as cyclic or linear and consequently with the perception of events as either repetitive or novel.

Each individual is aware of life as a possession but like time and nursing it is a complex and multifaceted subject. This author has chosen to interpret life as a common, rather than a individual possession and relate it in turn to the concept of time with which it is so closely linked.

Life

A new civilization is emerging in our lives, and blind men everywhere are trying to suppress it. This new civilization brings with it new family styles; changed ways of working, loving and living; a new economy; new political conflicts, and beyond all this an altered consciousness as well. Pieces of this new civilization exist today. Millions are already altering their times to the rhythms of tomorrow. Others, terrified of the future, are engaged in a desperate, futile flight into the past and are trying to restore the dying world that gave them birth.

The dawn of this new civilization is the single most explosive fact of our lifetimes.

It is the central event - the key to understanding the year ahead. It is an event as profound as the first wave of change unleashed ten thousand years ago by the invention of agriculture, or the earthshaking second wave of change touched off by the industrial revolution. We are children of the next transformation - the third wave.

Toffler (1980 p.23)

Toffler (1980) associated a concept of cyclic time with the first wave of change, linear time with the second wave of change.

Toffler (1980 p.117) argued that:

Linear time was a precondition for in dust-real views of evolution and progress. Linear time made evolution and progress possible. For if time were circular instead of linelike, if events doubled back of themselves instead of moving in a single direction, it would mean that history repeated itself and that evolution and progress were no more than illusions.

Toffler (1980 p.115) also raises the issue of societies other than Western society:

Many pre-industrial societies and some first wave societies, even today, see time as a circle not a straight line. From the Maya's to the Buddhists and the Hindus, time was circular and repetitive, thereby repeating itself endlessly, lives perhaps reliving themselves through reincarnation.

Fraser too raises the issue of time in other societies and in referring to Needham's work 'Time and knowledge in China and the West' writes:

Needham acknowledges the Chinese preoccupation with cycles but adduces evidence from the many facets of Chinese Weltanschauungs and daily practices attesting an interest in linear time.

Fraser (1975 p.40)

The problem of interpretation is evidenced by Toffler's reference to the same work. He writes:

While in China the idea of linear time dominated, according to Needham cyclical time was certainly prominent among the early Taoist speculative philosophers.

Toffler (1980 p.116)

Fraser and Toffler are however in agreement that in Indian thought cyclic time has dominated. Fraser (1973 p.41) writes - "Cyclical time represented by the metaphor of the 'sorrowful weary wheel' is accepted by Buddhism and Jainism".

The image of the wheel raises a new issue which is discussed by Whitrow (1961). That is, the difference between a 'cyclic universe' and 'cyclic time'. Whitrow (1961 p.40) argues that the concept of a cyclic universe:

leads to the concept of periodic universal time, whereas the concept of cyclic time implies that time is closed like a ring.

The idea of a cyclic universe is conveyed by the image of a wheel moving as with a car wheel when the car is driven. The idea of cyclic time is conveyed by the image of that same wheel spinning on its hub without the wheel moving in any direction, as it may be when the car is up on a jack. Whitrow (1961 p.41) discards the distinction by dismissing both concepts. He writes:

If time were truly cyclic there would be no difference between the universe going through a single cycle of events and through a sequence of identical cycles. For any difference would necessarily imply that time is not cyclic, that is, there is a basic non-cyclic time to which the different cycles could be related and distinguished one from the other.

This recalls the discussion on p.8 of Park's attempt to place cyclical and linear time at opposite ends of a scale. Perhaps the time explanation lies in Whitrow's 'non-cyclic' time. If this is equated with 'linear' time, then these two concepts supplement each other.

Others accept the concept of cyclic time without apparent difficulty. Watson (1973 p.287): 'Time is a rhythm, it comes and goes like the crackle of electricity in the brain or in the gush of blood through the heart, or the flood of the tide upon the beach'. Here Watson is clearly referring to cyclic time, as defined by Whitrow (1961 p.40) Toffler goes further than Whitrow in one respect. He does not argue that cyclic time does not exist, as does Whitrow, but that the distinction of time in its cyclic and linear concepts is outdated by the advent of 'black holes'¹ which can negate time altogether.

Toffler (1980 p.308) continues:

Increasingly, therefore, we cannot even speak of time in the singular, there appear to be alternative and plural 'times' operating under different rules in different parts of the universe or universes we inhabit. All of which knocks the props from under the Second Wave idea of universal linear time without substituting ancient notions of cyclical time.

In this statement it seems Toffler is proposing a 'Universal time' that is common to all races and obviating the necessity for distinguishing a particular population in a discussion of time and its meaning for people. Although the concept of 'Universal time' is interesting, it is still too nebulous to be used as a basis for this thesis and it is necessary to continue this thesis within the framework of a Western viewpoint and within the concepts of linear and cyclic time as they are perceived by members of the nursing community.

-
1. A 'black hole' is described by Whitrow (1980 p.314) as follows: if a spherical body is less than or equal to its Schwarzschild radius no material or photons can be emitted from it to reach any external observer and it becomes what is known as a 'black hole'.

Nursing

The nursing profession has existed, according to the writer of its history, since the time of the caveman, who returning from the hunt had his sores dressed by the cavewoman. Closer to our own era 'modern nursing' is said to have begun with Florence Nightingale and the opening of her first school in 1860. Despite our long history our social mission today is far from clear. For some within the profession, as well as outside it, the nurse is the physician's helper - more poetically described as the 'handmaiden of the physician'. For others the nurse is an autonomous professional who carries out medical orders. Between these two extremes the role of the nurse is perceived and described in many differing ways; the nurse herself, until recently has seen little necessity to justify her reason for being.

Adam (1980 Pviii).

The author (p.3), has interpreted her personal philosophy of nursing as 'everything that is done by an individual to defend, nurture and preserve his body and the life contained in it'. Such a definition is particular only to this author. It has no commonality and for this reason it is necessary that a more generally accepted definition of nursing be used if analysis and discussion of the subject is to be possible.

Stevens (1980 p.7) states:

that a universal definition of nursing 'is beyond reach'. Indeed there can be as many mental constructs of nursing as there are nurses to imagine and adopt them.

she goes on to say:

the term nursing points only to a general area of events. (p.8)

Skeet (1980 p.9) avoids the search for a definition by looking instead at the essential responsibility of the nurse. This she says is:

to give skilled nursing care to the sick, disabled and dying in accordance with the physical, emotional and spiritual needs of her patient.

This concept of essential responsibility is a valid one for hospital nurses (and this study will concern only hospital nurses), but it excludes those nurses who work with people who are not classified by society as 'sick, disabled or dying'.

In view of the lack of consensus about the nature of nursing, Virginia Henderson's view as interpreted by Adam (1980) is accepted as a basis for this thesis. In this view the following generalisations pertain:

1. every individual strives for and deserves independence;
2. every individual is a complex whole made up of fundamental needs;
3. when a need is not satisfied an individual is not complete, whole, or independent;
4. the nurse has a unique function;
5. when the nurse takes over the physician's role she delegates her primary function to inadequately prepared personnel;
6. society wants and expects this service from nursing and no other worker is able or willing to give it;
7. the goal of nursing is to maintain or restore the client's independence in the satisfaction of her fundamental needs.

Henderson's work is attractive because it is designed to encompass nursing in all contexts. It is a universal definition, and as such may be criticised as being too general. It is however, quite appropriate for this study. The fourteen fundamental needs of human beings (refer appendix 1.) form the basis of all nursing activities and as such provide a complex yet easily understood framework for nursing practice. Such a framework is appropriate in this study because the activities of the nurse are seen as secondary to her view of time. It may not be appropriate in a study where the activities are of primary importance.

This thesis has as its primary concern the time related perception of events in nursing practice. These events can be perceived as repetitive or novel in nature. A repetitive view is considered to indicate a cyclic view of time, a novel view is linked with a linear view of time. Toffler sees the cyclic and the linear viewpoints in conflict on a national and international scale. This author is concerned with the same problem not as it concerns societies, but as it concerns individuals. To be specific, as it concerns the nursing population of three New Zealand hospitals, (refer Chapter 4. p.46).

CHAPTER 2

ASPECTS OF TIME AND TIME RESEARCH

In this chapter, the concept of time is discussed, together with some of the problems associated with research in the area of time perception and measurement. Biorhythm research is introduced and discussed briefly in relation to nursing practice.

THE CONCEPT OF TIME

Some foolish men declare that a Creator made the world. The doctrine that the world was created is ill advised and should be rejected. If God created the world, where was He before creation.....? How could God have made the world without any raw material? If you say He made this first, and then the world, you are faced with an endless regression..... Know that the world was uncreated, as time itself is, without beginning and without end. And it is based on the principles.

The Mahapurna (The Great Legend)
Jinasena (India Ninth Century)
Quoted by Sagan (1980 p.245)

Does time exist if there is no one there to perceive it, or is time only a product of man's consciousness. It would seem that theories of time are man made inventions created in an attempt to order the concept that is time. Time is 'an integral and basic component of behaviour, a byproduct of life as we conceive it' (Orme 1969 p.5). All discussions of time, whether of the finite or infinite nature of time are framed by the humanity of their authors. All theories of time are developments of a particular author's perspective. For example:

There is the view of the biologist who sees time as unidirectional, moving from the past to the future and to death, the view of the behavioural scientist who sees time as bi-directional through the mechanism of memory, whilst at the same time existing only in the present. There is the view of the psychologists who are interested in its perception, philosophers who seek to describe it, nature and social scientists who are concerned with societies beliefs about time and physicists who seek to measure it. But none can answer the question - Does time exist without a man to label it time?

Orme (1969 p.5)

In the context of this study it is important to understand the nature of the concept of time and the effect an individual's time perspective has on his work and his writings. This is well illustrated in the study of Homer the poet, writing in the eighth century before Christ, but recording events occurring three to four centuries earlier. Tradition has it that he was blind and Fraser (1975 p.12) argues that:

some visual descriptions of events tend to stress the spatial, whereas auditory descriptions stress the temporal. One reason for Homer's success in forming enduring Greek ideals might have been that he was uncommonly conscious of mortality and thus of heroism as a way of conquering death.

He goes on to say:

Homer's epic is informed of time as duration, as before and after, life and death, as fate, youth and aging, and as day following day but not of time as some ongoing universal process or abstract property of the world at large.

Orme states (p.147) that 'In Greece, a standard time belief was that time went in recurring cycles'. But, even an apparently universal belief was segmented because of diverging viewpoints. For example, Aristotle thought repetition of events would occur but that it would only be approximate with some change occurring in each new cycle. Pythagorus on the other hand, believed that each new cycle was identical to the previous one. Parmenides considered truth to be unchangeable and eternal, and the world of change and time only an illusion. Heraclitus, his contemporary, argued that it is change that is real. He felt nothing remained the same. Elton and Messel (1978 p.93) agree that these two views represent diverging opinions. They state:

Throughout history from Heraclitus to Heidegger, philosophers seem to have been concerned with the two different dichotomies relating to time. The first that of change and permanence.

They go on to detail the view of Heraclitus and Parmenides, but Park (1980 p.10) writing only two years later states:

It is an apparition based on viewpoint not on fact. For Heraclitus the world is process and we are immersed in it. Parmenides saw the world from another dimension, as an object together with its history. He sees our birth, life and death with a single glance. Each is right in his own way.

Plato argued that, in addition to the imperfect world existing in time, there was also a timeless perfect world of forms, and in so doing forecast the division of time into categories. Aristotle added a spatial element to time and antedated Einstein's work centuries later. In the intervening centuries St. Augustine disagreed with Aristotle and argued that, time was to be found in the mind not in space. In much the same way Democritus proposed a mechanical, materialistic theory in which he viewed the world as entirely a mechanical and fortuitous affair, made up by atoms in a void. Death and life in his view were the result of separating atoms. Memory was no more than the disappearing and dying of atoms. Because he did not view the process as having any regulation or order, he did not need to propose any regulating rules or principles. The meaning of life and death and the destiny of men had no place in his theory. Each of these philosophies has at its centre a different view of time. The early Romans echoed the views of the Greeks, but with the coming of Christianity to the Western world, the essentially cyclic view of time favoured by both Greek and Romans was challenged. For a Christian, time moved inexorably forwards as they awaited the Second Coming of Christ and the Last Judgement, the entry of the Christian to the timeless world of God. Time preceded timelessness. The atomistic theory of Democritus found little favour in such times and emerged again only with the development of atomic theory in the 20th Century. More recent philosophers, e.g. Locke, Berkeley and Hume, tended to believe that the idea of time was a consequence of the succession of ideas. Descartes statement 'I think, therefore I am', reflects the notion that the successive nature of thought is an expression of time. McTaggart (1927) argued that, past, present and future are relationships that cannot be perceived unless one stands outside time. He concluded that time has no reality in itself. If one does not accept McTaggart's view, but argues that time is related to the sequential nature of thought, the concept of memory emerges. Plato compared the mind to a blank tablet of ivory and suggested that memory is the impressions imprinted on it. This analogy may seem primitive but it has not been greatly improved upon. The electrical approach of the 1930's has given away to the biochemical approach of the 1970's, but in spite of promising beginnings in cellular brain research, there has not been the definition of memory hoped for.

Whitrow argues that memory is a sense organ, (in the same way that eyes and ears are sense organs), that senses time. It may be that memory is no more than the ability to move into past time as is implied by Bergson's (1910) work. This view suggests that the past is not recalled with the present, but that the past replaces the present in thought. Old people living with their memories may be not recalling the past, but truly be living in the past - memory in this context is not a process of mind but a state.

Other authors have argued that time is a function of changes in space, not in thought. Newton saw the world as having three spatial dimensions and existing in time. He distinguished between absolute true mathematical time which flowed continuously and was not affected by natural events and relative, apparent and common time which is a sensible and external measure of duration. This view was challenged by Einstein's work. He saw the world as a four dimensional one, with a space - time continuum, and discarded the notion of a cosmic clock ticking away the seconds.

It can be presumed that for all life on earth there is a common time for all organisms; that the constantly moving present is the same for all organisms; and that 'now' for me, is 'now' for all other organisms on earth at this time. Yet some authors dispute this, arguing that the existence of the paranormal phenomena of precognition precludes such a statement. Orme (1969), interpreted Nietzsche as postulating a cyclic universe where everything repeats itself and it is suggested that precognition is no more than recognition of a new cycle in time. Tarde suggests that 'not only does the past cause the present, but the future does as well', Orme (1969 p.155).

