

CHAPTER ONE

INTRODUCTION

The prevailing climate within the health care and higher education sectors increasingly calls for nurses to critically examine their practice and to increase their research profile. The outcome of nursing research, at the very least, includes improvement in the status of the profession (nursing), the provision of a scientific basis for nursing practices and the much sought after evidence-based practice. For individual nurses, the outcome may be the achievement of positive performance appraisals that result in promotion or maintenance of their current employment position. Achievement of these outcomes hinges in part, on the development of positive attitudes to nursing research and its prospective value and benefit. Consequently, it seemed imperative to conduct an investigation to identify the elements that constitute an attitude to nursing research, and the components that may influence the development of this attitude.

Critical examination of nursing practice requires a supportive environment and the development of necessary skills to conduct research. Any investigation would need to examine the perception of Australian nurses relating to specific elements that may impede or facilitate nursing research activity. At the time of initiating this research, there had not been any published investigation of the components that may affect or

predict the involvement of Australian Registered Nurses (RNs) in nursing research.

Nursing continues to strive for recognition of the achievement of professional status. Jacox (1978) suggests that there are three criteria for a profession. These are: a long period of specialised education, service orientation and autonomy. Autonomy, in this context means that the members of the profession are self-regulating and able to define what tasks and practices are necessary and safe.

In relation to the first criterion, Australian student nurses study in a university environment for three years to receive the now minimum qualification for registration as a general registered nurse (Bachelor of Nursing). Previously nurses were prepared for practice in hospital-based programs. Despite varied curricula in different preparatory institutions, the basis of that education is directed to service orientation, that is, the provision of appropriate and relevant nursing care to clients within the health care sector. Student nurses now learn that a source of autonomy in nursing is nursing science. Nursing science involves the development of a unique body of knowledge that could provide a rational foundation for independent action and practice for nurses (Lerheim, 1991). The professionalisation of nursing has resulted in an increased call for evidence-based practice or the adoption of practices that have been clearly shown to work and the questioning of those practices for which little or no evidence exists. This provides a rationale for the discarding of those practices, which have not been shown to be beneficial (Shorten & Wallace, 1997).

In the past decade, the push toward a scientific basis for practice has resulted in an increased impetus for nursing research to be conducted by Australian nurses. A major influence has been the movement of nurse training from the health care sector to the higher education sector (ie. Colleges of Advanced Education and Universities) during the mid-1980s (Leslie, 1991). Prior to this movement to the higher education sector there was only a limited introduction, if any, of trainee nurses to the development of research skills in pre-service courses. Postgraduate courses that incorporated research methods were limited. In general, Australian nurses acquired research skills and knowledge by enrolling in overseas postgraduate nursing programs or in degree programs offered outside the discipline and profession of nursing. However, it was largely these individuals who applied the knowledge and skills gained to the critical examination of nursing issues and practices (Parsons, 1991).

It is only since the late 1980s that higher level postgraduate courses have been offered to nurses in their own discipline and within Australia. This has provided nurses with new opportunities to expand their knowledge base and acquire new skills to question their practices. The incorporation of research methods and/or research analysis coursework for undergraduate students also commenced in the same time period. Nurses in Australia are now in a stronger position to further their drive toward professional status and explore the boundaries of the Art and Science that is nursing (Pratt, 1992).

Despite the fact that Australian nurses within Australia have conducted significant research studies, the concept of nursing research as part of everyday nursing practice is still in its infancy. Critical review of practice and subsequent incorporation of evidence-based practice into bedside nursing is limited (Pratt, 1992).

The Australian nursing representatives involved in the National Nursing Research Targets Project (McInerney & Hamilton, 1992) acknowledged the limited preparation of many nurses to conduct research. There is limited evidence published relating to the Australian context. At the time of initiating this research, no comprehensive investigations had been conducted which examined the nature and extent of the lack of preparedness and what remedial education activities may need to be implemented to develop the ability of nurses to appreciate and engage in meaningful and rigorous research.

In addition, tangible benefits for the individual who participated in research were not evident in the clinical arena. The maintenance of higher level nursing positions such as Clinical Nurse Consultant (CNC) or Clinical Nurse Specialist (CNS) were not contingent on an active research or investigative profile. The rewards for those who were active in nursing research tended to be intrinsic, as extrinsic benefits such as promotion were not linked to a research profile for nurses in the direct health care arena.

Together with the preceding observations, the impetus to initiate this study arose from the author's appointment within a collaborative Nursing Research Unit (NRU). This Unit was the first cooperative venture in New South Wales (NSW), between a University and an Area Health Service agency and was specifically evolved to encourage the initiation and conduct of nursing research by clinical and academic nurses. In developing an infrastructure and strategic plan to support the primary function of the Unit, the author talked to many nurses within the University and the Area Health Service. These conversations suggested that there were a variety of attitudes towards nursing research and a number of factors that might lead to valuing and active participation in nursing research.

It was felt that to optimise the mission and the goals of the NRU, an investigation into the prevailing attitudes could be valuable in distinguishing which barriers or facilitators existed, and could be ameliorated or strengthened via a strategic intervention program.

There have been several investigations conducted in the international arena reporting what elements are related to the development of a specific attitude to nursing research. The existence of these elements and other influences within Australia had not been explored prior to the commencement of this investigation. Subsequent studies have documented Australian nurses responses to nursing research related

activities and preparation for research, but not what may contribute to the development of a positive or negative attitude to nursing research (Boothe, 1981; Sellick, McKinley, Kingsland, Botti & Behan, 1996; Wright, Brown & Sloman, 1996).

Thus, this study sought to investigate what specific factors and variables RNs in New South Wales (NSW) believed impacted on their attitude toward nursing research. The perceived benefits from such a study would be the description of factors that nurses, practising in Australia, identify as barriers or facilitators to conducting nursing research. This would provide a basis for evaluation of practice and policies related to nursing research opportunities and provide tangible evidence for the type of, and need for, preparation to conduct research. In turn, this research could provide the basis and foundation for practice commonly referred to as evidence-based nursing practice.

CHAPTER TWO
LITERATURE REVIEW

1. INTRODUCTION

The literature review contains careful consideration and evaluation of numerous nursing research studies and related literature that were primarily obtained by conducting computer literature searches using the following computer literature bases: Cumulative International Nursing and Allied Health Literature (CINAHL), Medline, PsychLit (Psychological Literature), Eric and Austrom. The period reviewed included nursing literature relating to the 1970s through to 1997. Further information was examined after reviewing additional references cited in relevant and related literature sources.

The review is divided into several sections that the author believes will assist the reader to understand the context of the study. The exploration of the literature provided the author with an explanation of terms, research precedents, and was essential in the subsequent development of a conceptual model and rationale for the method undertaken. More specifically, the literature review explores the definition, purpose and consequences of nursing research. The history of nursing research is summarised and previous investigations relating to attitudes to nursing research reviewed to determine possible elements or components that the author considers contribute to a particular attitude to nursing research.

2. DEFINING NURSING RESEARCH

This thesis is concerned with the concept of research and more specifically nursing research. The generic term 'research' is defined by the Macquarie Dictionary as the "...diligent and systematic enquiry or investigation into a subject"(Blair, 1992, p.436).

This literal definition is endorsed by nursing authors such as Bassett, (1993 p.911) who state that research is: " an attempt to increase the sum of what is known, usually referred to as a body of knowledge, by the discovery of new facts or relationships through a process of systematic enquiry, the research process".

Research is thus concerned with the process of inquiry and/or experimentation which involves purposeful, systematic and rigorous collection of data which are subsequently analysed and interpreted to test old knowledge and generate new knowledge (Burns & Grove, 1987; Dempsey & Dempsey, 1992). The ultimate aim of research is to develop an organised body of scientific knowledge (Dempsey & Dempsey, 1992).

Nursing research follows from these generic definitions of research. Abdellah and Levine (1965, p.3) state that nursing research is the "... systematic detailed attempt to discover and confirm facts that relate to a specific problem or problems in nursing".

There has been some discussion about what are the boundaries or parameters of nursing research or as it is frequently referred to 'nursing science'. Broadly speaking the consensus in the examined literature suggests that nursing research, or nursing science, involves investigations that may lead to the discovery of new facts, and the understanding of relationships between human biology and behaviour in health and illness, with particular attention to responsive states (Gortner, 1983).

This suggests that there is an emphasis in nursing research on clinical aspects, particularly on the nurse-client intervention process. However, it could be argued that this definition is too narrow and does not freely encompass other subsets of nursing research such as knowledge exploration relating to nursing theory, education and administration. For the purposes of this thesis a broader definition of nursing research espoused by Nieswiadomy is adopted:

... nursing research is defined as the systematic, objective process of analysing phenomena of importance to nursing... includes all studies concerning nursing practice, nursing education and nursing administration. Also, studies concerning nurses themselves....

(Nieswiadomy, 1993, p. 5)

3. PURPOSE OF NURSING RESEARCH

Nursing research serves many purposes. The most important is to increase and formalise the knowledge base relating to nurses and nursing (Baer, 1986; Barratt, 1990; Burns & Grove, 1987; Diekmann & Wilk, 1984; Fawcett, 1980; Hapogian, 1982; LoBiondo-Wood & Haber, 1994; McInerney & Hamilton, 1992; Polit & Hungler, 1995; Sheehan, 1986; Talbot, 1995). The acquisition of a unique nursing knowledge base assists in defining and understanding what are the boundaries and dimensions of nursing. Knowledge can help to provide purpose and direction for further investigations into the art and science of nursing (Baer, 1986)

Knowledge exploration and acquisition allow nurses to generate, develop and test theories that are specific to nursing and nursing care (Burns & Grove, 1987; Nursing Research Group, Victoria 1991). This provides nurses with secure facts or probabilities to guide nursing education and client care (Baer, 1986; Boothe, 1981; Bostrom, Malnight, MacDougall & Hargis, 1989). Opportunities emerge to validate present practices and provide a foundation for improvement in patient care (Baer, 1986; Boothe, 1981; Diekmann & Wilk, 1984; Hapogian, 1982; Parahdo, 1988; Talbot, 1995). Validation of nursing practices involves determining cost-effectiveness, which is critical in times when the 'health dollar' is diminishing (Evans, 1991; McInerney & Hamilton, 1992; Parsons, 1991).

Increased knowledge allows nurses to develop a nursing database (Bartu, Nelson, McGowan & Robertson, 1991) and to be in a position to boost the legitimisation of nursing as a profession, increasing the perception of, or drive towards, attaining full professional status (Diekmann & Wilk, 1984; Eckerling, Bergman & Bar-Tal, 1988; Polit & Hungler, 1995; Seaman, 1987; Talbot, 1995). This in turn allows nursing to become increasingly autonomous and independent in relationship to self government of preparation (education) for practice, and further enabled to make unique, socially relevant, valuable and accountable contributions to the health and well-being of the community (Baer, 1986; McInerney & Hamilton, 1992; Parsons, 1991; Polit & Hungler, 1995; Talbot, 1995).

Crow (1982, p.38) summarises the purposes of nursing research and its contribution to nursing practice and the subsequent well-being of the community by proposing four approaches whereby nursing research:

- (i) provides insights into our practice;
- (ii) deepens nursing's understanding of concepts central to nursing care;
- (iii) is concerned with the development of new or improved methods for nurses to provide care; and
- (iv) attempts to test the effectiveness of the care that nurses provide.

Without nursing research, the profession of nursing will stagnate and there is a danger that medicine and other allied health care professions will decide what is the future for nursing and nursing practice.

4. CONSEQUENCES OF NURSING RESEARCH

The consequences of research for nursing are critical and have several implications. The testing of existing theories and the generation of new theories and conceptual frameworks can only evolve when nurses are willing to describe, explain and make predictions about phenomena in their practice (Boothe, 1981). If nursing knowledge is to expand, research is essential. Baer (1986) suggests that excellence in practice is determined and limited by the guiding body of knowledge. Nursing research impacts on all those who are responsible for direct and indirect care of clients (Fugleberg, 1986). Results of research can be used to make more informed decisions concerning nursing practice when the effectiveness of nursing care is evaluated (Polit & Hungler, 1995; Polk, 1989). A lack of research, at the very least, would leave nursing without a body of facts or a set of probabilities to guide or assess nursing care (Dempsey & Dempsey, 1992).

Preparation of future nurses, and nurse education in general, is contingent on reflection of current research activities (Polit & Hungler, 1995). Professional status and credibility can only be enhanced when an active stance towards quality research activity and outcomes is adopted (Bassett, 1993; Ehrenfeld & Eckerling, 1991).

Having a scientific basis for practice can also lead to greater opportunities for commitment and accountability for quality patient care within nursing (Burns & Grove, 1987; Polit & Hungler, 1995). Occupational autonomy and independence as a correlate to professionalism is amplified when research becomes the major source for growth and advancement (Baer, 1986). Engagement in research demonstrates a commitment to identifying what is intrinsically nursing knowledge and as a consequence, research can be used by nursing to obtain, maintain or increase power in relation to its own destiny within health care (Barratt, 1990).

A failure to value and incorporate nursing research as part of normal nursing practice could lead to at a minimum, stagnation in knowledge development, the utilisation of inappropriate nursing care procedures and the re-emergence or dominance of other disciplines to investigate what are essentially nursing phenomena (Polit & Hungler, 1995).