Neither suggestion is attractive but each emphasises this author's view that it is the perspective of the individual that influences his work and his writings.

It is generally accepted that ideas about time are inextricably linked with cultural beliefs. However as illustrated by the story of Homer, one individual's view of time may in turn determine at least in part, the nature of the culture in which he lives. Cyclic and linear views of time may not be the product of change as Toffler argued, but the cause of the change. For example, the Christian's view of time as linear, resulted in a set of beliefs and values that brought them into direct conflict with a culture that saw time as predominantly cyclic in nature.

Equally, in the present time, the abandonment of that same belief and the adoption of the ancient beliefs of the Hindus and other Eastern philosophers with a predominantly cyclic perspective, is bringing young Westerners into conflict with their elders and their dominant culture. A generation who seldom questioned the existence of God, is being challenged by a generation who believe the world was 'uncreated' and that time is present time.

THE MEASUREMENT OF TIME

Prehistoric man was primarily concerned with the day to day problems of survival. He was of course conscious of the alternating periods of light and darkness and the waxing and waning of the moon. The changing seasons must have impressed him, even if he could not predict them with any degree of accuracy. With the formation of organised groups and the development of the ability to communicate, came the desire to calculate and classify in larger terms.

Engels (1965 p.427)

The measurement of time is a byproduct of the need of people to communicate. Three major systems of measurement were developed to enable communications among individuals over time. Astronomical calculations were based on regular recurring events in the heavens, such as the lunar and solar cycles and the movement of the planets. Sometimes, as with the Egyptian calendar, an astrological fix was linked to an earth phenomenon, in this case the rising of Sirius with the flooding of the Nile. This link between nature and events affecting men, reached its climax with the development of astrology and the belief that the time of birth affects a man's character and his fortune. Some methods of time measurement have derived from the birth of the great religious leaders and others from the birth and activities of rulers and other great individuals. This method has the disadvantage of packaging time into independent segments. Without reference to a preceding segment the chronology of events cannot be determined.

Calendars were developed to date and forecast naturally occurring events but by their nature could not measure time in terms of less than a day. Clocks were developed, each dividing the time of the day into smaller parts. But it was only with the development of a mercantile as distinct from an agricultural economy that the development of an accurate clock became imperative.

In the 17th Century Christian Huggens invented such a clock, a pendulum clock accurate to about 10 seconds a day. The merchant now had an accurate and universal medium of exchange, measured time. The importance of naturally occurring rhythms as a means of measurement declined. Scientists embraced the new clocks because they enabled accurate measurement of specific phenomena over time and thus the duplication of research. The mechanical measurement of time is now limited only by the ingenuity of man to invent machines that will measure its passing.

The measurement of time is important as an essential element of communication and as a cause or effect, depending upon your viewpoint, of the move in the Western world to see time as an endless succession of events, that is, linear time.

THE PERCEPTION OF TIME

The Problems of Research

The Problem of Language and Terminology

Hogan (1978 p.43) wrote 'the literature on time perception suffers from considerable conceptual and methodological disarray. Terminology has tended to vary from study to study, while associated research techniques have been almost seasonably faddish in their rates of change'. Rakowski (1979) writing on "Future time perspective in later adulthood", says 'terms such as temporality, futurism; reminiscence, life perspective, life review, time orientation and future expectation are among those frequently encountered'. He goes on to say:

Temporality should be distinguished from time perception, where the latter term denotes research concerned with the estimation or production of short intervals of clock time'

Temporality he feels, is a general perspective of personality. He refers to temporal experience as 'an individual's view of the past, present and future'. Allan (1979 p.341) and Fitzpatrick (1980 p.150) share Rakowski's opinion that the literature on the perception of time is in general disarray. Like Rakowski they offer an alternative and precise definitions of the terms in general use and suggested they be used as standard definitions.

Fitzpatrick, for example, defines temporality as 'a manifestation of holistic man's sense of time, characterised by non-linearity, identified by rhythmic patterns which are evidenced throughout the developmental process'. This definition has little in common with Rakowski's definition. It appears that while acknowledging the need for standardization of terminology, these same authors are contributing to its complexity.

The complexity of language and terminology includes the common words 'past', 'present' and 'future'. The definition of these words tends to rely on a previous definition of time. For example, in the Concise Oxford Dictionary the following definitions are given -

Past - being gone by in time

Present - the time now passing

Future - time to come

These definitions have a generally understood and accepted meaning. It is this acceptance which makes discussion possible. For example, the reader knows what Hughes (1979) means when she titles an article "Institutionalised Adults and their Future Orientation". Her conclusion that 'the subjects (100 active elderly female volunteers) became less future orientated as the length of their institutional residence is increased, irrespective of their ages', is perfectly understandable to the reader.

Once authors move away from generally accepted definitions to more exotic terminology there are problems of interpretation.

The Problem of Interpretation

Many problems of interpretation are caused directly by the lack of a standard terminology in time research. For example, Robertson's (1978) study of personality variables and three temporal dimensions is not easily understood, because he is looking at 'time competence', 'temporal evaluation' and 'temporal extension'. These words are not in general use and do not have a generally accepted definition. Robertson has defined extension in his own terms as 'the sort of time period over which the individual projects thoughts, evaluations and plans'. Rakowski (1979) on the other hand defines extension as 'the length of past, present and future, or total lifetime considered by the individual'.

Time competence and time evaluation, Robertson did not define. A rather unfortunate oversight that raises doubt about his conclusion that a 'link has been demonstrated in the current study between time competence on hand and ego strength, purpose in life, manifest anxiety and self-evaluation on the other'.

In addition to these problems a number arise out of the research methodology. The tendency to use institutionalised subjects often makes interpretation of results difficult. For example Lemlich (1975) developed a quantitative theoretical model for the subjective acceleration of time with aging. This model combines measured intervals of 'real time' with 'subjective' or apparent time. Lemlich asked 42 male and 10 female subjects to estimate how much faster, or slower, the years seem to pass at their present time of life, compared with when they were approximately one half and one quarter of their present age. He gave his results a mathematical construction namely, the subjective duration of an interval of real time varies inversely with the square root of the age.

Such a formula implies universality of application, yet this is not the case. 31 of Lemlich's subjects were college students, the remainder working at the university. All were involved directly with the educational system and could be expected to represent the views of individuals in that system. They could not be (as implied by Lemlich) taken as representative of the total population.

Further problems arise in short interval perception research. A great deal of research has been carried out in this area. Rama Rao (1977 p.27) identifies the four main experimental methods used in this field of research.

1. The Method of Reproduction (MR) - The experimenter produces a temporal interval by use of a suitable instrument and the subject reproduces it.
2. The Method of Verbal Estimation (MVE) - The experimenter produces a time interval and the subject makes a verbal estimation of it.
3. The Method of Comparison (MC) - The experimenter produces a pair of temporal intervals and the subject makes a comparison of the two intervals and says whether the second interval is shorter, equal or larger than the first interval.
4. The Method of Production (MP) - The experimenter prescribes an interval of time and the subject produces it by use of a suitable instrument provided to him. This method is also known as operative estimation.

Each relies on the interaction between a subject and the researcher. The problem of interpretation emerges in this situation in two forms.

1. The problem of subjective interference
2. The inability of the researcher to distinguish the exact point at which perception becomes response

Subjective interference occurs when factors within the subject impair his participation in the research. These may be physical, such as a hearing impairment, or may be psychological. Curton and Lordahl (1974) for example, discussing duration research, that is, time perception research, make the following observation:

Presenting stimuli during an interval that is to be estimated could have a number of effects. For example, the stimuli could increase the arousal level of Ss causing estimates to increase. On the other hand the stimuli could divert Ss attention away from the interval causing estimates to decrease.

They conclude their article by saying that 'the effect of manipulating arousal cannot be predicted without consideration of the attention directing properties of the treatment'. Attempts have been made to do this by utilising physiological measures to determine the level of arousal. Heart rate, respiratory rate, EEG, have all been used. Cahoon (1969) maintains that the problems in drawing conclusions from studies of arousal, lies in the lack of agreement among investigators of what constitutes a valid measure of this concept.

In an attempt to overcome this lack of agreement and the problem of differentiating perception and response, Hausler and Levine (1980) carried out a psycho physical, electrophysical study on 29 patients with multiple sclerosis utilizing brain stem auditory evoked potentials related to intra-aural discrimination. They found a physical measure (inter-aural time discrimination) and an electrophysical measure (short latency click evoked potentials) are subserved by some of the same auditory structures of the brain stem. It would seem that such studies are paving the way for research that eliminates problems of subjective interference and introduces true time perception research. This is distinct from previous research which is more correctly perception-response research, the response being interpreted as evidence of perception. This sophisticated (and expensive) research methodology is likely in the near future to eliminate many of the problems already discussed. The expense of the equipment required is likely to reduce the number working in this field to those sharing a similar interest in

psycho-physical research and the nature of the equipment should encourage standardization of terminology and methodology.

The development of this electrophysical equipment is being paralleled by development in brain chemical research and it is possible that Hoagland's (1933) work suggesting the presence of a specific chemical clock in the central nervous system may soon be validated or discredited (after 50 years of debate by social scientists) by the chemists. In addition to the problems of language, terminology and interpretation there is in time research the problem of orientation.

The Problem of Orientation

There is a tendency for researchers to view such concepts as time competence as the product of a test. For example subjects may be asked to remember or project their thoughts while remaining physically grounded in the present. The subject asked to recall the past or predict the future, is influenced by his present perception and memory. This is compounded by the presence of an observer or interviewer. The more they stress or discuss time, the more likely the subject is to concentrate and focus on the present. These studies also require that the subject be calm and co-operative in the interview situation and the result cannot be generalised to a crisis situation where one would presume the sense of 'present time' is strongest. Studies in this area have been almost exclusively cross sectional studies and these tend to emphasise a linear view of time. This lack of longitudinal studies is a serious deficit in the study of time perception. To add to these problems it should be remembered that there are a number of ways that the subject of time can be viewed by the researcher. It may be seen as a clinical variable, as a sociological concept, or a personality characteristic, for example. The viewpoint of the researcher affects the nature of the research undertaken. This view may involve a sole educational and professional frame of reference. A sociologist and a psychologist would, for example, be expected to have differing frames of reference. Equally the differing views may involve only the researchers perception of single concepts. For example; the concept of 'filled time' may be regarded as the presence or absence of a flashing light or sound, but then so may the concept of 'empty time'. In 1968 Priestly proposed that 'empty time' is generally experienced as longer than 'filled time'. In 1970 Ornstein proposed the opposite view.

Since that time opinions about, and interpretations of, these two concepts have centred around a debate as to the 'correct' perception of each concept.

In 1978 Hogan suggested that time perception is not a linear but a curvilinear - U shaped function with both personality and stimulus complexity dimensions. He postulates that moderately complex stimuli are experienced as relatively fuller and hence shorter than either minimally or maximally stimulating time intervals. Such an idea ushers in a completely new viewpoint, one that is neither cyclic nor linear. There is at the moment no evidence to suggest that Hogan's interpretation is the correct one. But if the current trend to clarify and standardize terminology and research formulas continues, it may well be that Hogan's theoretical viewpoint may be further explored and expanded. From this discussion it can be seen that in recent years there have been a number of advances in the area of time perception (or duration) research. Earlier research had many inadequacies, some of which have already been discussed. It is important that these inadequacies are acknowledged when earlier research is used as a basis for later research.

The Problem of using Earlier Research as a Reference Point for Later Research

Orme (1969) raises some other issues associated with using earlier studies as a framework for later research. He quoted Baldwin et al (1966) who attempted to replicate a 1904 study, looking at sex differences in time estimation. They did not replicate the original results and Orme suggests that the primary reason for this is the changing role of women in the intervening period between the two studies. Piaget's (1969) classic study 'Children in Geneva', led him to conclude that children appear to think of time operationally as $\text{Time} = \frac{\text{Distance}}{\text{Velocity}}$. However his results could not be generalized to children of other cultures because the specific social context in which the original work was done could not be duplicated in another society. Some attempts at replication were undertaken both in the United Kingdom and the United States, but the question as to whether this represented a child's view of time or the development of words associated with time led to a waning interest in these studies. This fading interest in Piaget's work demonstrates the developing awareness of later researchers for the need to specify clearly the social context and the possible influences of that context on the result.

A similar precision is now emerging in psycho-physical time related research. Earlier researchers lacked the highly sophisticated electronic equipment available today and consequently the precision of measurement now possible. This, coupled with the increasing stature of the younger generation and the possibility that the speed of a reaction to specific stimuli may have changed as a consequence, makes replication of older studies difficult, if not impossible. As previously mentioned the tendency of earlier researchers to use students, or the aged, as research subjects because of their accessibility in institutions, led to a great deal of research being undertaken in an institutional context. This self selected population did not necessarily reflect the responses of the larger population. One by-product of this tendency to use institutionalized subjects is the considerable amount of research devoted to the perception of time by the mentally ill.

Modern psychiatric treatments and the changing classification of mental illness, mean that modern researchers in this area derive their subjects from a population that is quite different to that used by older researchers. Earlier research in the area of time perception must be interpreted within the context in which it was undertaken, and in this author's view should not be used as a basis for comparative or replication studies.

TIME SENSE RESEARCH

Since 1933 when Hoagaland postulated his biochemical clock, debate has continued over the existence of a specific time sense. Although a time sense is claimed by some authors to exist in the conscious present, this does not hold for the semiconscious world of dreams and day-dreams and certainly not for the more exotic world of the paranormal. Research in the conscious present has concentrated in the main, on determining the existence (or otherwise) of physiological clocks controlling the bodies various rhythms. Temperature measurement and time estimation studies abound, but the format and the results are not standardized. In some the body temperature is artificially raised, in others the subject is suffering from a disease induced fever. Whether the result obtained represents, as is claimed by Hoagaland and others, a relationship between the inability to estimate time intervals accurately and a rise in temperature or no more than a general confusion on the part of a subject who is suffering from a high temperature, is debatable.

In insect research, where ethical problems emerge less frequently, Harker's imaginative work with cockroaches demonstrates the possibility that a time sensor can be isolated. Harker took one species of cockroach, *Periploneta Americana*, which becomes active after dark and scavenges for five or six hours and noted that a decapitated cockroach continued to follow the same pattern during its surviving weeks. She decapitated one cockroach, strapped it to the back of another non-decapitated cockroach and transfused blood from the non-decapitated to the decapitated cockroach. She found that a sense of time and purpose returned post-transfusion to the disorganized headless cockroach. Eventually she found that the suboesophageal ganglion was the source of the rhythm. By transplanting a ganglion to a headless cockroach she found that the headless insect developed a rhythm identical to the donor. Harker postulated a chemical messenger with an inherent individual sense of rhythm. Such a messenger has not been isolated and it may be that the messenger does not depend on a pure chemical reaction but on an electro-chemical interaction.

It is this author's view that the greatest obstacle to the isolation of a time sense, is the lack of combined studies by researchers of various disciplines. It is possible that the time sense is not a single entity, or that we do not conceive time as a single entity. Priestley (as interpreted by Wilson 1971), felt that time is composed of three parts. The ordinary passing of time in everyday living be called 'time one', 'time two' he saw as contemplative time, the time of dreams. His 'time three' is less easily understood. It is based on Priestley's belief that although the future is already shaped it is still pliable. He saw 'time three' as the time in which changes to the future could be made. Given Priestley's division of time into three, any postulated time sense would be required to cover all three 'times'; a most unlikely event.

At present most of the work in the area of time sense research is being devoted to establishing and documenting inherent biological rhythms, on the assumption that such rhythms must have an initiator.

Biorythm Research

Kennedy (1981) reviewed the development of biorythm research in a recent article. He traces its development from the end of the 19th Century when Dr Wilhelm Fleiss and Dr Hermann Swaboda described the existence of a 23 day physical and 28 day sensitivity (or emotional cycle) to the development of today's electronic equipment designed to calculate the physical, emotional and intellectual cycles of interested persons. Kennedy's comment that:

From the earliest days, researchers have been struck by the remarkable constancy of duration of the PSI (i.e. physical, sensitivity and intellectual cycles of 23, 28 and 33 days respectively, and the entire theory has been found to apply in some 70% of individuals studied

is an interesting one. Unfortunately he, like so many other authors writing on this subject, has aimed his article at the general rather than the scientific reader and consequently not included references whereby the reader can check the validity of his statements. Another example of this type of reporting can be seen in an article by Dennis Byrne (1982) headlined:

Danger! This man's on shift.

In this article Byrne discussed the effect of shift work as it affects the body's natural rhythms. Byrne's opening statement:

There's a common factor between the accident at the Three Mile Island nuclear power plant and grouchy bus drivers - shift work, which may be more dangerous to the workers and society than popularly believed. Shift work leads to a series of personal problems, including poorer job performance, ill health and disruption of family life

is not supported by specific references, however unlike Kennedy he does give the reader enough information to enable him to obtain specific data from its original source if he so desires. e.g. Byrne refers to the work of Dr Charles Ehret, a senior scientist at Argonne National Laboratory, near Chicago. He identifies Ehret as a 'chronobiologist', (i.e. a researcher investigating the fact that all higher forms of life, including man, have a daily rhythm) and states that he is Vice-president of the International Society of Chronobiology. Byrne's major contribution is that he brings to the general reader the suggestion that there is in existence a new field of time health, called Chronohygiene, that is worthy of his attention and consideration.

Such pseudo-scientific reporting while frowned on by the scientific population has brought to the general public a new awareness of natural rhythms and the possible effects of disrupting those rhythms. In this author's view, it is possible that this awareness may lead to the re-establishment of natural rhythms as indicators of time passing, with the resultant decrease in the importance of clocks and calendars. In effect a return to cyclic rather than linear measures of time. The implications of research in this area are considerable. Barnes (1980) article on 'Night work for nurses' states in her introduction:

The Government is considering revoking New Zealand's ratification of the International Labour Organisations Convention 89, which restricts the right of choice of New Zealand woman to work in an industry late at night. (only women working in factories will be affected by revocation of this Convention, as nurses have always undertaken night work).

This statement illustrates very well the interest in and the need for an awareness of chronohygiene as an integral part of health care. In the decade since the publication of Luce's (1971) book 'Body Time' written as a general introduction to biorythm research for both the general and scientific reader, the results of research in this area have been constantly fed via the popular press to the general public. One possible consequence of this is the expectation of individuals that they will encounter problems when they work shifts or fly across time zones. It is now difficult for researchers in this area to exclude from their results the fact that subjects had problems because they expected to have them.

Time sense research continues. Biorythm, or chronobiological studies continue. Physiological measures, always important in this type of research are assuming more importance as researchers seek to eliminate the type of subjective interference previously mentioned.

TIME RESEARCH IN NURSING

Historically the method of acquiring knowledge for nursing practice might best be described as one based on an accumulation of unrationalized experience and derived from intuitively projected goals The body of knowledge which has been transmitted from generation to generation of nurses seems to be gradually emerging from its cocoon of accumulative experiences. It is presently taking the form of scientifically based knowledge.

Murphy (1971 p.3)

Introduction

Nursing has over recent decades sought to establish a theoretical base for its practice. This has resulted in a variety of theoretical frameworks being offered by various authors as the basis for professional nursing practice. Some authors e.g. Stevens, have acknowledged the possible importance of time research to nursing but few have actually carried out research in this area. With the exception of Rogers, the major nursing theorists have ignored the subject completely. Rogers, who views nursing through a cosmic framework, incorporates in her work the concepts of rhythm and wave patterns as they link man with his environment. Rogers' (1970) work is based on broad generalisations and as such does not provide a specific starting point for nursing research in this area. It does however provide a stimulus for thought and the recognition that time does have an important place in nursing theory. Compounding the lack of precision in Rogers' framework is her creation of a new terminology to express her ideas. Terms such as heliocy, resonancy and complementarity, refer to specific principles as they relate to her theory. Such definitions severely restrict the application of research conducted within a Rogerian framework to those who understand and accept Rogers' theory. It is for this reason that this author has chosen not to utilize Rogers' theoretical framework as a basis for this study, although it encompasses the subject of time in a way that no other nursing theory has.

Time Management

In the increasingly restrictive economic climate in New Zealand, the management of health professionals' available time has become increasingly important. Early New Zealand nursing research e.g. Kinross & Joblin (1974) concentrated on determining the way in which nursing staff spent their time. Today these studies are forming the basis for instructing

staff in the better management of time. Appelbaum (1981) in his book 'Stress Management for Health Care Professionals', devotes an entire chapter to the management of time. He sees stress occurring as a consequence of a manager's inability, because of poor time management, to obtain or fulfil a need. Indirectly Appelbaum is advocating 'chronohygiene' as a necessary part of the health professional's personal health care plan. The implications of this for nurses, especially Occupational Health nurses, are considerable. There is at the present time little nursing research being conducted in this area.

Duration Research

Continual assessment of an individual's perception of the speed of passing time; past, present and future direction, perspective in time and feelings about the importance of time while confined to bed, are areas that may provide important information for nursing assessment.

Smith (1979 p.143)

Smith's work is important as an attempt to relate the experience of time to nursing practice. It also serves to illustrate some of the problems associated with duration research as applied to nursing. In 1975 she carried out a study based on the theoretical proposition that:

changes in the organization and structure of auditory information result in changes in temporal experience.

p.93

In this study 90 men and 90 women, aged 18-35 years, with no known health problems, were confined to bed in a comfortable room for two and one half hours. The fact that these individuals were healthy and had time available to undertake this study -

1. prevents the data being generalised to those individuals confined to bed because of illness
 2. generates data valid only for a group of healthy individuals artificially confined to bed
 3. influences their concept of duration
 4. presupposes that all other senses were operating at an identical level in each individual. The example of Homer previously given, illustrates the importance of ascertaining this type of information.
- Smith's (1975 p.993) statement 'that healthy individuals are aware of time, capable of estimating it and readily adapt to it, expending their energies within its boundaries' is certainly not justified in her study, nor by a 1979

replication using 60 men and 60 women as subjects. The studies are also contaminated by the general problems of time perception research taking a short interval duration.

Nursing research needs to be related to nursing practice. As Smith's subjects were artificially confined to bed, the results have little validity for practice. It would require this research to be conducted using patients for it to be of use to nurses. This however is hampered by necessary ethical and physical constraints. An ill patient confined to bed may be the subject of a study for a researcher but his condition is unlikely to permit him to participate fully, even if ethics are ignored.

Newman's (1972 and 1976) work relating movement and time estimation, reflects many of the problems associated with Smith's work.

Newman's (1976) conclusion that 'the amount of movement is directly related to time estimation', has a more general application than Smith's work. It thus avoids the criticism that must be applied to Smith's work, namely, that her research was undertaken without consideration being given to its application in practice.

Time Factor and Illness

Edelstein (1972) suggested in a review article a number of hypotheses that she felt were of particular relevance to nursing practice.

Edelstein (p.72) notes that:

normal physiological cycles are disrupted by various changes in a person's condition such as physical or mental illness, prolonged immobilization or drug therapy. Under such circumstances persons are less able to judge the passage of time accurately and often exhibit related behavioural aberrations.

Her suggestions for further research relate directly to this frame of reference. These are:

1. The patient with a psychosomatic disorder is significantly more oriented toward past events as measured by his personal time perspective than is the average individual.
2. The shape of the disease cycle, slow onset or more rapid development of symptoms, has a significant relationship to the awareness of duration (constant error of the reproduction of short time intervals) and the perception of time. (Time Questionnaire.)
3. The patient with a psychosomatic disorder presents significantly more instability (variability) in his sense of time duration (standard deviation in the reproduction of short time intervals) than do other patients (surgical and nonpsychosomatic) where psychological components play a lesser role in the disease process.

4. The patient with a psychosomatic disorder presents significantly more instability (variability) of physiological processes such as heart rate, respiratory rate, temperature (standard deviation of measures for circadian periods of time) than do other patients where psychological components play a lesser role in the disease process.
5. There is a significant relationship between the amount of occupied time recorded on the home and work schedule and perception of time.
6. There is a significant relationship between occupied time on the hospital schedule and the variability in physiological processes recorded during the time that schedule is in effect.

Nurses have tended to ignore her suggestions, possibly because of the difficulties inherent in carrying out the type of work suggested. One nurse who did use a physiological measure and related it to time perception was Alderson. The general criticisms made of time perception research still apply to this work. In spite of these limitations this article is an important one for nurses. It relates specifically to professional nursing practice where a nurse is involved in independently assessing a patient and then acting on that assessment.

Alderson (1974) states:

a part of nursing assessment involves a determination of the patient's orientation to time, place and person. Incorrect conclusions can be drawn by the nurse who has minimal understanding of the factors that alter time perception.

In doing so she acknowledges the need for nursing to develop an independence of action based on sound scientific knowledge. One part of that knowledge must be derived from scientifically formulated, carefully researched studies of time as it relates to nursing practice. As can be seen by this very brief outline, there are many facets to the relationship between these two subjects, providing a fertile area for further research.

CHAPTER 3

DESIGN FOR A STUDY ON TIME AND NURSING PRACTICE

A Discussion of the Theoretical Framework

In this chapter the theoretical framework of this study is outlined and some of the problems associated with the choice of design are discussed.

Today as in all recorded history, as man strives to create and preserve his individual and communal identity, he finds himself surrounded by problems he can neither totally understand nor conveniently reject as unintelligible, such as time, life, death and the extremes of a universe. He is also driven by aspirations whose goals he cannot hope to reach, yet cannot accept as unreachable, such as ethical needs for future and truth, or his aesthetic demand for consummate beauty. Beneath these existential dilemmas, man still lives by and for ideas; yet simultaneously he remains only superficially a reasoning animal. More basically he is a desiring, suffering, death conscious, hence time conscious creative.

Fraser (1975 p.4)

There are no absolutes when discussing time and/or nursing. With the exception of the studies already mentioned, research into time and its relationship to nursing is minimal. There is no generally accepted base to build on. In this situation it is appropriate to conduct a general study aimed only at identifying factors and describing the relationship between those factors.

It is possible that those individuals more used to the logico-deductive method of classical research may question the value of research that is largely phenomenological in its approach. In answer, it must be said that research into the fields of nursing and time perception can never be precisely replicable because of the elusive nature of both these subjects. Each of these concepts is heavily dependent on human perception and its definitions. The relationship between time and nursing practice is an important one. The nursing theorist Stevens (1979 p.262) substantiated this view. She states that:

Duration of time and the patients situation at any given time must be significant for nursing theory.

This quotation led this author to consider a duration study but the considerable problems associated with this type of research led her to abandon this format.

An alternative was to consider the importance of the present, or the 'immediacy' as Stevens terms it and the future or 'futurity' in nursing practice. (Stevens p.262). The difficulty in such an approach can be seen in this quotation by St. Augustine.

I am about to repeat a psalm that I know. Before I begin my attention encompasses the whole, but when I have begun, as much of it as becomes past while I speak is still stretched out in memory. The span of my action is divided between my memory which contains what I have repeated, and my expectation which contains what I am about to repeat. Yet my attention is continually present with me, and through it what was the future is carried over so that it becomes the past. The more this is done and repeated, the more memory is enlarged and expectation is shortened, until the whole expectation is exhausted. Then the whole action is exhausted and passed into memory. And what takes place in the entire psalm takes place in each individual part of it and in each individual syllable. This also holds in the even longer action of which that psalm is only a portion. The same holds in the whole life of man, of which the actions of men are parts. The same holds in the whole age of the sons of men, of which all the lives of men are parts.

The following quotation from Rakowski (1979 p.77) gives one basis for the approach decided on in this thesis:

Interestingly, however much room may exist for studies which emphasize single dimensions of temporality, we do not yet appear to have data relating to the question of -

- a. whether certain groupings of 'normal' persons can be identified who consistently focus on one or very few dimensions of temporality in their future outlooks
- or b. whether persons shift foci among temporal dimensions with a given dimension dominating in a given situation. Furthermore many relatively novel ideas may properly have their initial presentation in a format which highlights their uniqueness, in order to stimulate additional thoughts and use and research.

This recalls the discussion already outlined on p. 8 chapter 1, relating to the polarization of individuals views on time.

In The Third Wave, Toffler writes:

the recognition that no knowledge can be complete, no metaphor entire, is itself humanizing. It counteracts. It grants even to adversaries the possibility of partial truth, and to oneself the possibility of error. This possibility is especially present in a large scale synthesis. Yet as critic George Steiner has written, 'To ask larger questions is to risk getting things wrong. Not to ask them at all is to constrain the life of understanding'.