5. HISTORICAL ASPECTS OF NURSING RESEARCH

i) Early Traditions, Slow Growth and Resurgence of Nursing Research

Bassett (1993) reports that nursing research has developed over an irregular and an uneven course. The genesis of nursing research is primarily attributed to the latter third of the last century and specifically the work of Florence Nightingale (Boothe, 1981). Nightingale emphasised the need for observation stating that devotion was useless without ready and correct observations:

...while statistics inform us of what percentage of the population may die
observation tells us which ones will die. (Nightingale, in Seaman, 1987, p. 8).

At that time, the most influential model of nursing research was the biomedical model and this continues to be the most dominant model for the clinical setting (Davis, 1981). Unfortunately, the promising early beginnings of nursing research sponsored by Nightingale, were not further developed as nursing and nurse education became more orientated to service (Dempsey & Dempsey, 1992). What emerged was a beginning and enduring reliance on tradition, authority, trial and error, intuition and ritualism as the prevailing guidelines and rules governing nursing practice (Burns & Grove, 1987; Fawcett, 1980; Nieswiadomy, 1993; White, 1987). McClure summarises this by stating:

Our practice is almost entirely founded on personal wisdom rather than scientific conclusions. Nursing textbooks do not represent accumulated, empirically-based knowledge but rather accumulated, experientially-based wisdom. And because members of our occupation tend towards authoritarianism, only rarely do nurses challenge an accepted 'fact'... (McClure, 1981, p. 66).

As a consequence, nurses as an occupational group have not been encouraged to develop an intellectual tradition in line with other sciences and nursing research has continued in an ad hoc unplanned manner (Foster, Kloner & Stengrevics, 1984; Morle, 1990).

Following Nightingale's era, nursing research declined for nearly a century (Seaman, 1987). The adoption of an apprenticeship style preparation of nurses did little to change the scientific and academic position of nursing (Chambers & Coates, 1993). The emphasis on service together with prevailing authoritarianism was significant in crushing any questioning attitudes or abstract thinking which is critical to scientific enquiry (Dempsey & Dempsey, 1992). In addition, the belief that nursing was perceived to be a vocation, coupled with the traditional Victorian concept that only men were able to pursue intellectual activities, contributed to the slow growth of nursing research (Nieswiadomy, 1993). This is not to suggest that nursing research was not occurring. Research was being conducted, but it was usually being initiated and controlled by researchers from outside the discipline of nursing (Nieswiadomy, 1992).

The resurgence of interest and the conduct of nursing research by nurses has been largely attributed to the movement of nurse training from hospital-based (health care system) to the higher education sector (Bartu, McGowan, Nelson, Ng & Robertson, 1993; Ehrenfeld & Eckerling, 1991; McInerney & Hamilton, 1992; Morle, 1990;

Nieswiadomy, 1993; Slater, 1984). There has been an increase in the number of nurses undertaking university courses since the 1950s (Seaman, 1987). Initially, these courses were in disciplines other than nursing. With the movement of nursing to universities, tertiary level courses specific to nursing became available. In Australia, the movement to the higher education sector has only occurred within the immediate past decades. Preparation for general registered nursing practice in Australia, now only occurs in the higher education sector and the current pre-registration degree is set at a Bachelor level (McInerney & Hamilton, 1992).

However, there has been a spectacular increase in the level of interest and support for nursing research. This was in part, related to the necessity for nurse academics to demonstrate a research profile in line with other university academics from other disciplines (Pratt, 1992). This renewal of interest and pursuit of nursing research has led to the development of special interest groups, the establishment of professorial positions in nursing research, and the inclusion of research content in most levels of courses offered within the universities (Bartu et al, 1991; McInerney & Hamilton, 1992; McMurray, 1997; Pratt, 1992; White, 1987).

Potentially, the most significant event for nursing research in Australia has been the National Nursing Research Targets Project. This represented a coming together of the leading professional and industrial nursing bodies with the specific task of developing a nursing research agenda for the twenty-first century (McInerney & Hamilton, 1992).

However, as Hicks (1992b) suggests, the movement away from the historical, vocational nature of nursing to an acceptance of evidence-based practice has been slow and is likely to take an even longer time to infiltrate through all strata of the nursing profession.

ii) Nursing Research As A Unique Concept and Process

Boothe (1981) suggests that no profession has evolved without substantive research to identify, define and refine its knowledge base. As a profession, nursing is obligated to provide a body of theoretical, scholarly knowledge as the basis of professional education and practice. Survival of nursing, as a profession, is contingent on its identification of a pertinent knowledge base, the generation of theories, and conceptual models to accurately define and guide nursing practice (Fawcett, 1984; Feldman & Hott, 1991; Hinshaw, 1990; Mercer, 1984; Parahdo, 1988).

Gorenberg (1983) believes that the perspective of nursing is evolving slowly and steadily. Gortner (1983) suggests that there is a growing consensus of the research paradigms of nursing being primarily concerned with human responses in health and illness. The nature of nursing and the avenues for legitimate nursing research activities are premised on the belief that nursing involves different ways of viewing people, and the world, to other sciences. To explore this, nursing must have different philosophies and conceptual models to other disciplines (Burns & Grove, 1987). In the past, this has been problematic for the fledgling science and art of nursing, as

nursing has been frequently coupled or seen as a subset of medicine. A number of nurse researchers argue that nursing and medicine are different in their perceptions, methodologies and understanding of relevance to their respective fields of practice (Barratt, 1990). Dempsey and Dempsey (1992) agree that nursing research is different, but suggest it is complementary to the medical model of research. By comparison to medicine, nursing research remains at the frontier of building sufficient empirical evidence on which to base independent practice and the task for nurses in developing a unique knowledge base specific to nursing is enormous (Lindsey, 1984; Morle, 1990).

iii) Nursing Research Roles and Participation

Increasingly, the literature calls for a greater level of interest and participation by clinical nurses in research (Christoph, 1988; Eckerling et al., 1988; Hapogian, 1982; Johnson, 1996; Lewandowski & Kositsky, 1983; McNerney & Hamilton, 1992; McMurray, 1997; O'Brien & Heyman, 1989; Polk, 1989; Selleck et al., 1996; Shorten & Wallace, 1997; Wright et al., 1996). This does not suggest that all nurses should conduct research but rather all nurses should value, and be at least consumers and utilisers of, nursing research findings (Christoph, 1988; Riesch & Mitchell, 1989; Shorten & Wallace, 1997). Given that a degree of specialised skill and knowledge is required to undertake research activities it has been suggested that certain levels of nurse (ie. nurse academics or those who have been exposed to more rigorous research skill instruction as part of undertaking a higher degree,) are better prepared to conduct

research (Fawcett, 1984; Harrison, Lowery & Bailey, 1991). However, there is a danger that nursing research may become an academic's province and that the nurse clinician will be less involved. This increases the potential for the research-practice gap to increase, rather than decrease (White, 1987).

6. ANTECEDENTS FOR PROMOTING NURSING RESEARCH

There have been several factors that throughout history appear to promote nursing research. The movement of nursing to the higher education sector has been especially important. Australian nurses are now exposed to research as part of their normal undergraduate curriculum and not just when undertaking higher degrees (Pratt, 1992). Conversion courses for registered nurses to upgrade their hospital based training certificates to diploma or degree level are available to all nurses across Australia. Amongst the content for these courses is the inclusion of research as a discrete subject and also research related skills such as critical thinking and problem-solving embedded within other units of study (Bartu et al., 1993; Pratt, 1992). The inclusion of the research process is important as new generations of nurses will be exposed to the concept of research as being part of practice (Seaman, 1987). Exposure to the research process may also lead to an increasing recognition of the need for more nursing research. This has important implications for nursing practice as research will change practice only when nurses recognise the need for research (Boehm, 1985).

Bostrom et al. (1989) extends the concept of the need for nurses to recognise the value of research by suggesting that resocialisation of many nurses may be necessary before a positive attitude and a willingness to be involved in research develops. The group generally accused of being the least involved is the staff nurses or clinicians. This is a vital group as they are the anticipated users of nursing research (Bartu et al., 1993; Bostrom & Suter, 1989; Shorten & Wallace, 1997). They are also important identifiers of what knowledge is needed and regarded as important for bedside practice. Potential research ideas can frequently grow from generalisations about consistencies and patterns observed in practice (Oberst, 1985; Zelauskas, Howes, Christmyer & Dennis, 1988). Nursing clinicians are a critical element in the drive towards evidence-based nursing practice.

A commitment from academics and clinicians is not enough. For research to progress there must be organisational support. Fawcett (1980) suggests there are several ways in which administrators can encourage nursing research activities. These include providing a reward system to encourage research involvement and provision of opportunities to communicate or access research findings.

Shorten and Wallace (1997) advocate that research consumerism and activity can be enhanced by insisting on research findings as being the basis of ward protocol or clinical guidelines development. Bartu et al. (1991) suggests that strategies nursing administrators may use to achieve greater facilitation of nursing research should

include increasing numbers of nurse researchers and resources, creating a supportive environment, and encouraging the dissemination and use of research findings.

7. NEGATIVE PERCEPTIONS OF NURSING RESEARCH

The primary criticism of nursing research is that it is viewed by potential users as irrelevant and perceived as a means with no end (Baer, 1986). Clinicians have offered the following reasons for their lack of use of research findings: the poor dissemination of research findings, lack of knowledge of the research process and subsequent failure or inability to understand the research findings, disbelief in the findings, inability to apply the findings, and that they are not allowed to use or implement the findings (Barratt, 1990; Greenwood, 1984; White, 1987).

One of the main problems is to demystify research. Despite inclusion in undergraduate and postgraduate nursing curricula nurses often don't have a positive image of themselves as researchers (Oberst, 1985). Research is viewed as something done by experts and those experts are generally perceived to be located in the higher education sector (Boothe, 1981; Chambers & Coates, 1993; Polk, 1989). This means that instead of a ground swell of support for research activity and involvement by clinicians, many are content to let others such as nurse academics, pursue these endeavours. Research involvement as part of normal professional activities is not absorbed or included as part of normal everyday workloads (Davis, 1981; McClure, 1981).

A further problem is that research is not only perceived as mystical but also elitist and self-aggrandising in some circles (Baer, 1986). There is a reported level of 'anti-academicism' from top to bottom in nursing. This can result in a mistrust of higher education graduates and the active placement of obstacles to the pursuit of nursing research (Nursing Times, 1989). Primarily, this is often related back to the perceived relevance of the research. Many researchers, (particularly those located in the higher education sector,) are not working at the 'coal-face' and have been accused of pursuing research interests that are esoteric and do little to solve the everyday problems confronting the clinician.

Negative attitudes to research are also inherited and incorporated within a subtle socialisation process (Fawcett, 1984). There is a suggestion that issues concerning nursing research are organisational and cultural, as much as they are methodological and technical (Davis, 1981). Previous prevailing ideologies did not value research and few sanctions existed to promote research as part of clinical practice. Oberst (1985) cites the example of inclusion of research as part of the job responsibilities for various levels of nurses. She observed that in general, this job activity was usually located at the bottom of the list and believes that this is an active reflection of the priority that nursing research holds in the scheme of service needs.

The consequences of this negativity are both immediate and predictable. Nursing research continues to be viewed as irrelevant by clinicians and elitist in origin. There

is a lag in the adoption and support of research as a legitimate role and endeavour within nursing, particularly clinical nursing. Research issues addressed are limited and the worth of nursing research continues to be undervalued both within and outside the profession (Baer, 1986; Barratt, 1990; Boothe, 1981; Polk, 1989).

8. ATTITUDES TO NURSING RESEARCH

The development of a positive or negative attitude to nursing research may be critical for the future of nursing. A negative attitude may discourage participation in research and result in a failure to seek out, trust or utilise advantageous research findings. Conversely, a positive attitude may encourage participation in research, or at the very least, consumption and subsequent utilisation of relevant findings arising from nursing research endeavours.

The literature reveals that prior to 1980 several nursing authors had generated opinions relating to the attitudes of nurses to nursing research. However, no published study had been conducted (Boothe, 1981). Other literature searches using computer based sources prior to 1993 revealed a number of subsequent studies regarding this subject and that these studies had been conducted in the USA, Europe or the Middle East (Boothe, 1981; Bostrom et al., 1989; Bostrom & Suter, 1993; Eckerling et al., 1988; Ehrenfeld & Eckerling, 1991; Fugleberg, 1986; Harrison et al., 1991; O'Brien & Heyman, 1989; Paine & Greener, 1989; Perez-Woods & Tse, 1990; Poster, Betz & Randell, 1992; Swenson & Kleinbaum, 1984).

In Australia, only two studies have examined nursing research attitudes and values (Selleck et al., 1996; Wright et al., 1996). Both studies were published after the initial data collection process for this study and therefore of more value as a basis for comparison rather than contribution to the conceptual model.

Although these authors all conducted some form of study relating to attitudes to nursing research, very few defined what they meant by the term, attitude. An attitude was defined by Thurstone (cited in Boothe, 1981) to denote the sum total of man's inclinations and feelings, prejudice and bias, perceived notions, ideas, fears, threats, and convictions about any specific topic. Bradley (1983) commented that attitudes are thought to guide behaviours. The conclusion could be drawn that a negative attitude may lead to resistance to accept or participate in nursing research. On the other hand, a positive attitude should encourage research involvement and utilisation of nursing research findings.