For this author Toffler's imaginative, albeit large scale, generalizations provided the stimulus to consider time as having cyclic and/or linear components that can be demonstrated to exist in the perceptual framework of an individual, and which are consequently legitimate subjects for research.

The main problem confronting this researcher was how to operationalise the concepts of linear and cyclic time. In this study the concept of cyclic time has been related to the concept of repetition and linear time to the concept of novelty (or uniqueness.) As this study has as part of its framework nursing practice, it was felt that it was necessary to consider some of the components of nursing practice and seek to establish a link between these components and the concepts of cyclic and linear time.

The Basic Premise

A basic premise that cyclic and linear time are related to past and future orientations respectively is made. This has no factual basis but is hinted at by Toffler and seemed to this author to be an acceptable premise on the basis that:

a cyclic orientation encompassing as it does, past present and future in a regularly recurring pattern has an inherent orientation to the past.
a linear orientation does not necessarily involve the subject in consideration of the past (although it may do so) but always contains elements of the present and future.

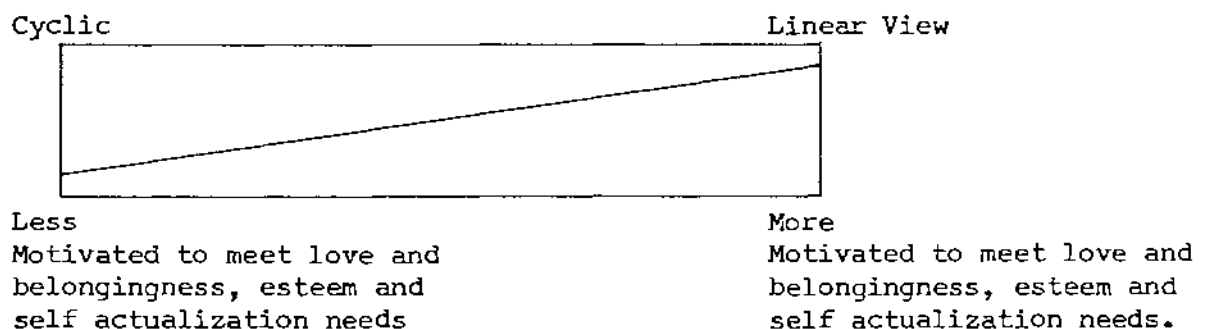
It may of course be argued that a cyclic orientation need not necessarily have a future component but for the purposes of this study such an orientation is incorporated as it is unlikely that subjects do not consider at least the immediate future in their nursing practice. It may also be argued that the present should feature in a discussion of cyclic and linear time, but the difficulties in delineating the present moment are considerable and it was felt that to focus on the present was to confuse the issues of past and future which logically have no existence except in the present. The interpretation of past and present in this study is determined by the nurse's perception of events and her intuitive delineation of past and present as they relate to the events that make up her nursing practice.

THE MODEL

In this model it is assumed that a relationship exists between the individual's perception of time (as cyclic or linear) and their approach to nursing practice.

Those individuals with a cyclic orientation are more likely to utilize previously prescribed formulae as a basis for action, than those individuals with a linear orientation. Conversely, those individuals with a linear orientation are more likely to treat each new situation as unique and devise a new formula for dealing with it. Individuals with a linear view may be more likely to seek to upgrade their status and authority than those with a cyclic view. Because the individual with a cyclic view is mainly concerned with maintaining the status quo, their motivation for self care is more likely to be related to their drive to meet their basic needs than is the individual with a linear view of time. Maslow (1970) created a hierarchy of needs (see appendix 2), stating that all at a lower level must be met before the individual will be able to meet the higher level needs. This author argues that it is not the hierarchical nature of these needs that is the determining factor but the time orientation of the individual concerned. In this author's view, people with a cyclic orientation are not as motivated to meet their higher needs as those with a linear view. Both groups are motivated to meet their own physiological and safety needs. However, it is argued that individuals with a linear view of time are more motivated to meet their love and belongingness, esteem, and self actualization needs, than those with a cyclic view¹.

This may be represented as follows:



1 Refer p.7

In the absence of predetermined formulae the individual with a linear orientation is more likely to make more decisions regarding his own self care than the individual with a cyclic view of time. The inherent past and present orientation of the individual with a cyclic view of time means that this individual is less likely to participate in planning for the future, than the individual with a linear present and future orientated view of time.

Nurses are members of the general population. As individuals in that population the behaviours outlined above are applicable to them. Patients are also individuals in that population. It is the unique function of the nurse to

assist the individual, sick or well in the performance of these activities contributing to health or its recovery (or to a peaceful death) that he would perform unaided if he had the necessary strength, will, or knowledge and to do this in such a way as to help him gain independence as rapidly as possible.

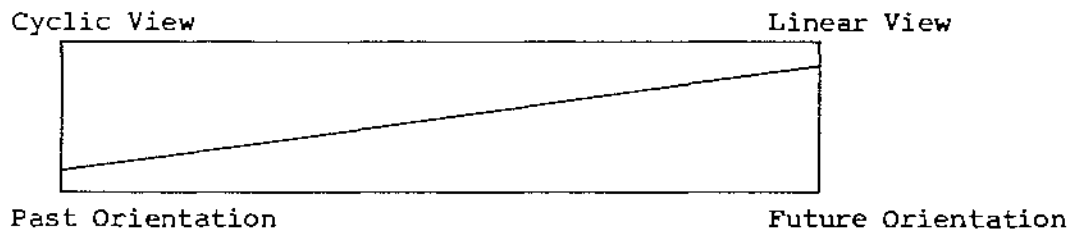
Henderson (1969 p.4)

The nurse's interpretation of the assistance required is determined by the nurse's perception of her patient's needs. It is postulated that a nurse with a cyclic view is more likely to see these needs as mainly physiological or safety, than the nurse with a linear view who may include love and belongingness, esteem and self actualization needs. The nurse's perception of need may not be translated into action.

If a junior nurse's perception of time is linear and her perception of need encompasses all aspect of human need it may not be possible for her to meet those needs she perceives as existing if the nurse in charge has a cyclic view of time. This is less likely however, than the situation where the senior's perception of time is linear and that of the junior nurse is cyclic.

In this study the author seeks to establish that two different concepts of time exist among nurses and that these two concepts have different implications for nursing practice. As can be seen from the model the implications are considerable for both patients and nurses.

This author began with the basic premise (refer p.6) that there is a relationship between a cyclic view of time and a past orientation and a linear view of time and a future orientation. This premise is illustrated by the following diagram:



Given that this basic premise is correct, then six components of nursing practice can be identified. Relationships between these components and cyclic and linear time are proposed. Each of these components has been chosen as being common to all nursing practice.

Causality is not proposed; only that a relationship exists between the components. Williamson (1981 p.119) basing her interpretation on Sellitz et al (1976) identifies three criteria for casual relationships.

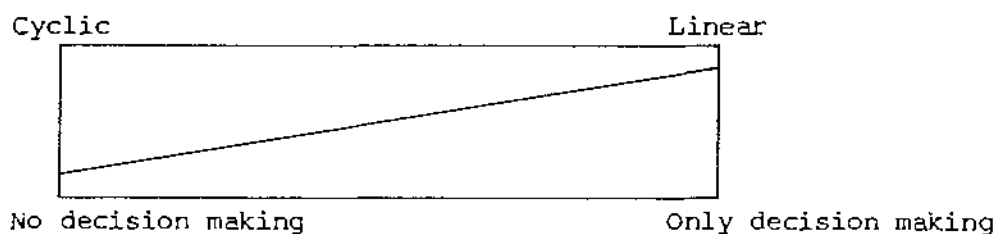
- a. Concomitant variation,
i.e. the extent to which the independent and dependent variables occur together in the hypothesized direction
- b. Time order,
i.e. causal relationships may only be proposed if a phenomenon precedes the observed outcome
- c. Elimination of competing explanations,
i.e. the investigation must systematically rule out other possible causes of the observations.

This is essentially a study concerned with the individual's perception of events. It is therefore not possible to meet the criteria outlined above.

The six components

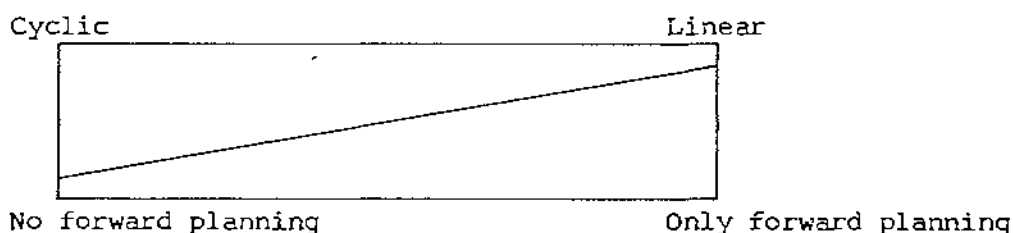
The first of these components is decision making. It is argued that:

Fewer decisions are required when a nurse has a past orientation and views events as repetitions of those previously encountered. New events require constant new decisions to be made. It can therefore be concluded that these nurses with a cyclic view of time are less likely to make decisions than are those with a linear view.



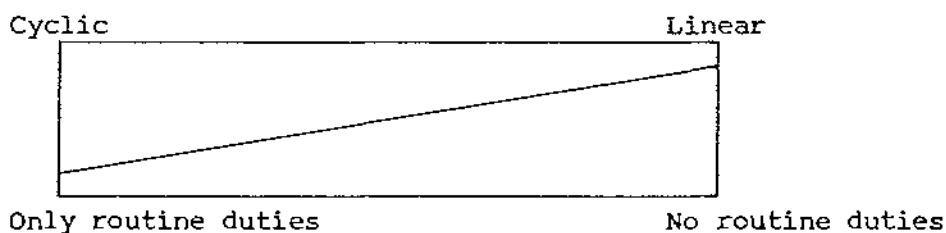
The second is forward planning. It is argued that:

Less forward planning is required when a nurse's practice involves the repetition of events, than when it involves constant encounters with new events that have no solution determined by past experience.



The third component concerns routine duties. It is argued that:

Routine duties by their nature involve the repetition of events. Nurses who see their duties as more routine are likely to have had considerable practice in carrying out these duties in the past.

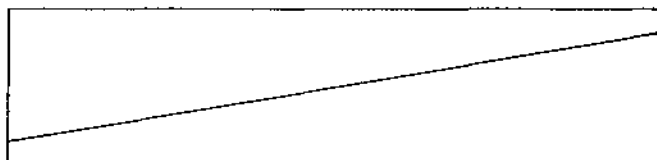


The fourth component covers established procedures. It is argued that:

The existence of established procedures for nursing practice presumes that events should recur. It is expected that 'guidelines' for practice should only exist where it is expected that new events will occur

Cyclic

Linear



Established procedures exist for all aspects of the job

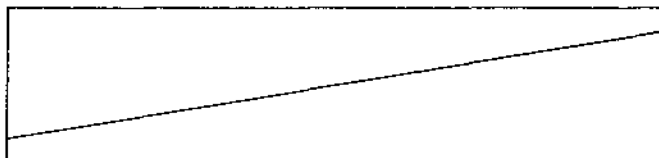
Established procedures do not exist for any aspects of the job

The fifth component involves the nurse's perception of her work day as resembling other days. It is argued that:

A nurse perceiving her work day as resembling other days is likely to see her days practice as involving much the same events as on previous days. A nurse who does not perceive her day as resembling other days will be less likely to identify certain events as recurring.

Cyclic

Linear



One day at work is pretty much like another

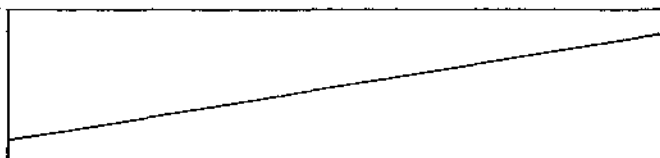
There is no resemblance between days at work

The last component involves the nurse's perception of the 'Here and Now' and its importance to her. It is argued that:

A nurse with a predominantly future orientation will be less concerned with present events

Cyclic

Linear



At work the here and now is important

At work the here and now is least important

CHAPTER 4

METHOD AND PROCEDURE

In this chapter the method chosen and procedures used for this study are explained.

METHOD

The Questions

Do nurses have a concept of time?

If nurses do have a concept of time do they view it in two different ways (cyclic and linear)?

Are these two different views related to their job components?

Do nurses at the upper end of the nursing hierarchy have a predominantly linear view of time?

Do nurses at the lower end of the nursing hierarchy have a predominantly cyclic view of time?

The Response1. The instrument selected

The author devised a self report questionnaire (see appendix 3) designed to elicit:

- a. biographical data
- b. the nurses' own perceptions of time
- c. the predominant time perspectives of each nurse
- d. the relationship between the nurses' view of time and six selected aspects of their work (refer p.40 ch.3)

A self report questionnaire emerged as the most practical and comprehensive method of obtaining the desired information. A questionnaire does of course have limitations. It requires a literate population, not a problem in this case, as all nurses are required to have at least basic literary skills. It is felt that the questionnaire should have attached a letter of explanation (see appendix 4) and that except for this explanation, no further explanations would be given.

Section I of the questionnaire
(see appendix 3)

This was derived from the six components (see p. 40-41) and identified indicators of the nurses view of time. As indicated the nature of nursing practice is such that all nurses must make some decisions, all nurses must undertake some forward planning, carry out some routine duties, work according to some established procedures, repeat some events each day and operate in the here and now on occasions. A seven point scale was designed and respondents asked to indicate on the scale which figure best represented their view of time and their perception of these six components of their work. Results of this section may be seen in chapter 6.

Section II of questionnaire
(see appendix 3)

In an attempt to establish a future orientation and an ability to delay gratification (also related to a future orientation), the author has utilized a section of a Time Opinion Survey created by Raymond C. Kuhlen and Rolf H. Monge (1968). This was incorporated on the premise that those nurses in more senior positions are likely to have a greater future orientation (and a perception of time as linear), than those in the more junior positions.

It is argued that:

Promotion in the nursing service should involve, a future orientation, an ability to make decisions and the ability to undertake forward planning and an ability to delay gratification. This latter being needed if a nurse is to undertake the educational programme necessary to achieve expertise in these areas.