A hallmark study was conducted and published by Boothe as part of a doctoral thesis (Boothe, 1981). Boothe premised the need for her study on the basis that " attitudes have a major influence on the way a person understands, learns and behaves in a given situation " (Boothe, 1981, p.10). Boothe felt that the failure of professional nurses to undertake nursing research was related to their attitudes and thus sought to examine these attitudes and their influence on nurses' performance in the research process.

Boothe's thesis provided a seminal focus for the current investigation. A comparison of her sample, related design aspects and the attitude concepts explored with those of other investigators are summarised in Table 1 (pp.25-29).

A total of 181 professional nurses were surveyed by Boothe, in two settings, within the state of Alabama (USA). Boothe used a final 46 item Likert scale inventory that required subjects to respond to generalisations about the feelings or attitudes of nurses as a group to nursing research. The inventory identified three factors the author believed influenced attitudes to nursing research: interest and environmental support; payoffs and benefits; and barriers to conducting research.

Boothe (1981) requested demographic data in the form of gender, age, educational level, years in professional nursing, area of nursing practice, clinical area affiliation, preparation for conducting research, and further preparation required to conduct research from participants. Boothe found that gender, educational level, area of practice, clinical affiliation and preparation to conduct research were statistically significant for the three factors. In relation to gender, females were found to score significantly higher on two factors: payoffs and benefits, and barriers to conducting nursing research. This indicated that females held a stronger belief than males that payoffs and benefits did accrue from engaging in research, but there was also the perception by females that there were more obstacles to conducting nursing research (Boothe, 1981).

Table 1
Summary of Attitudes to Nursing Research Literature

AUTHOR/S YEAR	SAMPLING	INSTRUMENT	ITEMS
Boothe (1981)	N=181 Convenience sample Return rate unknown Alabama, USA	Boothe's Attitude to Nursing Research Scale 46 item 5 point Likert scale (agree/disagree) Demographics	Interest in research Environmental support Payoffs & Benefits Barriers to research Gender, Age, Highest Qualification, Nursing Experience, Major area of practice, Clinical Area, Preparation to conduct research, Research continuing education needs ITEMS
Bostrom et al (1989)	N=720 Purposive sample Return rate 78% Mid Western USA	Boothe's Attitude to Nursing Research Scale Modified to 1 st person Demographics	Interest in research Environmental support Payoffs and Benefits Barriers to research Gender, Age, Marital status, Position, Educational preparation, Continuing education Interests.
Bostrom & Suter (1993)	N=1588 Purposive sample Return rate 23% 12 Californian health agencies USA	Chenitz and Sater Nursing Research Attitude Scale 23 items 5 Point Likert scale (agree/disagree) Research Involvement Survey - 12 items Yes/No Demographics	Beliefs Value of research Research utilisation Participation in research Participation in research Facilitation of research Gender, Age, Ethnicity, Marital status, No. of dependents, Professional experience, Hours worked, Position, Speciality, Qualifications, Preparation to conduct research.

AUTHOR/S YEAR	SAMPLING	INSTRUMENT	ITEMS
Eckerling et al. (1988)	N=250 University of Tel Aviv Faculty of Nursing students Convenience sample Unknown return rate Israel	Questionnaire: Role, Ability and Intent Parameters Same 4 items - 5 point Likert ('not at all' - 'to a large extent') per parameter Attitude parameter Bipolar adjectives (interesting-boring) (attractive-repulsive) (easy-difficult) (necessary-unnecessary) Demographics	Read research Encourage others to read Apply research findings Initiate nursing research A/A Age, Gender, Educational Level, Speciality, Job Level, Working domain, Clinical area.
Ehrenfeld and Eckerling (1991)	N=166 Continuing education attendants Convenience sample Unknown return rate Israel	A/A	A/A
Swenson & Kleinbaum (1984)	N=179 Students at Uni of Nth Carolina Convenience Unknown return rate USA	Attitude questionnaire: 16 items - 5 point Likert scale (1=negative, 5=positive) Pretest/Post-test Knowledge test 10 MCQ items Demographics	Confident in understanding research Important to understand research for nursing career Interest in nursing research Responsibility of nurses to understand research Value of research Who should do research Basic/applied research Reasoning processes Problem statements Informed consent Literature review Sampling Levels of measurement Analysis & interpretation Graduate school plans Additional research course Reaction to course Use of research course
Harrison et al. (1991)	N=116 pretest N=54 post-test Uni of Alabama students Convenience sample USA	Swenson & Kleinbaum Attitude Questionnaire 2 additional items Knowledge - 19 items	A/A Interest in research with mentor Not stated

AUTHOR/S YEAR	SAMPLING	INSTRUMENT	ITEMS
O'Brien & Heyman (1989)	N=125 86% return rate Convenience sampling ENGLAND	Questionnaire: Knowledge Attitude – 5 point Likert Priority Topics in Research	Cite recent study Match author / study Research as part of nursing education Continuing education for research Value of research Research as priority Research basis for practice Respondent provide 3 topics
Poster et al (1992)	N=92 51% return rate Convenience sampling Psychiatric Hospital USA	Probe Research Questionnaire 69 items (details not cited) Selby's Research Attitude Inventory Likert scale (agree/disagree) Demographics (part of Probe Q.)	Professional activities Research interests Research activity Research cont. educ Research cont.educ. prefs. Interest in research Feelings about research Activities Age, Gender, Ethnicity, Marital status, Years of Employment
Perez-Woods & Tse (1990)	N=169 46 % return rate National Association of Neonatal Nurses Members (NANN). Stratified by education and location. Random USA	Nurses' Association of American College of Obstetricians and Gynaecologists (NAACOG) Questionnaire Attitudes Section 16 items, 5 point Likert (agree/disagree) Research Involvement 41 items engaged in past 12 months. (yes/no) Perceived Competence section – 17 questions (comfort. / uncomf.) Nursing Research Climate section 10 questions (absence/presence of environmental aspects) Demographics	Value of research Interest in research Enjoyment of research Who should participate Consumer activities Participant/ producer activities. Review of research tasks and skills Research C'tee. presence Utilisation of findings Time.consultants, continuing education avail. Research conduct and expected research activity Education, Age, Location, Position, Area of practice, Research time, Prof Exp

AUTHOR/S YEAR	SAMPLING	INSTRUMENT	ITEMS
Rizzuto et al. (1994)	N=1217 29% return rate 9 Californian Health Agencies Convenience USA	Nursing Research Attitude Scale 23 items, 5 point Likert scale (agree/disagree) Research Environment Scale 15 items, 4 point Likert scale plus 'don't know' (agree/disagree) Research Involvement Survey 12 research activities yes/no to past,present and future Demographics	Benefits of research Who should participate Perception and awareness of research supports Collaborative research Changing practice Research utilisation Proposal writing Presentations Age, Gender, Marital Status, Education, Years Prof. Experience, Hours Worked, Position, Speciality, Preparation for Research Activity.
Selleck et al (1996)	N=458 Return rate unknown Convenience Victorian Hospitals AUSTRALIA	Questionnaire: Past Research Activity 9 items Future Research Plans 3 items Research Interest and Skill (VAS) (not true/ very true) 5 statements Attitudes (VAS) (agree/disagree) 6 statements Research Impediments (VAS) (agree/disagree) 8 statements Demographics	Research education Initiating research Presentation/Attendance Consumer of research Knowledge upgrade Participation in research Initiate research Reading research Understanding research Participation in research Discuss with others Knowledge currency Payoffs/Benefits Basis for practice Who should participate Barriers to research- personal and environs. Lack of resources Age, Gender, Location, Employment, Position, Education, Years of Experience, Practice Area

AUTHOR/S YEAR	SAMPLING	INSTRUMENT	ITEMS
Wright et al (1996)	N=410 82% return rate Sydney, NSW Purposive AUSTRALIA	Questionnaire: Attitude and Activities (Number of items not stated) Demographics	Value of research Past, present and future activities Journal reading Education for research Age, Gender, Qualifications, Position, Practice Area

Comparison of perceptions according to educational level revealed that as nurses achieved higher educational status their perception of barriers to research increased. Conversely, there was also more cynicism relating to the benefits of research from those nurses who perceived less interest in research by nurses; less environmental support and a reduction in the perception of payoffs and benefits as a result of being involved in nursing research (Boothe, 1981).

Area of practice (administration, education, clinical,) also provided another area of significant difference. Nurses employed within nurse education perceived less interest, reduced environmental support and more barriers than their colleagues working in clinical or administration areas did. Separation into areas of clinical affiliation also highlighted some differences. Nurses working in the very different settings of alcohol treatment clinics or nursing homes perceived more interest and environmental support than colleagues working in public health, paediatrics, intermediate care, surgery, intensive care and medicine. Obstetric nurses perceived more barriers than any other group (Boothe, 1981).

Preparation to conduct research also provided a difference in perceptions of the factors with nurses prepared at the Master's or higher educational level. Higher degree qualified nurses perceived less interest, less environmental support, limited payoffs/benefits and more barriers compared to those nurses who had only been exposed to research via workshops, inservice courses or contact in the undergraduate curricula. Respondents indicated that further education relating to the research process, statistical support and time release would facilitate the conduct of nursing research (Boothe, 1981).

Boothe cautioned against the generalisability of her findings because of the small sample numbers (N=181) and encouraged replication and further studies using her instrument. In concluding, Boothe presented a series of recommendations directed at nursing administrators, nurse academics and professional nurses to facilitate and further the cause and conduct of nursing research (1981).

Bostrom et al. (1989) utilised a modified version of Boothe's inventory when they surveyed 925 registered nurses in a midwestern hospital (USA). The Likert scale items were modified to the first person and personalised. The 720 respondents thus answered in terms of their own feelings rather than their perception of nurses as researchers. Bostrom et al. found that there were a number of items to which respondents indicated agreement. The nurses concurred that there was a perception of support by their peers and employers for nursing research to occur and that

research findings that improved patient care could be implemented in their hospital. Respondents agreed that nursing theory and nursing research were related and that clinical nursing was an appropriate source for research activity. Nurses also agreed that they had an interest in research and if time were available they would participate in research. Problems that prevented nurses from being more involved in research included: a lack of familiarity with statistical procedures to analyse data, and a lack of time to conduct research (Bostrom et al., 1989).

A comparison of responses was conducted between nurses who had been prepared to a higher educational level (baccalaureate level) and those who had lesser academic qualifications. Baccalaureate prepared nurses indicated that they would be more likely to consider research as part of their working role and that they had the skills to conduct research. Both groups indicated that 'time' was a serious inhibitor of nursing research participation. The authors cautioned against generalisability resulting from geographic limitations of their sample, but concluded that their survey still indicated clinicians desired to be involved in nursing research activities (Bostrom et al., 1989).

Bostrom conducted another survey of nursing research attitudes (Bostrom & Suter, 1993) but in this instance, did not use Boothe's instrument. A questionnaire was distributed to approximately 7000 Californian registered nurses. Twenty-two percent (N=1588) returned completed questionnaires. Three separate instruments were contained within the questionnaire. The first instrument was a demographic data form

modified by Bostrom and Suter from an unpublished report by Chenitz and Sater (1986). The second instrument consisted of an unpublished scale, the Nursing Research Attitude Scale (Chenitz & Sater, 1986) consisting of 23 five point Likert scale items on which the respondent could rank their beliefs about nursing research, attitudes and action. The third instrument was the Research Involvement Survey which consisted of 12 (twelve) research-related activities to which respondents indicated their degree of participation during the six months. The results indicated that using research findings is most closely associated with having participated in collecting data and collaborating with research. Mean scores and standard deviations were reported for the Nursing Research Attitude subscales, but these were difficult to interpret as they were only compared to earlier unpublished studies not available to this investigator.

Eckerling et al. (1988) conducted a study of perceptions and attitudes to nursing research of 250 academic nursing students registered in the Tel Aviv University Department of Nursing in Israel. Demographic variables included in this study were educational level, job level, working domain and clinical affiliation. Likert scale items were developed to measure the extent that respondents: perceived research-related activities such as reading research findings; encouraged colleagues to read research; applied research findings, and initiated research as part of the role of the nurse; were able to perform research-related activities; and intended to engage in research activities in the future. Additionally, respondents were asked to indicate their

attitude to four research-related activities by selecting from four bipolar adjectives (interesting-boring, attractive-repulsive, easy-difficult and necessary-unnecessary). Reading research scored highest on the nurses' role, perception of ability and intent to engage in research. Ability to initiate research scored the mean lowest and had the greatest standard deviation. The authors reported that responses to the attitude scale were all on the positive side of the scales. Attitudes were found to be significantly differentiated by educational level. Students of higher education programs recorded the highest mean. Students who were employed in managerial positions also scored significantly higher means than other employee levels. The authors believed that the major factor was perception of ability, where there was confidence in the ability to perform research-related activities there was also an increase in the intent to engage in research (Eckerling et al., 1988).

Eckerling repeated the study in 1988 and 1989 using a different sample of 166 registered nurses drawn from across Israel (Ehrenfeld & Eckerling, 1991). Direct comparisons to the previous study were discussed. Results indicated that even in the broader population of RNs, those nurses with or studying for a higher degree recorded the highest mean scores for role, ability, intent and attitude towards nursing research. When comparing the current results with those from the previous study, similar high scores for the parameter 'role' was also scored for 'read research'. There was no significant difference between the two groups in relation to 'encourage colleagues to read research'. Respondents scored significantly lower ($p < 0.01$) than

those in the previous study for the other two activities 'apply research findings' and 'initiate research'. No significant differences were found regarding 'ability' or 'attitude'. The current sample did score significantly lower on all four activities relating to 'intent'. The authors concluded that a relationship does exist between attitudes and ability. Where ability is perceived as high then research activities are viewed more positively (Ehrenfeld & Eckerling, 1991).