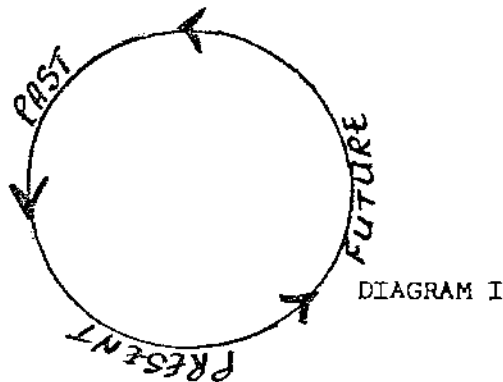
Results of this section may be seen on (p. 91)

Section III of questionnaire
(see appendix 3)

In this section respondents are asked to select one of two rival images and to indicate the reason for selecting a particular image. They were also asked to give their own definition of the word 'Time'. This section concluded by requesting the respondent to select, out of eight key words, those words which best described her job. The rationale behind each of these questions all devised by the author was as follows.

The Visual Image

A visual image as seen below depicting cyclic time as a circle and linear time as a line has been devised by the author.



A circle has been chosen as being the most representative of cyclic time as it suggest repetition and a recurring cycle. A line is considered an appropriate image for linear time. Each is divided into past, present and future and arrows shown to indicate movement. To this author the images express clearly the subject of cyclic and linear time, but it is necessary to eliminate the possibility that nurses see these images as representing something other than time. In order to do this two questions (both deliberately limited by the space given and the lack of an invitation to write over the page), are included, one inviting the nurse to give a reason for choosing a particular diagram and another seeking her definition of time. It is felt that as nurses are required to be literate all would be familiar with the word time and that it is unnecessary to include a question to prove that nurses are aware of such a concept. It is felt that it is the nurse's interpretation of the concept that is important. As the diagrams focus an individual's attention, so does the sight of certain words in print (itself a form of visual image) and a selection of words which seem to the author to suggest possible perceptions of nursing practice are included, in the anticipation that such perceptions will be shared by all nurses and that the selection of certain words as describing their job will indicate the nurse's perception that job as being repetitive and/or original and/or routine and/or novel and/or secure and/or complex and/or innovative and/or simple. It is anticipated that this question which includes the key words repetitive (as related to cyclic time) and novel (as related to linear time) will provide confirmation of other data given.

Section IV of Questionnaire
(see appendix 3)

In order to establish a profile of respondents, questions designed to elicit biographical and professional data are included in this section.

For ease of answering and collating, questions require only a tick, a figure or two words as an answer. Respondents are asked to name their questionnaires (for ease of collation). Ages are indicated in 10 groups, each covering a five year span and respondents invited to indicate the group which includes their own age.

Only 3 options are given for race, 'European', 'Polynesian' and 'other'. Respondents were asked to tick the box which indicated their sex.

In order to establish how long respondents had been in their current and other nursing positions, they are asked to write in the year in which they obtained each of their nursing positions.

The same approach is used in the question asking respondents to indicate their qualifications.

Finally respondents are asked to write in the area in which they work.

2. Location of the Study

a. The Pilot Study

This was undertaken at a 12 bed Maternity Annex, physically separate, (over the road) from the Waipukurau Hospital. It was chosen because:

1. it was easily accessible to the author
2. the nursing staff were in the main unaware of the author's interest in the subject of time as related to nursing practice

b. The Main Study

This was undertaken at Barrett Street Hospital and the Base Hospital at New Plymouth. These hospitals were chosen for a number of reasons.

1. The researcher had worked, or carried out research in most of the hospitals in the immediate vicinity of Waipukurau and it was felt preferable that the research be conducted in an area where the researcher was not known.
2. It was intended that the questionnaires be given out to all staff on duty at the hospitals between Monday morning and Wednesday night. This meant that an adequate number of nurses (250+) had to be readily available in a location that was easily accessible to the researcher. New Plymouth met this criterion.
3. Staff were willing to assist with the research.

Description of Hospitals

Taranaki Base Hospital is a 274 bed Base Hospital serving the Taranaki region of New Zealand. Included in this figure is a 35 bed Obstetric Unit.

Barrett Street Hospital is a 165 bed hospital, separate from the main hospital.

Details of ward type and bedstate can be seen in appendix v.

3. Subjects of the Study

a. The Pilot Study

All nurses on duty at Raymond Maternity Annex between Tuesday 2.30 p.m. and Thursday 2.30 p.m. were given a copy of the questionnaire.

b. The Main Study

Members of nursing staff ranging from the Chief Nurse, Taranaki Hospital Board, through to hospital aids at both Base and Barrett Street Hospitals, rostered for duty Monday morning to and including Wednesday night were given a copy of the questionnaire.

Table 4:1 shows the detailed distribution and return of these questionnaires.

Table 4:1

Questionnaire Distribution and Return

N = 497

	Distributed		Returned	
	Actual	No.% of total	Actual	No.% of total
Barrett Street Hospital	160	32.19	110	31.79
Base Hospital	327	65.79	226	65.32
Raymond Maternity Annex	10	2.01	10	2.89
Total:	497	99.99	346	100.00

% returned 69.62

Unless indicated all results given include Raymond Maternity Annex

Nurses were requested to name their questionnaires in order to facilitate collation. Unfortunately a number of nurses

- a. removed their names from the front of the questionnaire where it had been placed by the researcher to facilitate distribution and collection of data
- b. did not complete correctly all sections of the questionnaire. This was especially true of the biographical section and was true of all levels of nurses.

In view of the current literature (see p. 28) relating to changing biorythm patterns and shift work, the researcher sought to identify those nurses working on night duty and/or part time. Unfortunately those nurses who removed their names from the questionnaire also removed the author's notation indicating that they were on night duty and/or part-time staff. This precluded this information being included in the results. The removal of names from some questionnaires also affected the researcher's intention of considering the general students by level of seniority. The researcher had intended to compare the results of first year students with that of staff nurses. It was felt that such a comparison could be justified on the grounds that each group would have spent a similar time in training and was likely to be from a similar age group.

Unfortunately this general student data could not be classified by year of training and the result given represents students in all years of training.

The questionnaire asked nurses to identify their employment category. This is required to identify categories of staff as defined in the employment regulations, DG21 (refer appendix 6). These categories delineate various groups of nurses, indicate their level of training and their place in the nursing hierarchy. In addition standard biographical data was sought and this, together with the data relating to the employment categories, creates a profile of the nurses returning the questionnaire.

Characteristics of Subjects who returned the Questionnaire

The nurses who returned the questionnaire came from all levels of nursing staff within the two hospitals and the maternity annex. Table 4:2 shows the frequency distribution of these nurses by employment category.

The employment categories used are the categories defined in the employment regulation DG21 (refer appendix 6). Chief nurses, Principal nurses, Nurses in Charge and Nursing Supervisors, are all included in category 'Supervisors and above'.

Table 4:2 Frequency Distribution of the Total Population of Respondents by Employment Category

N = 346

Employment Category	Number	% of Total
Supervisors and above	9	2.60
Charge Nurses	20	5.78
District Nurses	8	2.31
Staff Nurses	97	28.03
Enrolled Nurses	93	26.88
General Student Nurses	36	10.40
Students for Enrolment	27	7.80
Hospital Aids	47	13.58
Obstetric Nurses	6	1.73
No position stated	3	0.87
Total:	346	99.98

Obstetric nurses are treated as a special case. Although their period of training is similar to that of the enrolled nurse, in many obstetric units they receive the title of staff nurse and are eligible for promotion to charge nurses or supervisor position in an obstetric unit.

The researcher felt that some respondents may not wish to indicate their exact age in years, consequently respondents were asked to select one of a group of ages, each group covering a span of five years.

Table 4:3 Distribution of Respondent by age

N = 346		
Age Years	Number	% of total
under 20	28	8.09
20 - 24	94	27.16
25 - 29	46	13.29
30 - 34	41	11.84
35 - 39	27	7.80
40 - 44	29	8.38
45 - 49	36	10.40
50 - 54	18	5.20
55 - 59	10	2.89
60 +	4	1.15
Age not given	13	3.75
<hr/>		
Total:	346	99.95

The modal range for the total population is 20 - 24 years. This may be accounted for by the high number of student nurses and more recently qualified staff and enrolled nurses.

Table 4:4 Distribution of Respondents by Race

N = 346

Number of European Race	% of Total	Number of Polynesian or other race	% of Total
335	96.82	11	3.17

Two of the 11 respondents who indicated that they were of Polynesian or other race, also indicated that they were part European, a conclusion not catered for by the questionnaire. In view of the small percentage of subjects not of European descent, these results were not segregated but treated as part of the total population.

Table 4:5 Distribution of Respondents by Sex

N = 346

Number of Female Respondents	% of Total	Number of Male Respondents	% of Total
332	99.95	14	4.04

Consideration of the men's results did not indicate any pattern that could be interpreted as sex specific and their results were incorporated in the total population and considered only as part of that total.

PROCEDURE

a. Procedure for the Pilot Study

A covering letter was written especially for this group (see appendix 7) was attached to the front of the questionnaire. Copies were given to the Obstetric Supervisor with the request that she distribute it to all staff on duty between 2.30 p.m. Tuesday and 2.30 p.m. Thursday. The supervisor was asked not to comment but to give them to the staff with the verbal request that they be returned by the agreed time. A time limit was imposed because it was felt that it was preferable that all nurses answer within a given time frame; in this case Tuesday 2.30 p.m./Thursday 2.30 p.m. All nurses on duty in that time were given the questionnaire and all completed and returned it by the agreed time. The researcher took the opportunity of explaining to those nurses on duty at the time of collection, the aim and nature of the study. That is, after they had completed the questionnaire. Notes were attached to the returned questionnaires offering explanations for the answers given to the forced choice questions. In the original questionnaire, (refer appendix 8) question 4, Section IV was omitted. It was decided to include this in the final questionnaire as a means of supplementing the information given in the other parts of this section. The inclusion of this question certainly led to some interesting results and revealed some conflicts not shown in the responses of nurses in the Annex.

Discussion with the Annex staff centred not around the questionnaire, which they felt was straightforward and easy to follow, but the considerable difficulty they had defining the word 'Time'. They could offer no way of improving the questionnaire. Difficulties with interpretation were evident, even at this point, as not all questionnaires were completed correctly.

In the final questionnaire Section III was expanded as indicated. In the section on current position, the words the year, were underlined in an attempt to encourage the participants to give their commencing date and not just tick the appropriate box. A new section, unnecessary in the Annex questionnaire, as all staff were known to the author, was put in asking the respondent to indicate their sex. The Annex questionnaires were photocopied on A4 paper, but it was felt that the layout was a little cramped so the final questionnaires were duplicated on paper specially cut as intermediate between A4 and foolscap paper.

b. Procedure for the Main Study

Sunday

500 questionnaires were prepared and taken to New Plymouth

Monday

The researcher met with the Chief Nurse and Inservice Education Supervisor who would be acting as guide and adviser. The Inservice Education staff, together with the staff of the nursing school, were excluded from the survey on the grounds that education yields result only in the longer term and therefore nurses working in this area are likely to have a different view of time than those working in service areas.

The researcher was allocated an office in the Inservice Education Department and given a copy of the current duty roster. She then proceeded to name each questionnaire with the name of the nurse together with information as to whether she was part-time or on night duty. All nurses rostered for duty from Monday morning to and including Wednesday night, were allocated a questionnaire. Questionnaires were stacked by ward or department and placed in an envelope on which was written:

"Please put questionnaires in this folder"
I shall be round each day to empty the folder
and collect all the folders in on the morning
of Friday 12 February 1982.

Charmaine Hamilton

Mid afternoon the Inservice Supervisor and the researcher delivered the envelope to each ward or department at Base and Barrett Street hospitals. No detailed explanation of the study was given at the time.

Tuesday morning 3.00 a.m.

The researcher delivered questionnaires to all nursing staff on duty at Base and Barrett Street Hospitals. It was felt that personal delivery would enable the night staff to meet with the researcher and would facilitate the return of the questionnaire. Envelopes were emptied as the researcher went around Wednesday. Few questionnaires were available at this stage.

Thursday

The majority of questionnaires were available. The single biggest problem staff seemed to have was the request that they be named. Quite a number had removed their name (and with it the note that they were full or part-time staff) from the form and not put it in the box indicated. Some had returned the questionnaires in sealed envelopes. As the researcher went around she ensured that the Nurse in Charge of each ward was clear that the envelopes would be collected in on Friday morning.

Friday morning

All envelopes were collected in and it was explained that questionnaires not available at that time (with the exception of 4 which were not available at that time for a special reason, 2 District nurses who did not come into hospital on Friday, a staff nurse who had forgotten to bring hers and a Principal nurse who was busy on Friday morning, these could be sent to me direct, or given to the Inservice Supervisor), would not be used in the study. The Inservice Supervisor did forward a number of questionnaires in the mail, but with the exception of the special questionnaires mentioned above, these were not used.

Friday afternoon

The researcher returned to Waipukurau.

The Analysis of the Results

Section III

The questions in this section relate to the respondents perception of time. Respondents are asked to indicate in a forced choice and free choice situation their definition of the word time and their perception of a diagram representing a) cyclic (diagram I) and b) linear (diagram II) time.

The respondents' definitions of the word time were coded by the author according to key words used in the respondents' answers. e.g. a respondent writing 'time is a commodity' would have their reply categorised under the general heading 'commodity'. From these most frequently occurring key words eight words or phrases were selected as a basis for the author's coding. This elementary analysis of the content of the respondents replies provides the basis for a quantitative analysis. (Marlowe p.269). An illustrative sample of the respondents' actual replies to this question was taken. This sample illustrates the type of answers given to this question. It is not a representative sample of the total population, rather it is a quantitative sample (1/10th of the total population). It is included in the context of the study as an illustration of the type of answers given by respondents. This sample was obtained by stacking the questionnaires in one of two categories -

- a) those from Barrett Street Hospital
- b) those from Base Hospital

(Raymond Annex questionnaires were not included
as the total number of respondents was too small)

Once stacked these questionnaires were subdivided into the respondents area of work, e.g. maternity, district, acute medical etc. and the questionnaires numbered in sequence. The results from those questionnaires with a number ending in 0 were used in the sample. The size of the same was determined entirely by the author's desire to present a range of responses that would illustrate in detail the respondents perception of the word time. The selection of the answers from a questionnaire ending in 0 is entirely a matter of choice, it could equally well have been all those ending in 4 or 6.

The analysis of the respondents choice of diagram is based on the author's conception of the circular diagram as being representative of cyclic time and the linear diagram as representative of linear time (refer p. 44). The total population of respondents answering this

question are used as a basis for analysing the results. In the following question the reasons why a respondent selected a particular diagram, the total population answering are used as a basis for analysis in a manner similar to that used for the question on the definition of 'time'. An illustrative sample is obtained in the same manner for this question as for the previous question on time.

The concluding question in Section III asked respondents to indicate which of eight words they see as best describing their work. The key words in this section are repetitive and novel. These two words derive directly from the author's definitions of linear and cyclic time and the answers are analysed within the framework of these definitions.

Section IV

Biographical data is analysed in terms of the total population answering the questions in this section. Unlike the previous section the answers are analysed in a purely quantitative context. They provide a profile of the respondents completing the questionnaire.

Section I

This section deals with the job components and the respondents view of these components. The results in this section are analysed using the author's argument (refer p. 40) that there is a relationship between the job component and the respondents view of time.

Section II

This selection of questions from the Kuhlen and Monge questionnaire (refer p. 90) is analysed in terms of the authors basic premise that there is a relationship between future and past orientation and the respondents view of time.

In this section the analysis of results is not in the sequence that they appear in the questionnaire but the sequence used in the following chapters.

CHAPTER 5

PERCEPTIONS OF TIME

In this chapter the concepts of linear and cyclic time are examined using data from Section III question 3 of the questionnaire. (refer appendix 3). These questions refer to the respondents' perceptions of time.

THE CONCEPT OF TIME

As indicated in the opening chapter there are many meanings that may be ascribed to the word time. There is no part of man's academic endeavours that does not have at least some dealings with an aspect of time. In Section III question 2 the respondents were asked to define time without reference to a dictionary or other reference material. These definitions are used to examine the respondents perceptions of time. The existence of these definitions for the total population has been taken to indicate that the respondents have a perception of an entity that each of them defines as time.

Respondents perceptions of time in a free choice situation

13.68% of the total population of the two hospitals experienced some problems in answering this question.

Table 5:1

Frequency distribution of
responses to question 2

N = 336

	Number	Percentage
Did not attempt a definition	27	8.03
Used a recognised quotation	3	0.89
Did not give a clear definition	16	4.76
Gave a clear definition	290	86.30

The inconclusive answers given included such answers as

'has no meaning'

'state of mind'

'measurable continuum'

'undescribable'

The results from Raymond Annex are not included in this section as discussion with the respondents from this group indicated that there had been some discussion among them when answering this question.

An analysis of the respondents' perception of time through definitions

The author selected 8 recurring key words or phrases (refer appendix 3) and categorized the answers by the respondents use of this word or phrase in their answers. Only those results where 10 or more respondents (approximately 3% of the total number of respondents) using the key word or phrase are included. 91 results are coded under other; they are those words or phrases used by less than 3% of the total population.¹ The majority of these answers were quite individual and could not be easily categorized into any group that were representative of more than 1% of the total population, a figure too small to be the basis of a meaningful discussion.

An analysis of frequently occurring phrases or key words indicate that there are 8 main ways in which time was conceived by the respondents. These are:

1. Time is something that is precious/or valuable.
Time is seen by its owners to be of value to themselves.
2. Time is a unit of measure.
It is something that divides the passage of life into measurable parts.
3. Time is something there is never enough of.
There is a finite limit imposed on 'time' by the person perceiving it and this limited time scale is viewed as if it is time itself.
4. Time is existence or life.
Death is equated with the end of time for the individual.
5. Time is a commodity.
A man's time may be traded in the market place; it is an item of trade.
6. Time is space.
An unusual interpretation but one that is acceptable in terms of a concept of time as universal.
7. Time is an allocation or gift.
It is the gift of a higher power to the individual.
8. Time is something that goes fast when one is young or busy and more slowly when one is older or less busy.
The nature of time changes according to the age and the degree to which the individual is busy.

1 Refer appendix 9.

Table 5:2

Definition of the word 'Time'

N = 290

Selected phrase or word	Number selecting this phrase	% selecting this phrase
Precious/valuable	11	3.79
Unit of measure/hours/days	68	23.44
Not enough available	35	12.06
Existence/life	35	12.06
Commodity	11	3.79
Space	13	4.48
Allocation/gift	11	3.79
Goes fast when young/busy slow when older/less busy	15	5.17
Other (words or phrases occurring < 3%)	91	31.37
		<hr/> 99.95

Inspection of the Table reveals that approximately 25% of respondents conceived of time as a unit of measure. This author being unable to find any previous research requesting respondents to define the word 'Time', she had no indication what the result of the question might be. Life experience did suggest to her that a number of respondents might conceive of time in terms of a measure and the 25% figure obtained bears this out.

The author did not expect that any respondents would conceive of time in terms of space. Two specific examples of the definition given which include the concept of space are given below:

'space where we live'

'wide open space'

It can be seen from these that the respondents were quite clear in their attempt to define time in terms of space. Only 11 respondents stated directly that they viewed time as a commodity but it may be reasonably inferred that those who indicated that they did not have enough time available in which to do the things they wished, also viewed time as a commodity. Although at first glance the same inference may be made about the answers which include the concept of time as a gift or allocation, a careful examination of the replies reveal that this is not the case. Two specific examples give a better indication of the way in which the phrase was used.

'intangible gift'

'God given gift'

The author feels these answers may be more correctly related to the concepts of life or existence as they are used to define time. The idea of time being precious or valuable, reflects the idea of time as a commodity but it may also reflect the notion of time as it relates to life or existence.

In appendix 9 the respondents' definition of the word time and their reason for selecting a particular diagram are given in an abbreviated form. In order to demonstrate the nature and variety of the type of answers received for these questions, illustrative samples of the respondents' actual answers are given.

Table 5:3

Illustrative Sample of Respondents' Definitions of 'Time'

N = 33

RESULTS FROM SECTION IV QUESTION 3 FOR EVERY TENTH RESPONDENT

Barrett Street

Number	Position	Area of Work	Definition
10b	Charge Nurse	Geriatric Ward	"Time" never seems to be enough of it in one day
20b	Enrolled Nurse	Geriatric Ward	Something we cannot put back but can only enjoy and make the most of.
30b	Enrolled Nurse	Geriatric Ward	Could do with lots more. Older one gets, the faster time goes.
40b	Student for Enrolment	Geriatric Ward	Time is merely a thing we live by. It rules 99% of our lives. We haven't time to do this and that. We need more time. People should take time out to relax, talk, enjoy their job etc.
50b	Enrolled Nurse	Geriatric Ward	Time: A part of every day living, working relaxing and involvement LIFE
60b	General Student	Psychiatric Ward	Time is a complex structure of past present and future which determines or involves each persons actions, behaviour and ideas. Without time there would be no form or structure to the events that take place.

Barrett Street Cont'd

80b	Staff Nurse	Psychiatric Ward	Having enjoyed my time e.g. years of nursing I feel my career in several areas has been fulfilled
90b	District Nurse	District	'Time' is a very precious commodity these days and I never have enough of it. It is something not to be wasted and to be used for the benefit of others
100b	Student for Enrolment	District	Time is the hours of the day and night. How you spend these hours can make all the difference between time dragging or racing. Time can also mean present, past and future
100b	Supervisor	Administration	With reference to?

Base Hospital

10	Staff Nurse	Outpatients	An important aspect of life which requires organisation and thought so as to achieve ones goals
20	General Student	Theatre	Time - is something I have - that I'm able to do with what I like - often it is wasted or could be spent doing more purposeful things. By having time we can learn everything we know, do everything we do. It is something that is not able to be obtained - it keeps on going
30	Enrolled Nurse	Theatre	'Something' that I never have enough of
40	Staff Nurse	Accident and Emergency	Time occupies most of your life. People (or life) compete against time, a mad vicious race today
50	Staff Nurse	Intensive Care Unit	Method of mapping out days, hows etc.
60	Hospital Aid	Geriatric Area	Time waits for no man

Base Hospital Cont'd

70	Hospital Aid	Geriatric Area	Time is the space in which I try to organize my family activities around
80	General Student	Childrens Surgical	Used to describe a stage or period in which things occur, have occurred or may occur. May also be used as a means of determining accurately certain stages during a day
90	Enrolled Nurse	Childrens Medical	"what is life, if full of care we have no time to stand and stare"
100	Hospital Aid	Childrens Medical	A period of duration in which to do ones work and enjoy ones leisure time
110	General Student	Gynacological Urological	Time is a period of space which you are given to perform certain tasks as required by yourself or others. It is often controlled in our world by one main object, whether it be a clock, work pressure, the boss, the sun.
120	Staff Nurse	Orthopaedic	Not given
130	Enrolled Nurse	Orthopaedic	Not given
140	Staff Nurse	Surgical, Eyes Ear, Nose and Throat	'past present and future'
150	General Student	Acute Medical	Yesterday, today and tomorrow
160	Staff Nurse	Acute Medical	Time to me is a clock. It rules 99% of my life
170	Enrolled Nurse	Acute Medical	Not given
180	Student for Enrolment	Maternity	Something that goes very fast

Base Hospital Cont'd

190	Obstetric Nurse	Maternity	Something dictated by the clock and calendar to help plan living habits
200	Obstetric Nurse	Maternity	Not given
210	Staff Nurse	Neo Natal Unit	Time is a measurement which takes past, present and future events into account and makes the recording of their distance apart possible
220	Staff Nurse	Neo Natal Unit	Time is the period in which I allocated myself to do tasks/chores/recreational activities in a 24 hour period

Summary of Section III Question 3

In this section respondents were asked to give their own definition of the word time without reference to any book or discussion with any other person.

Some individuals found this question difficult to answer. 27 did not attempt it at all. A number of these respondents did answer the questions directly above and directly below this question. This would seem to indicate a willingness to complete the questionnaire associated with a difficulty in answering this particular question. Others did not complete any of the questions in this section; possibly an indication of a reluctance to answer the more difficult section of the questionnaire.

86.30% of the nursing population of the two hospitals on duty at the time the questionnaire was administered gave a clear definition of the word time. This is taken by the author to indicate that these nurses have a clear concept of the entity we call 'time'. Whether these nurses who did not complete the question are lacking in a concept of time or the ability to express that concept is unknown.

Respondents' Perceptions of Time in forced choice situation

Concepts of time have been demonstrated to exist among the respondents. The question now arises as to whether these individuals have a view of time that is essentially linear or essentially cyclic. Visual images, one circular in design, the other linear are used in Section III question 1 to ascertain if there are two groups of people, one which selects the circular image, the other the linear image. It is argued that such an identification is indicative of the individual's time perspective. The individual who views his work as cyclic must view time as cyclic because cyclic time is only marked by the recurrence of events. The individual who views his work as linear must see time as having the same progression. The arrows on the diagrams (or images see p. 44) serve to indicate the recurring nature of past, present and future events, while those on the linear image indicate that events do not recur in the exact form. Results are initially analysed in terms of the total numbers of respondents, the employment category of those selecting a particular diagram, (refer Table 4:2) the area in which respondents work and the age group of the respondents. This is followed by an analysis of the reasons respondents give for selecting the result. An illustrative sample concludes a particular diagram.

14 individuals (4.04%) did not complete this section of the questionnaire. Table 5: 4 indicates that almost 31.50 percent of respondents selected diagram I. This pattern is seen in all employment categories, except the supervisors and above where 1 respondent in a total of 9 selected diagram I and the district nurses where 1 respondent in a total of 8 chose diagram I.

Table 5:4

Distribution of Respondents Selecting Diagram I or Diagram II
by Employment Category

Employment Category	N = 346					
	Number	Number Selecting Diagram I	% of each Category selecting Diagram I	Number Selecting Diagram II	% of each Category selectin Diagram II	
Supervisors and above	9	1	11.11	8	88.88	
District Nurses	8	1	12.50	7	87.50	
Charge Nurses	18	5	27.77	13	72.22	
Staff Nurses	93	28	30.10	65	69.89	
Enrolled Nurses	93	28	30.10	65	69.89	
Student General Nurses	32	16	50.00	16	50.00	
Students for Enrolment	24	8	33.33	16	66.66	
Hospital Aids	47	19	40.42	28	59.57	
Obstetric Nurses	5	2	40.00	3	60.00	
Not Known	3	1	33.33	2	66.66	
Did not answer the Question	14	-	-	-	-	
Total	346	109	% of total 31.50	223	% of total 64.45	

Table 5:5 analyses the results in terms of the individuals' area of work. 10 respondents did not select either diagram I or diagram II and a further 5 did not indicate their area of work. These particular respondents gave their papers to someone else to hand in and it was not possible for the author to ascertain for certain which area they came from. Table 5:5 yields percentage figures not for the total population as in Table 5:4 but for each individual work area. No work area gives results that indicate that staff's perception of the diagram was influenced by the work they were doing at the time. The result given for the geriatric area is suspect as two of the hospital aids admitted they found it difficult to decide which diagram to select and had sought advice from other staff. This was the only occasion that staff admitted not completing the form by themselves and there is no evidence in the majority of results of duplicated answers to all questions. Only 4 areas of work had less than 25% of respondents from that area selecting diagram I. The district nursing service and the intensive care unit both have a greater ratio of registered to non-registered staff than other areas. This however is not true of the convalescent surgical ward. As the analysis of these results yielded some interesting but inconclusive trends, an analysis of age patterns and the selection of a particular diagram was undertaken.

Table 5: 5

Distribution of Respondents selecting Diagram I or Diagram II by area of work

N = 331

Area of Work	Number	Number from each area selecting Diagram I	% from each area selecting Diagram I	Number from each area selecting Diagram II	% from each area selecting Diagram II
Raymond Annex	9	3	33.33	6	66.66
Surgical and Convalescent	13	2	15.88	11	84.61
Female Geriatric	16	7	43.75	9	56.25
Male Geriatric	14	5	35.71	9	64.28
Male Geriatric	14	5	35.71	9	64.28
Psychopaedic	10	3	30.00	7	70.00
Psychiatric	18	10	55.55	8	44.44
District Nurse	20	3	15.00	17	85.00
Childrens Surgical	16	4	25.00	12	75.00
Childrens Medical	11	3	27.27	8	72.72
Gynaecology and Urology	12	3	25.00	9	75.00
Orthopaedic	17	8	47.05	9	52.94
Surgical Eyes/ENT	15	5	33.33	10	66.66
Outpatients Department	9	3	33.33	6	66.66
Operating Theatre	26	10	38.46	16	61.53
Accident and Emergency	11	5	45.45	6	54.54
Intensive Care Unit	7	1	14.28	6	87.71
Geriatric	15	1	6.66	14	93.33
Acute Medical	8	2	25.00	6	75.00
Acute Medical	18	4	22.22	14	77.77
Obstetric	16	10	40.00	6	60.00
Obstetric	16	6	62.50	10	37.50
Neonatal Unit	12	5	41.66	7	58.33
Supervisors and above	8	1	12.50	7	87.50

Table 5:6 indicates the age group of those individuals selecting diagram I or diagram II. As previously stated 10 people did not indicate which diagram best represented their view of their work. A further 22 respondents did not indicate their age (a number of these people approached the researcher asking permission not to state their age. This was given by the researcher as she felt that it was in her best interests that respondents not be required to give information they did not wish to). The modal age range for those individuals selecting diagram I or diagram II is 20.24 years. This figure does not accurately reflect the results, 30.70% of respondents selected diagram I while only 27.27% selected diagram II. In the age groups 20 - 34 the percentage selecting diagram I is much greater than that selecting diagram II. This trend is reversed with the 50 - 59 age group.