Swenson and Kleinbaum (1984) surveyed 179 students entering a baccalaureate nursing program in North Carolina (USA). The purpose of the study was to determine if there was a change of attitude by students to research and awareness of research method/theory relationships during the undergraduate program. Data collection occurred at three separate time intervals (pre-test, and two post-tests) and consisted of responses to Likert scale items covering: confidence in understanding research, usefulness of understanding research for future nursing career, interest in research studies, responsibility of nurses to understand research studies, and the importance of research as a basis for nursing care. Additional questions related to actual knowledge of research methods, future career plans, proposed additional research courses to be undertaken, student reaction to the research course, and their perception of a nurse's role in research given different educational levels.

The authors reported significant improvements in student perceived confidence about understanding research methods and in evaluating the adequacy of research studies

compared to their result on the pre-test. Conversely, there was a significant decline in their perceived interest in participating in a research project, or even keeping abreast of current research by reading research studies. Although results of a second post test were presented, there was a serious decrease in respondent participation (93% to 40%) between the first and second post tests. This was considered a potential source of bias (Swenson & Kleinbaum, 1988).

Harrison et al. (1991) administered the Swenson and Kleinbaum (1984) research attitudes instrument in their survey of undergraduate students during 1986-1989. Two additional items relating to student interest in working on a project with an experienced researcher were included at the time of the survey. Harrison et al. (1991) reported that their findings were consistent with those of Swenson and Kleinbaum (1984). Knowledge scores were found to be significantly higher at the end of the course compared to the pre-test results, although there was a reported decline in knowledge scores between the end of the research course and the end of the nursing program. The authors also found that attitudes towards research remained positive between the pre-test and the post-test at the end of the nursing program. This differs from results reported by Swenson and Kleinbaum who found that there was a decrease in the overall score. Harrison et al. (1991) attempted to explain this difference by suggesting that it may be contextual and related to the student cohorts or to the type of research course presentations. The report concluded with recommendations for further study particularly the enhancement of retention of

research method knowledge by looking at the effects of different curricula and curriculum implementation strategies.

O'Brien and Heyman (1989) designed another instrument to measure nursing attitudes for their study of 204 nurses conducted in England. The participants included nurses enrolled in three different educational programs, ward sisters and nurses functioning as Assistant Directors of Nursing (ADONs). A three-part questionnaire was distributed. Part 1 consisted of five Likert scale items measuring attitudes to nursing research. Part 2 was a two-part knowledge test whereby the respondents were requested to identify any piece of the nursing research they were familiar with and the identification of the author. Part 3 was a request for respondents to list three topics considered most worthy of nursing research. The authors reported that in relationship to knowledge, over half the sample were unable to identify one piece of nursing research or match the author to the identified research. Identified research priorities were located within three categories: technical nursing; psychosocial nursing, and manpower/education. Attitudes were considered very positive. Upon further analysis, the authors reported that respondents attached to courses in the higher education sector demonstrated greater knowledge of nursing research, had more positive attitudes and a greater awareness of research priorities (O'Brien & Heyman, 1989).

Poster et al. (1992) utilised a convenience sample of 92 registered psychiatric nurses when attempting to explore psychiatric nurses' attitudes to nursing research and the

extent of their involvement in nursing research. The Probe Nursing Research Questionnaire and Selby's Research Attitude Inventory were administered and designed to provide information relating to demographics, research activities, research interests, research attitudes, scholarly activity and continuing research education preferences. The authors found that a large number of respondents were not involved in any scholarly activity outside their workplace, although 49 percent (n=45) indicated that they read one or two professional journals on a regular basis. In relation to research activity/interest, 49 percent (n=45) responded that research activity was an expected part of their current role, although only 14 percent (n=26) were actually involved in a research project at the time of the study. However, 51 percent (n=45) indicated that they had a moderate to strong interest in participating in research activity within the coming year. Sixty-two percent (n=57) indicated that they had a moderate to strong interest in attending a research conference or workshop within the next twelve months. Respondents who had written a thesis or dissertation had an average research score of 3.73 which was significantly greater ($p=0.003$ by *t test*) than the average score of 3.23 recorded by respondents who had not written a thesis or dissertation. There was no significant correlation with research attitude score and other demographic variables such as age, gender, race, marital status and years of employment (Poster et al., 1992).

Perez-Woods and Tse (1990) reported on a survey of members of the National Association of Neonatal Nurses (NANN), conducted and funded on request from that

organisation. They used a survey developed by the Committee on Research of the Nurses Association of the American College of Obstetricians and Gynaecologists (NAACOG). This consisted of a mix of Likert scale and nominal scale items which were designed to elicit responses relating to research attitudes, interest in research, research involvement/experience, perceived research competence and the perceived climate in which research could be conducted in their place of employment. Demographic data, (level of education, geographic location, age, position, area of primary responsibility, years in practice) were collected together with the focus of research activity and portion of job devoted to research. A total of 169 returned useable questionnaires yielding a response rate of less than 50 percent. The investigators' findings indicated a less than optimal attitude by respondents towards research. More than 60 percent of respondents indicated that they had not been involved in 27 of the 41 research-related activities during the past year. Only 27 percent had critically reviewed published research and less than 15 percent discussed research findings with a colleague. Whilst 79 percent were comfortable with the application of research findings to practice less than half the respondents indicated any level of perceived competence in taking an active role in research activity (Perez-Woods & Tse, 1990).

No literature involving a definitive study of the attitudes of Australian nurses could be located in computer based searches using CINAHL, Medline, PsychLit, Eric or Austrom at the time of designing the subsequent research instrument or exploring the

related literature. In 1996, two Australian studies were published and a further American study located. These will be examined in light of results emerging from these studies but had obviously no impact on the original conceptual model for this study (Rizzuto, Bostrom, Suter & Chenitz, 1994; Selleck et al., 1996; Wright et al., 1996).

Rizzuto et al. (1994) implemented a two part descriptive correlational survey to assess Californian registered nurses attitudes about nursing research, their perceptions of support for nursing research, their involvement in nursing research activities and the personal and environmental factors which might determine nurses involvement in nursing research. A returned sample of 1217 (29% of the intended sample) provided useable questionnaires. Part One of the survey was divided into three subsections. Demographic data form; Nursing Research Attitude Scale (NRAS) / Research Environment Scale (RES); and the Research Involvement Scale (RIS). Part 2 was the Agency Environmental Survey (AES) which was used by the researchers to assess organisational aspects of health care agencies in relation to nursing research processes.

The NRAS was a 23-item Likert scale device in which respondents indicated agreement or disagreement with statements relating to nursing research attitudes. Scores between 1 and 2.4 indicated positive agreement towards research and scores between 2.5 and 4 indicated negative agreement. The mean score was 2.3 (SD=0.54)

indicating a positive attitude toward research. Items that had the strongest levels of agreement included: 'Nurses should have the opportunity to be involved in nursing research' (M=1.76, SD=0.65); 'Participating in nursing research increases my research skills' (M=1.95, SD=0.71); 'The use of clinical nursing research findings will improve the quality of nursing care' (M=1.96, SD=0.77); and 'Nursing research findings should guide nursing practice' (M=1.99, SD=0.77) (Rizzuto et al., 1996).

Selleck et al. (1996) surveyed 458 registered nurses from four Melbourne hospitals and three country hospitals in Victoria. A self-report questionnaire strongly influenced by the work of Ehrenfeld and Eckerling (1991) was administered to examine research activity; research interest and skill; attitudes to nursing research; and why nurses do not engage in research. The research activity reported by more than 84 percent of respondents indicated strong consumer behaviour (ie. answered 'yes' to questions relating to reading journals which reported research studies and/or attended nursing conferences, seminars or research forums). Approximately 30 percent indicated that they were involved with the implementation of a research study. However, less than 8 percent reported membership of a research interest group, authorship of a research article or presentation of a research study at a conference or professional meeting. In terms of the likelihood of future research activities more than half indicated that they may participate in research in the future (Selleck et al., 1996).

Nurses agreement to questions relating to research interest/skill and attitudes to nursing research was measured using a 100mm Visual Analogue Scale (VAS) with 'not at all true' at one end and 'very true' at the other. The researchers report, in relation to skill and interest, that only the result for the item relating to 'enjoy reading research articles' could be considered positive ($M=58.71$, $SD=24.45$). Respondents strongly agreed that nursing research should be part of their professional education. Additionally, they agreed that nurses should keep up-to-date with research activities related to their area of practice and that nursing research was important for promoting the professional status of nursing. There was limited agreement with the concepts that all nurses should engage in research or that active participation in research should be a criterion for promotion. Overall, the authors report that there was an agreement with the studies of Bostrom et al. (1989) and Ehrenfeld and Eckerling (1991) that nursing research was important for the professional development of individuals and the discipline of Nursing (Selleck et al., 1996).

Wright et al. (1996) were more concerned with the reported adequacy of preparation in nursing research, the participation in nursing research of respondents, together with the perception of the value and application of nursing research for practice. The purposive sample ($N=410$) included respondents from the South Western Sydney Area Health Service (85%) and the remainder were psychiatric nurses from two institutions or community based. The authors do not describe the exact nature of their self-report questionnaire, and respondent results are only expressed in terms of

percentage agreement to statements. Differences between the three respondent groups were calculated using chi square analysis (Wright et al., 1996).

Ninety-one percent of respondents agreed with the statement that 'Nursing research is necessary for clinical practice' compared to 81 percent who felt that 'Nursing research helped to improve patient care'. Additionally only 71 percent felt that there was a need for nursing research in their clinical area. In terms of journal reading practices, Wright et al. (1996) reported that less than 15 percent of respondents often read journal articles. This is a marked contrast to the earlier study reported by Nagy, Crisp and Brodie (1992) who found that over 50 percent of their respondents in NSW (N=897) were classified as frequent readers. Wright et al. (1996) also reported that more than 50 percent of respondents (n=298) did not receive any education regarding nursing research in their basic nurse preparation.

In summary, several research studies were located that investigated attitudes to nursing research. In a number of surveys various elements were identified that could lead to the identification of a positive or negative attitude to nursing research. Amongst the elements identified were the concepts of interest, knowledge, environmental support, payoffs and benefits, and a range of barriers that may preclude or contribute to a particular attitude towards nursing research. The presence of barriers to nursing research and their potential impact on attitude development is important and needs to be examined discretely.

9. BARRIERS TO NURSING RESEARCH

(i) Tradition, Past Experiences and Research Ethos

One of the most formidable barriers facing nursing research involves the concepts of socialisation and tradition. McClure (1981) believes that nurses are not socialised to view research as a proper role and activity for nurses. The only 'good nurse' is the bedside nurse and the professional image has become rooted firmly in the notion of vocation and service (Boothe, 1981; Butterworth, 1993; Hicks, 1992b). The socialisation of nurses for practice includes the instillation of the belief that nurses must always be right. As a group, Oberst (1985) reports that nurses tend to be less tolerant of error and uncertainty. In addition, the use of consultants, which is commonplace and often critical to success within the research process, is not widely supported by nurses (Oberst, 1985). As research is not perceived as part of the normal nursing role there follows a degree of disbelief about nursing research outputs (Butterworth, 1993; Davis, 1981; McClure, 1981).

Associated with the 'professional cringe' and the lack of involvement by nurses in research are aspects of power and gender bias. Although nurses are usually numerically the most substantive occupational group in health care settings, they have tended to occupy the lower echelons of the health care power ranking (Hicks, 1992a). Nurses have generally been placed, and to a large extent, have accepted a non-scientific, caring and reactive role in health care (Hicks, 1992a). In part, this is due to the dominance of medicine and the traditional gender orientation of both

occupational groups (Davis, 1981; Hicks, 1992a). With only 10 percent of the nursing workforce being male and the minority of doctors being female, certain attributes and assumptions have been ascribed to each profession.

Nursing is considered to embody the 'female' skills of caring and nurturing, and in the context of research, scientific aspects such as experimental design and quantitative analysis are more readily identified and attributed to males and specifically doctors (Barratt, 1990; Davis, 1981; Hicks, 1992a; Hicks, 1992b). The subordination of nurses to doctors is expressed in the limited criticism and questioning of doctors' decisions, and the acceptance of doctors as being the major power broker in patient care (Barratt, 1990). Barratt (1990) believes that if nurses continue to accept this status quo they will have difficulty in convincing doctors of the need to change practice in line with nursing research findings. Research output by nurses with valuable implications for patient care as a consequence, may continue to be undervalued by other health professionals. This situation reinforces the belief by nurses and others, that nursing is orientated to following orders and service rather than critical inquiry and rigorous investigation (Barratt, 1990; Boothe, 1981; Hicks, 1992a).

The rejection of nursing research efforts by nurses and other health professionals represents a barrier not only to the implementation of relevant findings but also to the conduct of future research. Whilst medical research is often accepted, despite quality

and at face value, nursing research investigators frequently encounter credibility gaps within the nursing profession (Cronenwett, 1986; McClure, 1981). Researchers have cited feelings of isolation and a lack of support from peers, administrators and physicians as being part of the reasons why clinical nursing research is not pursued more vigorously (Boothe, 1981; Bostrom et al., 1989; Bostrom & Suter, 1993; Champion & Leach, 1989).

Davis (1981, p. 23) cites the following example:

In one instance, when a staff nurse attempted to use released clinical time for research, her peers' objections were so strong they dissuaded her from making any further progress in this direction.

This orientation to practice and service also serves as another barrier to nursing research. The most frequently cited reason for failure to pursue research is lack of time (Boothe, 1981; Bostrom & Suter, 1993; Evans, 1991; McInerney & Hamilton, 1992; Oberst, 1985; Poster et al., 1992; Rizzuto et al., 1994; Selleck et al., 1996; Wright et al., 1996). Nurses have reported experiencing role conflict and frustration when attempting to secure release time for research (Davis, 1981; Oberst, 1985, Selleck et al., 1996; Wright et al., 1996). Research is not yet considered part of the normal nursing role and participation in research is viewed as 'extra work' (Cronenwett, 1986; Davis, 1981). As Selleck et al. (1996) also suggest, the low level

of research activity may also be related to negative attitudes and priorities in relationship to the benefits and gains from research and the provision of immediate care to patients.

Bostrom and Suter (1993), Davis (1981) and Oberst (1985) cite instances of restricted access to resources or subjects as being counterproductive to research initiatives. Medical practitioners can regulate the progress of nursing research by controlling access to 'their' patients. Nursing peers can misconstrue the situation in their role as patient/client advocates by 'protecting' the patient from what they (the nurses) consider an unnecessary intrusion. This is accomplished by actively blocking recruitment into nursing research projects (Oberst, 1985).

For nurse academics the situation is a little different. Generally, they enjoy a greater positive ethos regarding research than the nurse clinician. Barriers to research are similar with additional complications.

Once they [nurses] move into academia, however, they become caught up in the activities required for faculty role and begin to systematically disengage from practice. Thus as a faculty person reaches for more advanced levels, complete with earned doctorate and professorial rank she is only rarely involved in patient care. (McClure, 1981, p. 67).

McClure (1981) identifies the problems of nurse academics as being part of the 'faculty withdrawal syndrome'. As nurse academics move from within service agencies to institutions of higher education outside the service sector, they experience the following consequences: lack of patient-focused research; lack of interdisciplinary research with other health professionals; estrangement between service and education; devaluing by nurses and others of the academic preparation of nurses and isolation of the nursing faculty (McClure, 1981). This can often result in the pursuit of research that has little relevance and priority in the clinical arena (Bostrom et al., 1989; Hicks, 1992a; Oberst, 1985; Riesch & Mitchell, 1989). In summary, Hicks states:

It also follows that, if peer professionals do not trust nursing research and thus are reluctant to use the conclusions in their practice, there is little point in even the most motivated of nurse researchers either carrying out the study in the first place or publishing the findings. (Hicks, 1992a, p.1347).

(ii) Personal Factors as Barriers

Probably the most significant barrier, particularly for clinicians to initiate or participate in nursing research projects is the lack of research preparation in basic and advanced nursing education programs (Brink, Downs & Scott, 1985). Swanson, Albright, Steirn, Schaffer and Costa (1992) point out the example that only one in four nurses in practice has a baccalaureate degree and only a similar proportion has

been exposed to a course in research. Rizzuto et al. (1994) believes that research activity is directly linked to the number of research courses undertaken by an individual. Individual nurses, therefore often lack the necessary prerequisite skills to understand and evaluate research, much less be involved in the conduct of research (Bassett, 1993; Cronenwett, 1986; Oberst, 1985; Mercer, 1984; Riesch & Mitchell, 1989). Morle (1990) and others suggest that knowledge deficits lead to a situation where nurses fear and have limited confidence in their ability to participate in the research process (Hicks, 1992a; Hicks, 1992b; Selleck et al., 1996; Wright et al., 1996). Thus the motivation and interest in research is not wakened or developed to its full potential (Bassett, 1993). Nurses have demonstrated a range of attitudes to research. A negative attitude to research for whatever reason can lead to a lack of involvement in, and commitment to, nursing research (Bostrom et al., 1989; Champion & Leach, 1989; McClure, 1981; Poster et al., 1993; Rizzuto et al., 1994; Selleck et al., 1996).

(iii) Organisation Factors as Barriers

From an organisational perspective there are several situations that mitigate against nurses being involved in nursing research. The most prevailing is the lack of commitment and devaluation of research by administrators particularly in the clinical arena (Champion & Leach, 1989; Poster et al., 1992; Rizzuto et al., 1994; Selleck et al., 1996; Wright et al., 1996). Part of the reason for this is explained by Cronenwett (1986) who suggests:

In most practice settings, no commitment to the use or generation of new knowledge exists. Resources are committed only to the provision of direct services to clients. (Cronenwett, 1986, p.7).

McClure (1981) advocates that support from administration must go beyond tokenism. Perez-Woods and Tse (1990) comment that nurses have a poor understanding of nursing's research mission and that there is a perceived paucity of opportunities to be involved in research within employment settings. Administrators can function as gatekeepers for nursing research by considering strategies that will free nurses from inflexible and/or heavy workloads that preclude research initiatives (Bostrom et al., 1989; Champion & Leach, 1989; Selleck et al., 1996). In addition, the more appropriate utilisation of more highly educated nurses should be encouraged together with an incentive system which demonstrates positive sanctions for research activities (Boothe, 1981; Champion and Leach, 1989; Cronenwett, 1986).

Nurse academics suffer additional and different organisational barriers to that of their clinical-based peers. Copp (1984), in her hallmark survey of Deans of Schools of Nursing in the United States of America found that they identified a number of components as inhibitive to nursing research activity. These included: a lack of time and heavy teaching workloads; lack of preparation and commitment by faculty; inadequate funding or funding restrictions; lack of preparedness and skill to conduct research; negative attitudes to research; no tradition; curriculum evolution and

change; inadequate resources; faculty politics; and administrative tasks and trivia. Bassett (1993) confirms the problems of excessive workload, insufficient release time and insufficient financial support as organisational aspects that reduce nurse teacher involvement in research. In addition, Boothe (1981) suggests that low support from deans, low prioritisation of research and beliefs relating to teaching and service also work against nurse academic involvement in research from an organisational perspective.

(iv) Research Process Barriers

A significant factor reported in the literature that precludes utilisation of research findings and the initiation and conduct of nursing research is the general lack of educational preparedness of nurses (Bassett, 1993; Bostrom et al., 1989; Bostrom & Suter, 1993; Brink et al., 1985; Oberst, 1985; Perez-Woods & Tse, 1990; Poster et al., 1992; Swanson et al., 1992; Wilson, 1984). Many nurses believe that only those prepared at the master's or doctoral level have the prerequisite skills to participate in research activities (Bushy, 1992). Thus, as Davis (1981) suggests, it is not so much that nurses feel left out of research, but rather, they are unable to enter the research arena even when opportunities were created.

Even for those who are educationally enabled there remain numerous barriers that they must confront during the research process. There has been a reported lack of infrastructure (human and material) to support nursing research activities, and

difficulty in accessing existing facilities and resources (Boothe, 1981; McInerney & Hamilton, 1992; Poster et al., 1992; Rizzuto et al., 1994; Wright et al., 1996). One of the major complaints from nurse researchers is gaining sufficient funding to initiate or sustain research endeavours (Bassett, 1993; Bostrom et al., 1989; Brink et al., 1985; Champion & Leach, 1989; Evans, 1991; Grey & Price, 1991; Lewandowski & Kositsky, 1983; Poster et al., 1992; Pratt, 1992).

Another barrier particularly for clinical research is the recruitment of clients/patients to participate in research endeavours. This involves gaining access to potential subjects and convincing not just those individuals (potential subjects) but other health care staff, such as medical practitioners and nursing colleagues of the potential benefits for participation in the research activity. Positive communication can expedite the consent process and facilitate the initiation and continuance of nursing research projects (Boothe, 1981; Champion & Leach, 1989).

Potential barriers that have not previously been explored in the literature in relation to nursing research are the influence of job satisfaction and self esteem. It could follow that nurses who experience limited job satisfaction or have low level of self-esteem may not be able to perceive the benefits of nursing research. In this context, job satisfaction and self-esteem could serve as further personal and organisational barriers against the development of a positive attitude to nursing research.

10. JOB SATISFACTION AND SELF-ESTEEM AS INFLUENCES IN NURSING RESEARCH ATTITUDE DEVELOPMENT.

(i) Job Satisfaction

Cavanagh (1992a, p.13) defines job satisfaction as "...a pleasurable or positive emotional state resulting from the appraisal of one's job or job experience". Spector (1985) states there have been a number of studies that have examined job satisfaction in the generic sense and several that deal with the nursing context. Generally, nursing job satisfaction studies are orientated to determining the factors that influence nursing staff turnover (Blegan, 1993; Braitto & Caston, 1983; Cavanagh, 1992a; Cavanagh, 1992b; Gray, 1984; Johnston, 1991; Macphail, 1988; Pizer, Collard, James & Bonaparte, 1992; Spector, 1985).

Several authors have identified a plethora of issues that may affect nurses' job satisfaction. Amongst demographic elements, small, but stable correlations across studies found with age and education (Blegan, 1993; Cavanagh, 1992a; Cavanagh, 1992b). Blegan reported that older nurses tended to be more satisfied, whilst those who are more highly educated experience more dissatisfaction (Blegan, 1993). Gray (1984) suggests that dissatisfaction experienced by male members may be related to general nursing being an overwhelmingly female occupation.

Certain job characteristics offer potential or actual sources of satisfaction/dissatisfaction. Autonomy or the concept of autonomous practice is considered one

of the strongest predictors for job satisfaction in relation to operating (work) procedures (Blegan, 1993; Johnston, 1991; Macphail, 1988). Seymour and Buscheroff (1991) in their literature survey found that autonomy was ranked ninth as an issue in dissatisfaction. This finding of a lower ranking should be examined in the context that their first ranked area of dissatisfaction was 'structural or institutional problems of the work setting' and contained elements which other authors had subsumed within autonomy.

Interpersonal relationships and peer/supervisor communications were also found to be important variables (Blegan, 1993). Macphail (1988) identifies that in one study, 17 percent of respondents listed interpersonal communication as a source of dissatisfaction. The same author also acknowledges the positive side of satisfaction when discussing Longest's 1974 study that found good communication was the second ranked item for satisfaction. Conversely, Cavanaugh (1992b) reports interpersonal relationships and communications was only a weak predictor of satisfaction.

The need for encouragement and recognition was also seen to be a potential source of satisfaction/dissatisfaction (Blegan, 1993; Macphail, 1988). Froebe, Deets and Knox in 1983, found that full-time nurses identified professional recognition as one of three factors that were perceived as an incentive for seeking employment in a particular institution.

One area in which there have been diverse findings relates to salaries, benefits and promotion. Blegan (1993) reports that the literature does not always register this aspect as important. However, other authors cited by Macphail (1988) demonstrate mixed responses ranging from first ranked dissatisfier to seventh ranked satisfier. Cavanaugh (1992b) reports that only a weak relationship existed between salary and satisfaction in his survey. Seymour and Buscherhof (1991) found that salary and benefits constituted the second ranked area for dissatisfaction in their survey. Thus, it appears that the role of salaries, benefits and promotions does not have any consistent ranking as a source of satisfaction or dissatisfaction.

There has been considerable literature published in relation to sources of dissatisfaction and satisfaction in nursing. One of the most significant problems associated with this literature is the inadequate reporting of method and particularly the extent of the establishment of the validity and reliability of the instruments used. This has implications for replication and also the facilitation of research study comparisons. The additional problem of inadequate or limited and biased sampling, means that findings are not always able to be generalised and yet are often published under the guise and context of generalisability (Macphail, 1988).

Job satisfaction is a concept that can be measured on a continuum that records the amount of satisfaction held by an individual to their present level of job satisfaction (Spector, 1985). This suggests that individuals can be separated in terms of the degree of agreement/disagreement with certain indicators of job satisfaction/dissatisfaction.

As mentioned previously, what has not been established in previous literature, including Australian studies of nursing job satisfaction, is the potential relationship between attitudes to nursing research and job satisfaction. Although quite different in construction, self-esteem may also serve as a similar barrier to the development of a particular attitude to nursing research.

ii. Self-Esteem

Self-esteem can be defined in the broadest sense as the evaluation of oneself as a person and relates to one's feelings of worthiness and adequacy (Middlebrook, 1980; Rentsch & Heffner, 1992). Gething and Hatchard (1993) identify the theory evolving from Coopersmith's hallmark 1967 study, whereby, people develop their self-concept according to four bases. The first is "significance" or the way they feel important and that others love and approve of them. Second, is "competence" or their perceived ability to perform tasks considered important. The third base is "virtue" and relates to the attainment of moral and ethical standards. Fourth and final base is "power" which relates to the extent that they influence their own and others' lives. The development of self-esteem occurs during childhood as an extension of self-awareness and is considered to be critically important in influencing career, social and personal outcomes in later life (Gething & Hatchard, 1993).

The concept of self-esteem is considered to exist on a positive-negative continuum or scale (Arthur, 1992). Middlebrook (1980) suggests that if individuals consider they are worthy, can control events and their work is worthwhile, then they would have

a high level of self-esteem. Conversely, if the individual's beliefs were that others performed better, that their efforts usually produced poor results and that they counted for little, then self-esteem is low. The cumulative score for all aspects of self-esteem is said to determine a person's measured level of self-esteem.