Table 5:6

Distribution of Respondents Selecting Diagram I and Diagram II by Age Group

N = 324

Age Group	Number	Number Selecting Diagram I	% Selecting Diagram I	Number Selecting Diagram II	% Selecting Diagram II
Under 20	28	7	6.73	21	9.54
20 - 24	92	32	30.76	60	27.27
25 - 29	45	18	17.30	27	12.27
30 - 34	40	19	18.26	21	9.54
35 - 39	26	6	5.76	20	9.09
40 - 44	28	7	6.73	21	9.54
45 - 49	33	11	10.57	22	10.00
50 - 54	18	1	0.96	17	7.72
55 - 59	10	1	0.96	9	4.09
60 +	4	2	1.92	2	0.90
Total:	324	104		220	

An Analysis of Reasons for choice of Cyclic or Linear diagram

I. An analysis of frequently occurring phrases indicate that there are 5 main reasons for selecting diagram I.

These are:

1. work as a continuing cycle of events.
Work consists of the same events repeated at regular intervals.
2. Past, present and future are related.
There is a cyclic relationship of past, present and future events.
3. Age too great/lack of training/no future in the job.
Because of perceived limitations the opportunities are not there for individuals to advance in their work to a more senior position.
4. Things go in circles.
Not only work but life is conceived of as being made up of a recurring cycle of events.
5. Routine work.
Work is made up of essentially the same routine duties.

II. An analysis of frequently recurring phrases for selecting diagram II reveals a completely different set of key phrases and words.

These are:

1. Forward.
To look forward to something different, to learn and to advance in the type of work being undertaken.
2. Future.
Looking to future rather than past events at work.
3. Not going in circles.
A direct consequence of the forced choice situation. Diagram II was selected only because there was no other choice.
4. Progress/advancement.
Progress in terms of status at work.
5. Change.
There are changes in the events that occur at work.

Of necessity these results are subject to the author's interpretation of the reasons given. In order to be included the respondent must have used in her reply either the same words as given above, or very similar phrases. e.g. any respondent who indicated that she felt she was too old to go further would be included under the phrase 'age too great'.

Table 5:7

Reasons for selecting diagram I

N = 98

Selected Phrase	Number selecting this phrase	% selecting this phrase
Work as a continuing cycle	11	11.22
past, present and future related	49	50.00
Age too great/lack of training/ no future in job	10	10.20
Things go in circles	12	12.24
Routine work	12	12.24
Other	4	4.08
		<hr/> 99.98

Table 5:8

Reasons for selecting diagram II

N = 209

Selected Phrase or word	Number selecting this phrase	% selecting this phrase
Forward	39	18.66
Future	38	18.18
Not in circles	47	22.48
Progress/advancement	46	22.00
Change	10	4.78
Other	29	13.87
		<hr/> 99.97

Examples of the types of phrases given by the respondents selecting diagram II and the resultant coding are given below.

1. Those that incorporated the word future in their definition and in doing so indicate that the future is a separate entity and not part of a total system e.g.:

'straight line to the future'

'future outlook'

'advance to the future'

The latter phrase is coded under future not advancement as the idea of future seems to the author to be the dominant one. A similar decision is made about any other results that incorporate two key phrases.

Overall the reasons given are consistent with the respondent's choice of diagram. Four respondents gave reasons that seem to the author to be inconsistent with their choice of diagram. One respondent selecting diagram I gave as a reason 'diagram I represents a line without change', the reference to a line creating an element of doubt. Another selecting diagram I stated that she had chosen it because it represented 'Advance - Not going in a Circle', quite clearly a reference to diagram II. Of those respondents selecting diagram II one gave as a reason 'the past, present and future are related'. While this is a possible interpretation of diagram II it is the reason given by others for the selection of diagram I. The other gave as her reason 'there are no differences between past, present and future', this reason being given by others for the selection of diagram I.

Three respondents gave answers that seem to the author to be inappropriate.

These were:

'suits me better'
'happy in my work'
'neither'

15 respondents did not complete this section of the questionnaire.

7 respondents gave a definition but did not select a diagram and thier results are not included.

An illustrative sample is included to give in detail the type of answers given by the respondents in answer to this question.

Table 5:9 Illustrative Sample of Reasons given by Respondents for Selecting Diagram I or Diagram II
N =
RESULTS FROM SECTION III QUESTIONS 1 and 2 FOR EVERY TENTH RESPONDENT

Barrett Street

Number	Position	Area of Work	Diagram Selected	Reason for choosing this diagram
10b	Charge Nurse	Geriatric Ward	II	Because I intend to move forwards not backwards even though in the past my thinking has been representative of diagram I
20b	Enrolled Nurse	Geriatric Ward	II	I feel I am evenly balanced in thoughts of past present and future
30b	Enrolled Nurse	Geriatric Ward	II	Appears quite obvious. My work is not a matter of a circle
40b	Student for Enrollment	Geriatric Ward	II	You can't go back in time. You must have a goal in life to aim for. It is no good living or going back in time. You can't turn the clock back. After all the sky's the limit
50b	Enrolled Nurse	Geriatric Ward	II	Past - remember the past Present - live in the present Future - look toward the future
60b	Staff Nurse	Psychopaedic Ward	II	Because the future is ongoing it does not rotate back to the present or past, even though past and present do not influence the future
70b	General Student	Psychiatric Ward	II	Because diagram I looks as if you are going around chasing your tail, whereas diagram II looks as if you are getting somewhere
80b	Staff Nurse	Psychiatric Ward	II	Because of my age which is 50+, I think my future cannot be measured in time

Barrett Street cont'd

90b	District Nurse	District	II	I believe in working towards the future and not going around in circles getting nowhere
100b	Student for Enrolment	District	II	Because it shows you exactly which way you are heading. Straight ahead not going in circles
110b	Supervisor	Administration	II	Work is continuous
Base Hospital				
10	Staff Nurse	Outpatients	II	It appears progressive and ongoing
20	General Student	Theatre	I	The future, past, present are all mixed in together. I will do in the present what I've done in the past and found it to work. In caring for the patients, the future is the most important and I think of this (in regard to rehabilitating the patient) when looking after the patients
30	Enrolled Nurse	Theatre	I	Because to me some things in the past helps my work at present and also the things that I am doing now will help me in the future, so the circle seems appropriate
40	Staff Nurse	Accident & Emergency	II	The past influences the present and the future in one way or another
50	Staff Nurse	Intensive Care Unit	II	Natural progression of events through day to day work
60	Hospital Aid	Geriatric Area	II	The past is gone. The present is with me and the future is to come

Base Hospital Cont'd

70	Hospital Aid	Geriatric Area	II	Look forward for a better designed and equipped nursing home for mobile geriatrics
80	General Student	Childrens Surgical	I	I reflect back into the past, present and future frequently, rather than take each stage as it comes and forget about it
90	Enrolled Nurse	Childrens Medical	II	I feel diagram II best represents my view of my work because I actively feel that it gives me the sense of going somewhere and that the future is something to aim for
100	Hospital Aid	Childrens Medical	I	Working night duty gives enough responsibility and job satisfaction without having to progress further at the moment
110	General Student	Gyneacological Urological	II	Because even though the past affects your present and future I don't think you should be going back to the past, it is better to plan your present and to plan better things in the future
120	Staff Nurse	Orthopaedic		Not given
130	Enrolled Nurse	Orthopaedic	II	No reason given
140	Staff Nurse	Surgical, eyes ear, nose and throat	II	We would all work for a better life for all for the future. There's certainly not a lot you can do about the past. Work in a straight line to the future and the past and present tends itself
150	General Student	Acute medical	II	Looking at diagram I as far as work is concerned it looks like a real 'rut' as if it would have no advancement. Diagram II looks as if you are at least getting somewhere

Base Hospital Cont'd

160	Staff Nurse	Acute Medical	II	Who wants to run in circles
170	Enrolled Nurse	Acute Medical	II	Look towards the future rather than the past. Because nursing is only a small part of life and I would rather look ahead to other things I want to achieve
180	Student for Enrolment	Maternity	II	Because its on a level and you can see where you've gone from past to future
190	Obstetric Nurse	Maternity	II	Decided on II as it looks as if it is going ahead. I like to progress even though I have enjoyed the past and am enjoying the present
200	Obstetric Nurse	Maternity	-	Not given
210	Staff Nurse	Neo-natal Unit	II	I chose it because it seems to indicate covering new ground and change, whereas I seem to be going round in circles
220	Staff Nurse	Neo-natal Unit	II	Diagram II becos the only way you are going to succeed is to plan ahead for the future and be able to provide for the future

Summary of Section III questions 1 and 2

Although this section yielded some interesting results, the failure of the author to specify more clearly that the selection of a particular diagram should be work related, resulted in ambiguous information being given. Consequently this section provides no more than a tentative indication that some nurses view their work as repetitive, while others see it as being associated with change or advancement. The large number of respondents selecting diagram II as the only alternative to diagram I, which they construed as representing an undesirable closed circle, indicates that it may have been more constructive to request respondents to draw a diagram of their own choice or alternatively to represent the circle as having clear breaks in it, rather than as complete.

CHAPTER 6

TIME AND NURSING PRACTICE

In the previous chapter the respondents' personal concepts of time were discussed together with the respondents' selection of a diagram designed to indicate the respondents' view of time. The information obtained from an analysis of the diagrams indicates that it is likely that nurses from this population do have two differing concepts of time.

In this chapter the analysis of the respondents' results continues. A discussion of the six components of a nurses' work (refer p.40) and other relationships to the nurses' view of time begins the chapter. This is followed by an examination of the author's basic premise that those nurses with a linear orientation have a greater future orientation and ability to delay gratification in the light of the results obtained from the questions used initially by Kublen and Monge. This chapter is concluded by an analysis of those respondents selecting the word novel or repetitive as words best describing their work.

The Six Components

An inspection of tables in this section reveals that there are a disparate number of individuals in the various groups. In order to give more meaning to the data the results for supervisors and above, charge nurses and district nurses are combined to give an average for all three employment categories. These results may then be compared more realistically with the mean scores given for general students. The results for each of the six components identified in the design (ch.3 p.40-41) are presented separately.

Decision making

The author argues (refer p.40) that a nurse who views her work as containing no decision making has a greater past orientation than the nurse who views her work as being made up only of decision making (refer p.40). This author further argues that those individuals in the more senior employment categories, i.e. supervisors and above, district nurses and charge nurses will make more decisions than those in more junior employment.

These arguments are supported by the evidence given below:

Table 6:1 Nurses' perception of decision making as part of their job by category of employment

N = 343

Employment Category	Number	Mean Score	Standard Deviation
Supervisors and above	9	5.33	1.55
District Nurses	8	4.50	0.86
Charge Nurses	20	4.80	1.32
Staff Nurses	97	4.70	0.95
Enrolled Nurses	93	3.31	1.12
Student General Nurses	36	4.41	0.89
Students for Enrolment	27	3.81	1.12
Hospital Aids	47	2.97	1.32
Obstetric Nurses	6	4.16	0.68

On a scale of 1 to 7 a score of 1 indicates that respondents view their job as containing no decision making, while a score of 7 indicates that respondents view their job as containing only decision making. A study of the mean scores indicate that the respondents in the more senior employment categories see their job as involving more decision making than do those respondents in the more junior categories.

These categories can be seen as different from all other categories. These are enrolled nurses, students for enrolment and hospital aids, all of whom have mean scores of < 4.0 . This is in line with the responsibilities of the nurses in the various employment categories as laid down in DG21 (refer appendix 6).

It is evident however, that all people employed as nurses perceive their jobs as having a component of decision making.

Forward Planning

This author argues that (refer p.40) less forward planning is required when a nurse's practice involves the repetition of events, than when it involves constant encounters with new events. In Table 6:2 the trend established in Table 6:1 continues. Although no direct link between the two components is proposed it may be argued that when a nurse's practice involves the repetition of events it requires not only less forward planning, but also less conscious decision making.

Table 6:2

Nurses' perception of forward planning
as part of their job by category of
employment

N = 343

Employment Category	Number	Mean Score	Standard Deviation
Supervisors and above	9	5.38	0.95
District Nurses	8	4.62	1.12
Charge Nurses	20	4.70	1.18
Staff Nurses	97	4.03	1.37
Enrolled Nurses	93	3.72	1.34
Student General Nurses	36	4.68	1.03
Students for Enrolment	27	4.03	1.45
Hospital Aids	47	3.06	1.61
Obstetric Nurses	6	3.83	1.07

On a scale of 1 to 7 a score of 1 indicates that the nurse sees her job as involving no forward planning and a score of 7 indicates she sees her job as only involving forward planning.

When the mean scores are analysed it can be seen that the more senior staff, i.e. supervisors and above, district nurses and charge nurses, see their work as containing more forward planning than do the general student nurses. This trend continues in a comparison of mean scores for staff nurses and enrolled nurses. As with decision making the hospital aids see their work as involving less forward planning than the nurses in any other employment category. The general students see their work as involving considerable forward planning. The reason for this is not obvious, although it may reflect on emphasising on the planning of nursing care by the nurse educators involved with these students. With the exception of the result given for the supervisors and above (and this falls just below at 0.95) all results fall outside 1 standard deviation from the mean. This would indicate that although there are no extreme results there is within each employment category of respondents some variation to the amount of forward planning they see their job involving.

The results in Table 6:2 support the trends evident in Table 6:1.