Developing a low self-esteem has important implications for career. As these individuals lack confidence in their ability to achieve, they set lower goals and exhibit less creativity and detachment from criticism than their peers with higher levels of self-esteem (Middlebrook, 1980).

Measures of self-concept (and self-esteem) have been conducted using nurses as the sample population. However, the question of how self-esteem relates to the practice of nursing has not been extensively addressed (Arthur, 1993; Dagenais, 1981; Reich & Geller, 1976; Rentsch & Heffner, 1992). Furthermore, the impact of self-esteem on attitudes to nursing research does not appear to have been investigated previously.

Whilst the impact of job satisfaction and self-esteem on attitudes to nursing research is unknown, there are elements referred to in the literature that do appear to facilitate the appreciation, initiation and conduct of nursing research.

11. FACILITATION OF NURSING RESEARCH

Executives and administrators can facilitate the conditions necessary to inspire the creativity that will expand nursings' body of knowledge and research findings. To do so requires a commitment, a plan, well-placed resources, strategies, creativity and imagination. (Wilson, 1985, p. 9)

One of the most important factors that can facilitate nursing research is the development of a positive research ethos and a commitment to the development and completion of nursing research projects in both the academic and clinical arena. In study results where nurses use nursing research findings as part of practice and hold more positive attitudes, there is concurrent belief that colleagues and administrators valued research (Bostrom & Suter, 1993). Valuing research is seen as a prerequisite to developing a commitment to further nursing research within an institution. To merely value is insufficient, research also requires a milieu which supports critical thinking and inquiry (Gray & Price, 1991; Nursing Research Group, Victoria, 1991; Oberst, 1985; Selleck et al., 1996).

Nurses who express an interest in research deserve support and encouragement. Cronenwett (1986) suggests that even if no tangible resources can be offered, an environment free of criticism is helpful. Administrators and peers should encourage

rejection of the practice of criticising possible change in status quo as a possible outcome of research endeavours. However, Oberst (1985) warns that motivation and commitment are not enough unless the organisation is in a state of readiness for research. Oberst (1985, p. 48) summarises the need for environmental support by stating: " The ability to design, implement and complete a study depends heavily on the resources available to support and facilitate it."

Provision of a psychosocial supportive environment is important, but so is the need to create an infrastructure that facilitates the conduct of research. Infrastructure supports include: access to literature/libraries to conduct relevant searches; provision of physical space and furnishings in which to write proposals, conduct studies or analyse results; secretarial support and access to computer hardware/software to expedite proposal preparation, results analysis and documentation of results; and the location and provision of funding to support the research project (Batra, 1983; Brink et al., 1985; Davis, 1981; McClure, 1981; Poster et al., 1992; Riesch & Mitchell, 1989; Ventura & Waligora-Serafin, 1981).

A number of authors have also identified time as a critical resource for nursing research (Brink et al., 1985; Oberst, 1985; Poster et al., 1992; Swanson et al., 1992). Batra and others report the use of time-release from normal duties as a mechanism to encourage research productivity (Batra, 1983; Davis, 1981; Selleck et al., 1996). Time-release not only increases the likelihood of research being conducted, but also provides real evidence of the support for nursing research within an institution.

Making research more attractive to nurses is a useful mechanism for encouraging research activity. If nurses see there are explicit benefits to be gained from participating in research then many may be encouraged (Cronenwett, 1986). It is suggested that if research productivity is linked to some incentive or reward system then there may be an increase in commitment and activity (Batra, 1983; Boothe, 1981; Davis, 1981; McClure, 1981). For the health care agency or institution, the reward is enhanced prestige associated with research output. (McClure, 1981).

While creating a climate that supports research in both tangible and intangible ways is important, it is also essential that research skill deficits be addressed. The literature suggests that skill deficits may be overcome by three primary mechanisms. The first mechanism is to provide or have access to a consultant, or to collaborate with a researcher who has the necessary skills. This individual or group can provide constructive advice on the aspect of the research process in which the nurse researcher feels insecure (Batra, 1983; Bushy, 1992; Ehrenfeld & Eckerling, 1991; Oberst, 1985; Parsons, 1991; Poster et al., 1992; Rizzuto et al., 1994; Ventura & Waligora-Serafin, 1981; Wright et al., 1996). In some instances, this has meant the employment of a nurse researcher who acts as a consultant and serves as very visible evidence of the importance of nursing research held by senior personnel within an institution (McClure, 1981).

The second mechanism is to socialise nurses during their undergraduate/pre-service and postgraduate education to develop an appreciation and the skills to participate in

research (Bassett, 1993; Brink et al., 1985; Champion & Leach, 1989; Rogers, 1985; Wright et al., 1996). Whilst this is desirable, there is also within the workforce a number of staff prepared in hospital-based or diploma programs who have not been exposed to research as part of their pre-service curricula (Wright et al., 1996). For these individuals the availability of a relevant and pertinent inservice or continuing education program related to research is important. A number of nursing staff may be unable to commit themselves to a higher education course of study. The opportunity to attend continuing education (inservice courses) could potentially increase their awareness and acceptance of nursing research as a legitimate activity in which they could participate (Batra, 1983; Bostrom & Suter, 1993; Brink et al., 1985; Bushy, 1992; Champion & Leach, 1989; Poster et al., 1992). Hicks summarises the implications of nursing research education in her statement:

Until research is considered a routine part of the nurses role and appropriate training provision made, this position [limited research activity and appreciation] is unlikely to change. However, it is possible that specific programmes aimed at developing nurse practitioners' research skills, as well as changing attitudes, may go some way towards facilitating this change. (1992a, p. 1347).

Creating opportunities to communicate research is the third mechanism. The literature suggests that this can occur on a number of levels including: access to library services; encouragement and financial assistance in formal conference

presentation and attendance; regular scheduled informal or formal meetings where research topics, strategies and findings are debated; and the publication and dissemination of research results (Batra, 1983; Brink et al., 1985; Bushy, 1992; Cronenwett, 1986; Davis, 1981; Ehrenfeld & Eckerling, 1991; Parsons, 1991).

In concluding, the facilitation of nursing research can also be furthered when there is a strengthening of education and service links. Davis (1981, p. 26) suggests that: "For without the interest and knowledgeable participation of both groups [administrators and educators] the profession cannot hope to achieve its goal of incorporating nursing research activity into day-to-day practice of nursing."

12. SUMMARY

An attitude is the summation of the individual's beliefs, concerns and conceptions. Attitudes can be both positive and negative and can guide behaviours. This suggests that nurses could develop a variety of attitudes to nursing research. The literature review revealed that a significant gap in the literature existed pertaining to knowledge of the attitudes of Australian nurses to nursing research. At the time of initiating this research no formal study had been undertaken to determine what elements or components might affect Australian nurses' attitudes to nursing research, nor had any comparisons been made to overseas nurses' attitudes to nursing research. Instead, Australian literature prior to 1993 reflected individual author perceptions and anecdotal comments without the presentation of any formal evidence from which to base their conclusions. It was unknown whether Australian nurses experience the same barriers or facilitators (knowledge of the research process, environmental

support for nursing research, personal interest in nursing research, perceived payoffs and benefits) to initiate and/or participate in nursing research projects. Whilst, relationships between age, educational level, professional experience and nursing practice areas to particular attitudes to nursing research have been explored internationally, there has been only a limited exploration within the Australian nursing context. In addition, the effect of self-esteem or job satisfaction in relation to a specific attitude to nursing research has not been explored nationally or internationally.

CHAPTER THREE

RESEARCH PROBLEM AND CONCEPTUAL MODEL

1. INTRODUCTION

Drawing upon the literature review, this chapter will introduce the purpose, broad aims of the study, conceptual model and the research questions/hypotheses that subsequently guided the conduct of the study.

2. PURPOSE AND BROAD AIMS OF THE STUDY

The purpose of this study was to investigate the attitude of Australian registered nurses to nursing research. This would involve the construction of an instrument that could provide measurement of characteristics considered indicative of the construct *nurses' attitude to nursing research*. In addition, an examination made of the effect of other factors, specifically job satisfaction, self-esteem, and the general biographic characteristics on nurses' attitude to nursing research. The research aimed to:

1. Develop or modify an existing scale to measure nurses' attitude to nursing research in the Australian context.
2. Develop a model to explain the construction of attitude to nursing research and the implications of job satisfaction and self-esteem.
3. Examine biographic characteristics of nurses and attitude to nursing research.

3. CONCEPTUAL MODEL

The conceptual model for this study (see Figure 1) centres on the attitudes of nurses to nursing research. The pyramid background supports the 'new age' ideal of pyramid power. The power *is* nursing research and its potential to change beliefs, practice and enhance the professionalisation of nursing. Central to this power is *attitude*. A positive attitude gives energy and support. Conversely, a negative attitude drains energy and limits opportunities for the future of nursing.

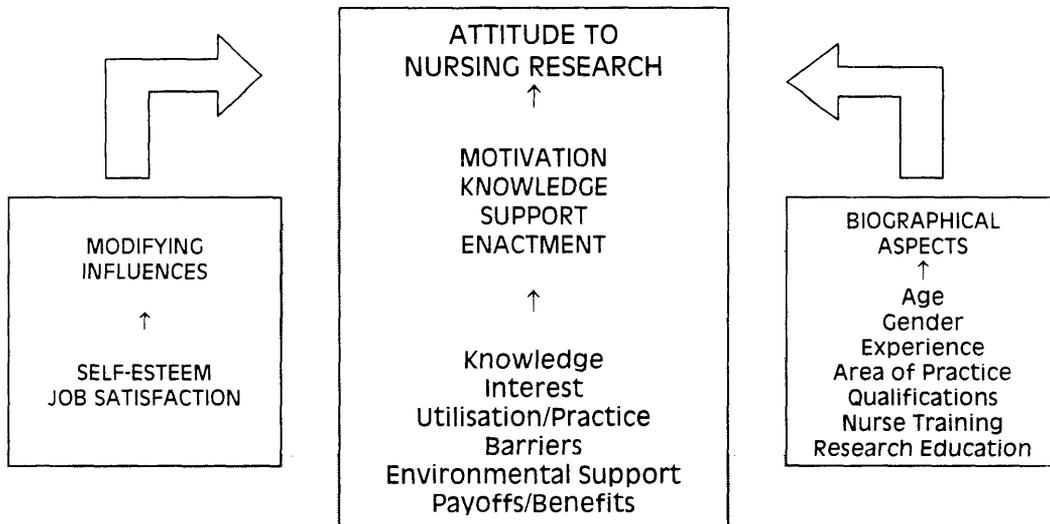


Figure 1. Conceptual model.

The development of a particular attitude in the context of this investigation is considered to be the result of a dynamic interplay of three critical sets of variables or influences. These are the nurse's possession of factors relating to nursing research; the specific biographic characteristics of the nurse; and the level of self-esteem and job satisfaction experienced by the nurse.

The literature review suggested that there were several key elements related to nursing research (see also Table 1 p. 26). These elements can be summarised as: possession of the *knowledge* and skills necessary to conduct research; *interest* in the conduct or outcome of research; *utilisation or practice* of relevant research findings; perception of *barriers* against the initiation, conduct or utilisation of research; perceived *environmental support* for the initiation, conduct or utilisation of research; and a belief in *payoffs and benefits* as a result of research. These elements form four central factors that ultimately contribute to the development of a particular attitude to nursing research. The factors are: *Motivation* to participate in nursing research; *Knowledge* and skills to appreciate or participate in the research process; *Support* for research activity; and the belief about opportunities for *Enactment* within nursing research.

The elements (and subsequently factors) related to nursing research can be expressed and measured as occurring along a continuum ranging from extremely negative to extremely positive (Boothe, 1981; Bostrom et al., 1989; Bostrom & Suter, 1993;

Eckerling et al., 1988; Ehrenfeld & Eckerling, 1991; Harrison et al., 1991; O'Brien & Heyman, 1989; Poster et al., 1992; Swenson & Kleinbaum, 1984).

Attitude to nursing research exists along a continuum extending from extremely negative to extremely positive. If a nurse holds a more negative attitude to nursing research then they would probably believe in the existence of certain barriers or constraints that reduce the potential for appreciation and involvement in nursing research.

These barriers or constraints to nursing research can be broadly clustered into three major sub-groups and relate to the nurse's perception of: i) lack of interest or appreciation for nursing research; ii) lack of organisational and environmental support; and iii) lack of research process knowledge and skills (Boothe, 1981; Bostrom et al., 1989; Eckerling et al., 1988). Specific components relating to these sub-groups are presented in Tables 2-4 (p.68). It is suggested that if a nurse agrees with the existence of these elements then that nurse is more likely to hold a negative attitude to nursing research, and be less likely to be involved, active or appreciative of nursing research endeavours.

Table 2

Lack of Interest in Research

Research as a low priority
Fails to read nursing journals regularly
No interest in current research findings
No interest in participating in nursing research
Nursing research is seen as too demanding

Table 3

Lack of Organisational and Environmental Support

Heavy workload
Insufficient time
Funding difficulties
Subject recruitment difficulties
No support for research activity by peers
Research skill or process support unavailable
No support for research activity by supervisor/s
No support for research activity by other health professionals
No continuing education to support or enhance research skills and knowledge

Table 4

Lack of Research Process Knowledge and Skills

No perceived research skill or knowledge
Unable to identify relevant research problems
Unable to conduct literature searches
Unable to write research questions or hypotheses
Unable to select appropriate research design
Does not understand the difference between independent and dependent variables
Does not understand the concept of validity
Does not understand the concept of reliability
Not familiar with different scales/levels of measurement
Not familiar with selected statistical procedures
Does not understand different sampling procedures or requirements
Unable to prepare a submission for a Research and Ethics Committee
Unable to interpret research results
Unable to write a research report
No confidence in preparing a conference paper
Not willing to be involved in research if skills and knowledge acquired
Believes only certain types/groups of nurses should be involved in nursing research
Believes only other health professionals (non-nurses) should conduct nursing research

Conversely, a positive attitude to nursing research and an active involvement is considered to be primarily expedited with the belief in the: i) existence of organisational, environmental and research process support; ii) acquisition of knowledge and skills to understand, participate and utilise research; iii) existence of payoffs and benefits from appreciating and participating in nursing research (Boothe, 1981; Bostrom et al., 1989). More specific elements that are categorised within the preceding facilitatory sub-groups can be located in Tables 5-7 (pp. 69-70). The suggestion is that nurses who agree with items which support the existence of research facilitation will hold a more positive attitude to nursing research and be more likely to be an active, appreciative nursing research participant.

Table 5
Organisational/Environmental and Research Process Support Availability

Research time available
 Reduced workload
 Perceived opportunities for nursing research
 Peer support to participate in research
 Health professional colleague support to participate in research
 Supervisor/s support to participate in nursing research
 Access to research funding
 Subject recruitment expeditious
 Research assistance/support available
 Resources for results analysis available
 Research knowledge and skill continuing education available

Table 6

Knowledge/Skills to Understand, Participate and Utilise Nursing Research

Research as a high priority
Up to date with current nursing research
Interested in participating in nursing research
Has the relevant skills and knowledge to conduct nursing research
Able to identify researchable problems at work
Able to conduct literature searches
Can write research questions and hypotheses
Familiar with selected statistical procedures
Able to select appropriate research designs
Understands the difference between independent and dependent variables
Understands the concept of validity
Understands the concept of reliability
Able to prepare a submission to a Research and Ethics Committee
Familiar with different scales/levels of measurement
Able to interpret research results
Understands need for different sampling techniques and procedures
Able to write a research report
Can confidently prepare a conference paper
Willing to be involved in nursing research if skills and knowledge attained
Believes all nurses could/should be involved in nursing research
Believes opportunities exist to implement advantageous nursing research findings
Research is seen as important

Table 7

Pavoffs and Benefits.

Positive feedback from peers and colleagues when research conducted
Enhancement of promotion and or a positive performance appraisal
Research outcomes are considered most important to improve patient care
Advancement of nursing knowledge only through nursing research

As suggested in the conceptual model a moderating influence on the type of attitude held by a nurse is the characteristics of that nurse. In other studies (see also Table 1 p. 26), the affects of biographic aspects have been examined (Boothe, 1981; Bostrom et al., 1989, Eckerling et al., 1988, Poster et al., 1992). Elements comprising previously cited biographic aspects are located in Table 8 (p.71).

Table 8
Biographic Aspects

Gender
Age
Years of professional nursing experience
Type of employment
Employment position
Major area of practice
Clinical or speciality affiliation
Type of basic nurse preparation
Highest educational qualification
Educational qualification in progress
Preparation to conduct nursing research
Course and content necessary to conduct nursing research

A new dynamic explored in this investigation is the effect of two further factors: self-esteem, and job satisfaction. These two influences have not previously been examined in relation to nursing research attitudes (see Tables 9-10 pp.71-72). In the context of this investigation it is suggested that nurses with high levels of self-esteem and job satisfaction may hold a more positive attitude to nursing research. Conversely, low self-esteem and poor job satisfaction may provide a sense of negativity that flows through to the development of a less positive attitude to nursing research.

Table 9
Job Satisfaction Aspects

Nature of work
Operating procedures
Benefits
Contingent rewards
Co-workers
Supervision
Communication

Table 10
Self-Esteem Aspects

Self respect
Self confidence
Sense of importance
Level of self-acceptance
Positive feelings about self
Negative feelings about self

4. RESEARCH QUESTIONS/HYPOTHESES.

The conceptual model provided the basis for the development of specific research questions and hypotheses to guide the investigation:

RESEARCH QUESTIONS:

- (1) What type of preparation to appreciate or conduct nursing research is reported by NSW nurses and what further preparation is required?
- (2) What are the proportional differences in responses to preparation to conduct research reported by NSW nurses?
- (3) What are the levels of agreement/disagreement reported by NSW nurses in response to items relating to attitude to nursing research?
- (4) What are the components of a valid and reliable measure of NSW nurses' attitude to nursing research?

HYPOTHESES

H¹ Higher motivation subscale scores will be associated with higher scores in the knowledge, support, enactment, self-esteem and job satisfaction subscales in NSW nurses.

H²-H⁷

There will be increased motivation, knowledge, support, enactment, self-esteem and job satisfaction subscale scores in NSW nurses for:

- mid-age range nurses (31-50 years) compared to younger (20-30 years) or older nurses (50+ years) (H²);
- more experienced nurses (>5 years) compared to less experienced nurses (< 5 years) (H³);
- those nurses working primarily in education, research or administration (non-clinicians) compared to nurses working primarily in the clinical area (clinicians) (H⁴);
- University or College of Advanced Education prepared nurses compared to nurses prepared in the hospital (H⁵);
- Nurses who are currently studying honours or postgraduate level studies compared to nurses who are not currently studying or attempting postbasic certificate or diploma/degree conversion studies (H⁶);

- nurses' holding a degree, honours or postgraduate level qualification compared to those nurses who only hold a basic certificate, associate diploma or postbasic certificate as their highest level of educational qualification (H⁷).

H⁸ –H¹³

There will be increased motivation, knowledge, support, enactment, self-esteem and job satisfaction subscale scores in NSW nurses for:

- mid-age range nurses (31-50 years) with more than 5 years professional experience than nurses of other age groups (20-30 years, 50 + years) with less than 5 years professional experience (H⁸);
- mid-age range nurses (31-50 years) whose major area of practice is in education, research or administration (non-clinician) compared to nurses of other age groups (20-30years, 50+ years) whose major area of practice is within the clinical area (clinicians) (H⁹);
- nurses working in education, research or administration with more than five years of experience compared to nurses working in the clinical area with less than 5 years professional experience (H¹⁰);
- University or College of Advanced Education-trained nurses who are currently studying an honours or postgraduate course compared to those nurses trained in a hospital who are either not studying or attempting postbasic certificate or diploma degree conversion studies (H¹¹);

- University or College of Advanced education trained-nurses who have completed a degree, honours or postgraduate level qualification compared to those nurses trained in a hospital and holding only a basic certificate, postbasic certificate or associate diploma as their highest qualification (H¹²);
- nurses currently undertaking honours or postgraduate studies with a highest qualification at degree, honours or postgraduate level compared to nurses currently not studying or attempting postbasic certificate or diploma/degree conversion programs and holding only a basic certificate or associate diploma or postbasic certificate as their highest qualification (H¹³).

H14 –H15

There will be increased motivation, knowledge, support, enactment, self-esteem and job satisfaction subscale scores in NSW nurses for:

- mid-age-range nurses (31-50 years) whose major area of practice is non-clinical and who have more than 5 years professional nursing experience compared to nurses of other age groups (20-30 years, 50+ years), whose major area of practice is in the clinical area and have less than 5 years nursing experience (H¹⁴);

- University or College of Advanced Education trained nurses currently holding postgraduate studies qualifications and undertaking further postgraduate studies compared to hospital-trained nurses with lower level educational qualifications and either not currently studying or attempting postbasic certificate or diploma courses (H¹⁵).

The aforementioned research questions and hypotheses will provide a framework for the investigation, analysis and discussion of the results.

CHAPTER FOUR

METHOD

1. INTRODUCTION

This section describes the method used to obtain the relevant aforementioned data. Design, sampling and related procedures, instrument design, data collection procedures and rationale for proposed analysis is discussed. A cross-sectional survey was conducted amongst two groups of List A nurses registered by the New South Wales Nurses Registration Board (NRB) to determine the attitudes of registered nurses to nursing research and the effects of other influences on attitude. The survey was conducted following the granting of research and ethical approval by the South Western Sydney Area Health Service (SWSAHS) and the NRB.

2. DESIGN

The design is of a quantitative non-experimental nature (Talbot, 1995). A cross-sectional mail survey of registered nurses was conducted to determine their attitude to nursing research. The advantages of mail survey research include that responses are gathered in a natural setting, the investigation can cover a wide geographical area, facilitate respondent anonymity, and this type of investigation is less time-consuming than interviews (De Vaus, 1992; Seaman, 1987).

2. SUBJECTS

Initially, the population was considered to be all List A registered nurses working in the public health care sector within SWSAHS. This population was later expanded to include all List A registered nurses working primarily in the public health system within NSW. The subjects were surveyed in two groups (see Figure 2). Originally, the researcher had decided to only survey the facilities involved in support of the nursing research unit (SWSAHS and the Division of Nursing, Faculty of Health, University of Western Sydney, Macarthur - UWSM). During implementation of the first survey, and following discussion with other nurse researchers, together with the availability of previously requested funding from the NRB, a decision was taken to expand the sample to include registered nurses from all public health areas within the state. This decision was prompted by the attraction of the potential for a larger sample and due to increased geographic spread of respondents there was increased potential for more generalisability of the findings. However, cost constraints and difficulty in locating the second sample restricted the survey to only one round of questionnaire distribution (pass). The sampling process was conducted in two stages.

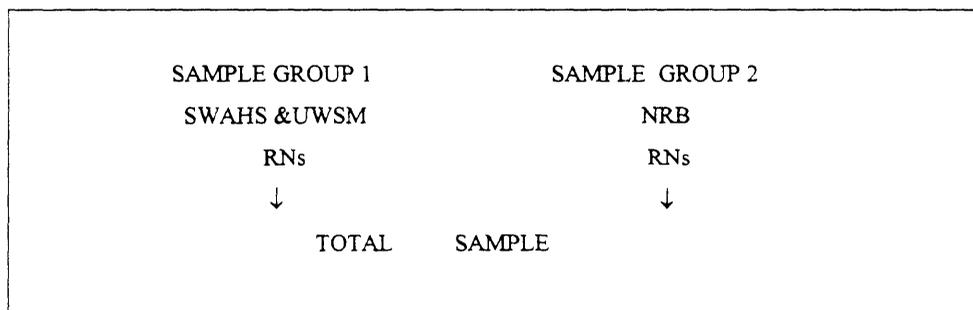


Figure 2. Sampling sources.

Sample One:

The SWSAHS Human Resources Division in October 1992 provided a copy of all List A registered nurses employed in a full-time or part-time basis by the SWSAHS. The names of registered nursing staff employed by the Division of Nursing, Faculty of Health located in the University of Western Sydney, Macarthur was also procured. This provided the basis for a one pass mail (no follow-up) survey that was initiated during February to March 1993 period. During the period of provision of the listing and the conduct of the mail survey, a number of nurses left the employment of the SWSAHS. Thus the total number of registered nurses invited to participate in the survey was 1,980 potential participants.

Sample Two:

The NRB, with the assistance of the Workforce Planning Unit of the New South Wales Health Department agreed to provide a listing of 1,800 registered nurses according to a specified stratification. The listing was obtained from a register of annual List A registered nurse practice certificate renewals for the year 1993. These nurses had indicated that they were nursing exclusively in NSW or mainly in NSW.

The stratification was designed to reflect the proportionate number of registered nurses in specific employment position areas of nursing practice within public health sector or nurse education employment (see also Table 11 p. 80). It was important to obtain a sample reflective of employment position as merely obtaining an

alphabetical listing may have resulted in a skewed/unrepresentative sample not reflecting the proportion of nurses relative to employment position opportunities (De Vaus, 1992; Seaman, 1987). Inclusion criteria were that the nurse had reported to the Board that they were employed as a registered nurse on a full or part-time basis and that their postcodes were outside SWSAHS. This was an attempt to avoid duplicating the survey for SWSAHS respondents, although obviously this may not have been completely avoided. The stratification was according to nursing employment position and the request was to provide a proportion considered relative by the researcher to the number of nurses within each employment category based on estimation in the SWSAHS.

Table 11
1993 NSW Nursing Workforce Survey Data and Stratification Request

Employed as Main Job	<u>Health Department Population</u>		<u>Sample Requested</u>	
	N	%	n	%
Clinicians ¹	34,825	90	1,600	89
Non-clinicians ²	3,718	10	200	11
Total	38,543	100	1,800	100

Note: Original data provided by NSW Health Department Workforce Planning Unit.

¹ Clinician group comprised of registered nurses, midwives, clinical nurse specialists, clinical nurse consultants and clinical nursing unit managers.

² Non-clinicians group comprised of clinical nurse educators, professional development nurses, nursing academics, assistant directors of nursing, directors of nursing, area directors of nursing, Nurse researchers.

Mail survey packages were sent to the 1800 NRB potential respondents during July 1993 from the offices of the NRB.

3. DATA COLLECTION PROCEDURE

Each potential respondent received a survey package consisting of a copy of an 'Invitation to Participate and Consent' form (see Appendix A), and a copy of the final survey instrument (see Appendix B), and a reply paid mail envelope. In the case of the NRB sourced sample, each respondent received a memorandum (see Appendix C) advising them that their address was private and confidential and had not been released to the researcher.