Overall these results indicate that nurses in all employment categories see their work as involving some forward planning and at least some nurses in every category see their work as involving a considerable amount of forward planning. This would indicate that a number of nurses see their work as involving new events that require a greater degree of planning than is required for the nurse who regularly encounters the same events and is able to utilize a single predetermined plan to cope with these events.

Routine Duties

The author has argued that (refer p.40) routine duties¹ involve the repetition of events and nurses who see their work as routine in nature are likely to have had considerable practice in carrying out these duties in the past (refer p.40).

Table 6:3

Nurses' perception of their work as it involves routine duties by category of employment

N = 343

Employment Category	Number	Mean Score	Standard Deviation
Supervisors and above	9	3.88	1.44
District Nurses	8	3.37	0.69
Charge Nurses	20	3.65	1.01
Staff Nurses	97	3.88	1.073
Enrolled Nurses	93	3.29	1.134
Student General Nurses	36	3.77	0.786
Students for Enrolment	27	2.96	0.962
Hospital Aids	47	3.55	1.62
Obstetric Nurses	6	3.66	0.74

On a scale of 1 to 7 a score of 1 indicates that the respondent perceived her work as involving only routine duties and a score of 7 that it involves no routine duties.

A study of table 6:3 reveals little difference between groups except for hospital aids, where the standard deviation indicates a spread of results. The unbiased variance figure of 2.68 for this group confirms this finding. As all groups have means ≤ 40 it seems that this population of nurses view their work as containing a considerable amount of routine. However as set out in the definition this may merely mean that they have had considerable practice in carrying out the duties involved in their work. This of course confirms the routine nature of their work.

1 Discussion with two general student nurses revealed that they had interpreted routine duties to mean 'rostered duties', i.e. morning, afternoon or night duty as indicated on a duty roster. Further discussion with other nurses revealed that this was an unusual interpretation.

Established Procedures

This author argues that (refer p.41) the existence of established procedures for nursing practice presumes that events should recur. The results given below would seem to indicate that many nurses did perceive the care they give as being based on established procedures. On the scale of 1 to 7, 1 represents the nurse's perception that established procedures exist for all aspects of her job, while 7 represents her view that there are no established procedures for her job.

Table 6:5 Nurses' perception that established procedures exist for their jobs by employment category

N = 343

Employment Category	Number	Mean Score	Standard Deviation
Supervisors and above	9	3.11	1.52
District Nurses	8	3.37	0.69
Charge Nurses	20	2.90	1.26
Staff Nurses	97	2.79	1.39
Enrolled Nurses	93	2.55	1.34
Student General Nurses	36	2.88	1.17
Students for Enrolment	27	2.44	0.95
Hospital Aids	47	2.85	1.54
Obstetric Nurses	6	2.66	1.49

The results presented in table 6:5 are in line with those presented in table 6:4. That is, not only did all groups see their work as more routine than non-routine, but that established procedures exist as a basis for these routines. There are no marked differences between groups. This is an important finding.

Routine ensures that procedures are internalized by the person who performs them. The individual has no need to refer frequently to a manual of established procedures unlike the more senior person who must frequently check the precise wording or interpretation and consequently is more aware of the existence of established procedures to guide her practice. This assumption may be confirmed by the consistently low mean scores for every group. However these may equally well reflect changing attitudes within nursing and the current emphasis on the development of professional nursing practice with its emphasis on independence of action by nurses in nursing practice.

This independence of practice is based on independence of action in decision making and planning and it is evident from Tables 6:1 and 6:2, that at least some nurses (especially in the more senior group), perceive their work as involving a considerable amount of both these activities.

One day at work is pretty much like another

This author argues (see p.41) that a nurse who perceives her working day as resembling other days is likely to see her practice as involving much the same events as on previous days. Essentially the same events are seen as recurring. An inspection of Table 6:6 yields some interesting information.

Table 6:6

Nurses' perception that one day at work is pretty much like another

N = 343

Employment Category	Number	Mean Score	Standard Deviation
Supervisors and above	9	5.55	1.89
District Nurses	8	5.12	1.34
Charge Nurses	20	5.45	1.32
Staff Nurses	97	5.25	1.47
Enrolled Nurses	93	4.34	1.89
Student General Nurses	36	5.08	1.02
Students for Enrolment	27	4.96	1.62
Hospital Aids	47	3.89	1.57
Obstetric Nurses	6	4.16	1.86

On a scale of 1 to 7 a score of 1 indicates that the individual saw one day at work as always being pretty much like another. A score of 7 indicates that the individual perceived one day at work as never being much like any other.

This table reveals that the mean scores for every category are > 4.0 . However the standard deviations show considerable distributions around the mean. This was confirmed by a study of the variance in this data (refer appendix 10.)

It would seem that despite the trend towards routine and procedural basis for tasks, nurses in general see each day as less like any other, rather than a repetition of the day before. This result is in line with the finding that 64.45% of the total population of nurses chose the linear diagram, refer (ch.5 p.67).

The Here and Now

This author argues (see p.41) that a nurse with a predominantly future orientation will be less concerned with present events. On a scale of 1 to 7 1 indicates that the nurse feels that the here and now is the most important and 7 that the here and now is least important.

Table 6:7
Nurses' perception of the importance
of the 'here and now' in their work
N = 324

Employment Category	Number	Mean Score	Standard Deviation
Supervisors and above	9	2.88	1.4
District Nurses	8	3.87	0.92
Charge Nurses	20	1.95	1.0
Staff Nurses	97	2.49	1.34
Enrolled Nurses	93	2.66	1.39
Student General Nurses	36	3.44	1.18
Students for Enrolment	27	2.53	1.15
Hospital Aids	47	3.08	1.91
Obstetric Nurses	6	1.83	0.89

Table 6:7 reveals that nurses in all groups perceive the 'here and now' as an important component in their work. They do in fact operate in the 'present' rather than the past or future. This may be inherent in the work they do rather than their personal orientation (refer p.67 where only 31.50% of the total population chose diagram I). These results seem out of place with those presented in Table 6:6 but are consistent with the results obtained on routine and established procedures.

Future Orientation and the Ability to Delay Gratification

The questions used in this section were taken from the second part of a questionnaire devised by Kuhlen and Monge to assess an individual's sense of time passage. The questions relating directly to future orientation and the ability to delay gratification have been used by the author in her questionnaire (refer appendix 3). One problem associated with the use of these questions is the fact that the original authors had based their scoring on numbers ranging from 0 to 5. Consequently the range of possible scores is not great. The individual scores obtained have been used as the basis for a group result to enable comparisons to be made between employment categories.

In order that the differences between groups may be seen more easily, results are given in the form of a histogram. Figure 6:1 relating to future orientation reveals that with the exception of the obstetric nurses, respondents in all other employment categories show little difference between groups.

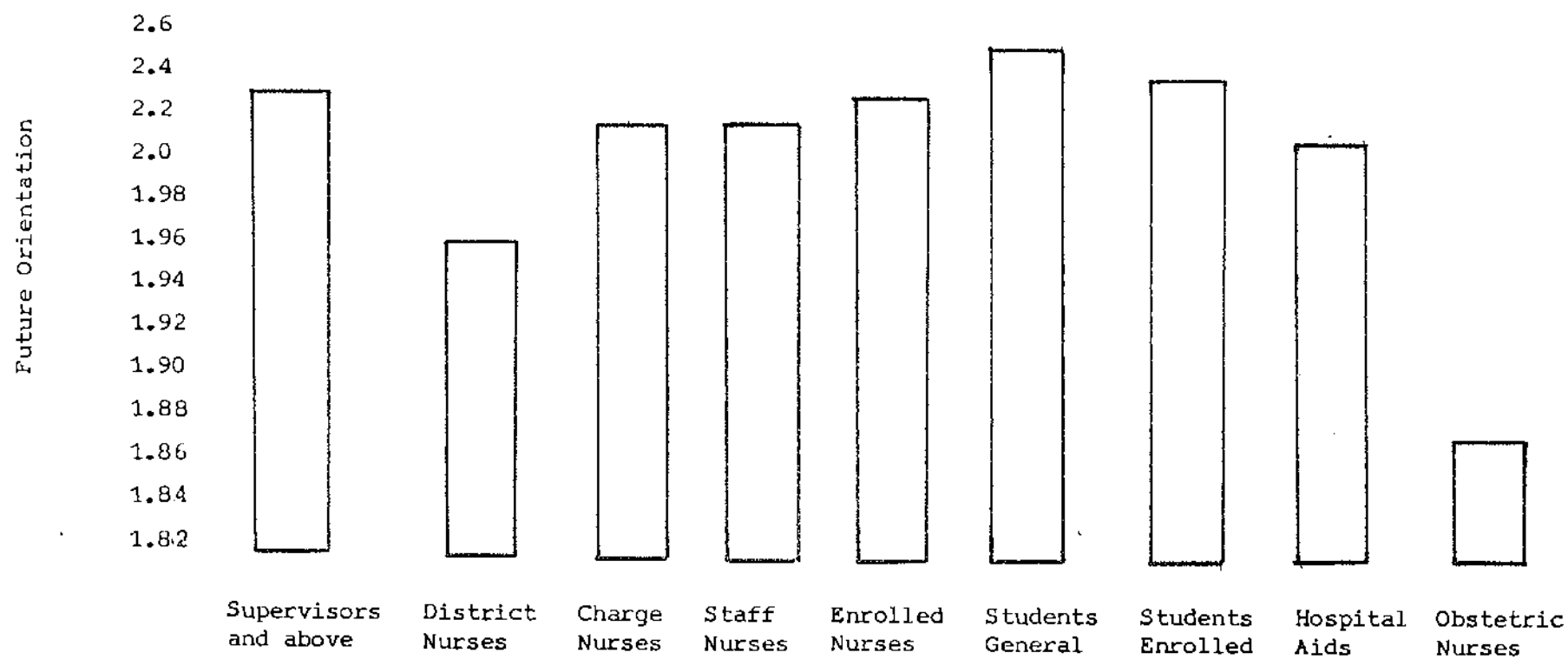
In Figure 6:2 relating to the ability to delay gratification the results indicate a very narrow range of scores. (The possible range for this question was 0 to 4). The difference between the highest score (for enrolled nurses) 1.68 and the lowest score (for supervisors and above) 1.49 is only 0.19.

Figure 6:3 relating to the greater ability to delay gratification also reveals a narrow range of scores, the highest being 2.40 for charge nurses and the lowest 1.66 for student for enrolment, a difference of 0.74. (The possible range for this question was 0 to 4).

Future Orientation

Figure 6:1

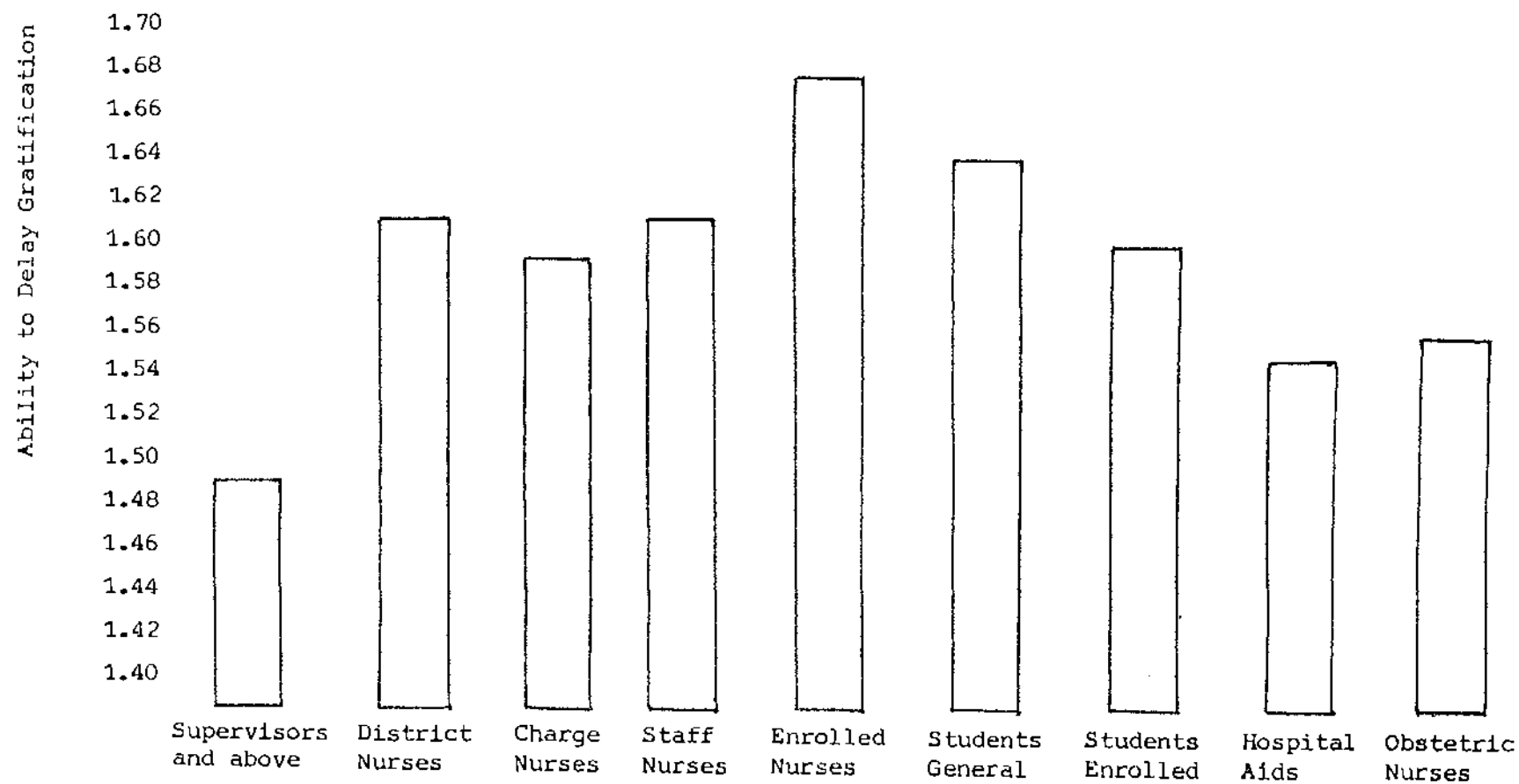
Distribution of Mean Scores for each Employment Category



Ability to Delay Gratification

Figure 6:2

Distribution of Mean Scores for Each Employment Category



Greater Ability to Delay Gratification

Figure 6:3

Distribution of Mean Scores for Each Employment Category