The 'Invitation to Participate and Consent' form was prepared following the usual prescription to ensure informed consent (Nieswiadomy, 1993; Seaman, 1987). The form advised potential respondents about the purpose of the research, the approximate time to complete the questionnaire and the preferred return date for the survey. Respondents were assured of confidentiality and anonymity should they respond. Furthermore, potential respondents were advised that their completion and return of the questionnaire constituted their consent to participate in the survey and they were thanked in anticipation of their contribution. The researcher's name was listed and potential respondents were also provided with an address and phone number to contact the investigator if further clarification or other discussion was required.

Upon return of the questionnaires, each questionnaire was given an identification number and the survey response information was coded and entered into a computer database for later examination and analysis.

4. INSTRUMENT

The administered instrument was divided into three parts: a) nursing research attitudes/job satisfaction and self-esteem inventory b) nursing research topic priority survey and c) background data. Sections relating to nursing research attitudes, job satisfaction, self esteem and background data are further analysed and discussed in this thesis.

NURSING RESEARCH ATTITUDES SECTION

King (1984) and Bucher (1991) suggest that one of the simplest and most effective assessment tools for the affective domain (ie. attitudes) is the use of Likert Scales. This involves the use of declarative statements relating to the variable (or item) to which the respondent indicates their degree of agreement or disagreement on a preset numerical scale (Bucher, 1991). The numerical scale utilised for this survey was 1-5, whereby, 1= 'strongly disagree' (SD); 2= 'disagree' (D); 3= 'uncertain' (U); 4= 'agree' (A); and 5= 'strongly agree' (SA). Respondents could therefore demonstrate more or less of a positive or negative opinion, relating to their attitude to nursing research (Wright & Masters, 1982). In addition, the items could be grouped into factors that may underpin a latent trait (type of attitude to nursing research held) and

further analysis conducted (De Vaus, 1992; De Vellis, 1991).

Where possible, previously published relevant items were used to enhance the content validity of the instrument. Items were generated to assess areas not explicit in previously published literature. A mixture of items was constructed providing a positive perspective and also a negative perspective. All items were presented to the respondent in the first person. This was to encourage respondents to answer as a unique individual and not as a member of a class or group. The nursing research attitude items were clustered into previously identified subgroups concerned with the respondent's: interest in nursing research; knowledge of the research process; utilisation/practice of nursing research; perceived environmental support for nursing research; perceived barriers to involvement in nursing research; and payoffs and benefits derived from nursing research (Boothe, 1981; Bostrom et al., 1989; Bostrom & Suter, 1993; Eckerling et al., 1989; Ehrenfeld & Eckerling, 1991; Swenson & Kleinbaum, 1984; Harrison et al., 1991; O'Brien & Heyman, 1989; Poster et al., 1992). The items related to these elements are presented in Tables 12 and 13 (pp. 84-85). Items from each of the aforementioned subgroups were randomly distributed across the relevant section of the questionnaire. Respondents were instructed to select and circle the numerical value for each item according to their degree of agreement or disagreement with the item statement (De Vaus, 1992; De Vellis, 1991).

Table 12
Question Number and Item Statements for Barrier, Knowledge and Interest Elements.

<u>Question</u>	<u>Item Statement</u>
	<i>Barriers</i>
14	I would conduct research if patient assignments were lightened.
25	I would conduct research if I had the time.
30	I am criticised by my peers when I conduct research.
38	I would conduct research if I knew how to write a proposal;
59	I would conduct research if more funds were available/accessible to me for this purpose.
62	I would conduct research if I knew how to analyse the results and findings.
64	The process of submission to a research & ethics committee is too detailed.
72	Patient participation in nursing research is difficult to obtain
78	The informed consent process for employee participation in research prevents me from conducting research in my work area.
82	I would conduct research if someone more knowledgeable would help me through the process.
91	I would conduct research if relief time were given to conduct research.
99	I would conduct research if I knew how to access research funding.
	<i>Knowledge</i>
4	I do not understand the difference between independent and dependent variables.
9	I can write research questions.
15	I am familiar with selected statistical procedures used in the analysis of research findings.
17	I would not know which research design was most appropriate for different research projects.
19	I have the skills and knowledge necessary to conduct research.
21	A valid instrument measures what it is intended to measure.
26	I have difficulty understanding what statistical results mean.
28	I would be able to prepare a proposal for submission to a research & ethics committee.
34	I find difficulty writing research hypotheses.
35	I can readily identify research problems relevant to my work.
39	I am familiar with different scales of measurement which could be used in data analysis.
42	I can interpret most results and findings in research reports.
53	I can understand the differences and implications of different sampling techniques and sizes.
57	I would not experience any difficulty in locating background literature.
61	A reliable instrument is one that can be used by 2 different people and they would get same or similar results.
65	I have good research report writing skills.
69	I understand how to conduct computer database literature searches.
71	If I had research skills & knowledge I would become involved in research activities.
95	I would feel confident preparing a conference paper.
	<i>Interest</i>
5	I put research high on my list of priorities.
12	I regularly read nursing journals to keep up to date with current research activities.
20	Conducting research is not a priority.
27	I would like to conduct a study of a problem in patient care.
33	I like to conduct research.
52	I am interested in conducting nursing research.
79	I have no interest in the latest nursing research findings.
81	Nursing research requires more than I am willing to give to my job.
92	Even though I have research skills and knowledge, I am not interested in conducting research.

Table 13.

Question Number and Item Statements for Payoffs/Benefits, Environmental Support and Practice/Utilisation Elements.

<u>Question</u>	<u>Item Statement</u>
<i>Payoffs and Benefits</i>	
6	I receive praise from my peers and colleagues when I conduct research
11	I will conduct research because it assists me to be promoted.
45	I will conduct research because it is of benefit for a positive performance appraisal.
58	I would receive praise from my peers and colleagues if I completed a research project.
73	I conduct research because it assists me to be promoted.
80	Research is the most important activity for improving patient care.
96	The advancement of nursing knowledge can only be achieved through research.
<i>Environmental Support</i>	
3	My job provides the time necessary to conduct research.
13	My place of employment provides me with ample consultative assistance for conducting research.
22	My place of employment has ample assistance for the analysis of results and findings of research that is conducted.
32	My place of employment provides me with ample assistance to engage in conduct of research.
40	My place of employment has ample secretarial assistance for anyone wishing to conduct research.
43	My job provides ongoing educational programs in order to conduct research.
46	My supervisors allow me time in their daily assignments to conduct research.
60	My colleagues (other health professionals) encourage me to conduct research.
75	My working environment provides ample opportunity to conduct research.
83	My peers in nursing encourage me to conduct research.
88	My place of employment has ample statistical assistance for anyone wishing to conduct research.
96	My peers in nursing assist me to conduct research.
<i>Utilisation Practice</i>	
8	Nursing research should only be conducted by nurse academics from universities.
16	Nursing research should only be initiated by nurses working in the clinical area.
31	All nurses could engage in nursing research.
37	Only members of the health team other than nurses should conduct nursing research.
47	Research findings that are advantageous to good patient care can be implemented in my working environment.
51	Nursing research is the means by which the theoretical basis for nursing practice should originate.
68	Time spent giving patient care is more important than time spent conducting research.
77	Nursing research should only be conducted by professional nursing researchers.
94	Nursing research should only be conducted by nurses with a university degree.

The inventory was piloted with several registered nurses to assess reading difficulty, clarity of instructions, clarity of the response items and to estimate time for responding to the entire inventory.

JOB SATISFACTION

The Job Satisfaction Survey (JSS) developed by Spector (1985) was used as a source for items pertaining to job satisfaction. The 36 item instrument was developed using a substantial sample (N = 3,148) of human service personnel which included nurses. Nine subscales were identified relating to pay, promotion, supervision, benefits, contingent rewards, operating procedures, co-workers, nature of work and communication. Coefficient alpha for the entire scale was 0.91. Not all items were adopted for this investigation as the investigator was concerned about the high number of items already in other subscales. Also some of the items were repetitious; particularly those relating to payoffs and benefits and already covered in the research attitude section. The items used to assess levels of job satisfaction can be found in Table 14 (p. 87).

The final 18 items selected were randomly located amongst the other Likert scale items relating to research attitudes. Instructions for responding to these additional items were the same as for the nursing attitude section.

Table 14
Job Satisfaction Question Number and Item Statements

Question Number	Item Statement
1	I feel a sense of pride in doing my job
5	I have too much to do at work
10	My job is enjoyable
16	I sometimes feel my job is meaningless
22	I am not satisfied with the benefits I receive from my job
29	There are few rewards for those who work in my organisation
36	There is too much fighting and bickering at work
41	I have to work harder at my job because of the incompetence of The people I work with
43	I don't feel my efforts are rewarded the way they should be
45	I do not feel the work I do is appreciated
50	My supervisor/s is quite competent in doing his/her work
54	I feel unappreciated by my employers
70	Communications seem quite good within my place of employment
75	Many of the rules & procedures make doing a good job difficult
85	I like the things I do at work
89	When I do a good job I receive the recognition for it that I should
92	My supervisor is unfair to me
100	I like the people I work with

SELF-ESTEEM

A similar decision was taken to utilise validated and available items to assess self-esteem. The self-esteem subscale of the Self Description Questionnaire (SDQ) III developed by Marsh (1989) was selected on the basis of its ability to measure self-concept (and in this instance, specifically self-esteem). Permission to utilise the subscale was obtained from the developer. The SDQ III was designed to measure self-concept in the late adolescent population. Response options were changed from the continuum of 'definitely false' to the 'definitely true' to 'strongly disagree' to 'strongly agree' continuum in line with the other Likert scale items in the survey. The

ten self-esteem items were randomly located throughout the survey section with the other Likert scale items related to research attitudes and job satisfaction. Table 15 lists the self-esteem items and their relative positioning within the questionnaire.

Table 15
Self Esteem Question Number and Item Statements

Question Number	Item Statement
2	Generally I have a lot of respect for myself
23	Usually, I lack self-confidence
46	Usually I do lots of things that are important
56	Overall, I am not very accepting of myself
63	In general, I don't have much respect for myself
84	In general, I have pretty negative feelings about myself
86	Overall, I think I am accepting of myself
87	Generally I have positive thoughts about myself
90	Overall, nothing I do is very important
97	Usually I have a lot of self confidence

BACKGROUND DATA SECTION

Respondents were asked to complete a background data summary (see final section of Appendix B). Biographic information sought from each respondent included: gender, age, years of professional nursing experience, employment status, nursing position, broad classification of nursing practice area, specific clinical area where majority of employment spent, nurse training preparation program, highest educational qualification completed, and highest educational qualification in progress. In addition, respondents were requested to provide information relating to

their preparation for conducting research and perceived additional educational preparation to conduct research (see also Appendix B).

5. ANALYSIS

The data collected was a combination of nominal and ordinal scale items that could be subjected to varied forms of analysis. The background data for each case is essentially nominal and were categorised according to the presence or absence of the relevant attribute each item attempted to measure (Argyrous, 1996; Diekhoff, 1992).

Crosstabulations were used to examine frequency distributions between respondent types (independent variable) and their perceived needs (dependent variables) for further nursing research education (De Vaus, 1992). Chi square analysis was used to assess the level of significance of the associations between variables (Argyrous, 1996).

Factor analysis was conducted on all 68 items relating to nursing research attitudes. The purpose was to reduce the observed variables to a smaller number of underlying hypothetical factors predisposing to particular attitudes to nursing research and to establish initial construct validity of the instrument (Hair, Anderson, Tatham & Black, 1995; Graetz, 1991; Kim & Mueller, 1978a; Kim & Mueller, 1978b; Knapp & Brown, 1995; Norman & Streiner, 1994; Tabachnick & Fidell, 1996). Factor analysis proceeds when sampling is adequate. This is confirmed by the fulfilment of

two criteria: if there are more than the required minimum of five subjects per item; and if the Kaiser-Meyer-Olkin (KMO) value for sampling adequacy is >0.06 (De Vellis, 1991; Tabachnick & Fidell, 1996). Initial factor extraction was attempted by examining the relative merits and appropriateness of the following options: the identification of latent roots (eigenvalues >1.0) criterion; percentage of explained variance criterion ($> 60\%$); a priori criterion; and the results of a Cattell's scree test (De Vellis, 1991; Hair et al., 1995; Kim & Mueller, 1978b; Knapp & Brown, 1995; Tabachnick & Fidell, 1996).

Following the selection of proposed factor numbers a series of solutions were attempted by varying the number of factors and the method of extraction, with different rotational trials in order to find the most parsimonious and interpretable solution (Graetz, 1991; Hair et al, 1995; Tabachnick & Fidell, 1996). Reliability was assessed using Cronbach's alpha where items range between 0 and 1.0. Items closer to 1.0 are considered to have greater reliability with the minimum standard usually set at 0.7 (Hair et al., 1995).

Factor analysis and reliability assessment was also conducted separately on the items pertaining to job satisfaction and self-esteem to assess the relative sampling adequacy and the reliability of the variable scales in the context of this study.

Other investigators have utilised factor analysis to facilitate the construction of factor scores for each respondent to allow for the identification of new interval level variables for additional multivariate analysis (De Vaus, 1992; De Vellis, 1991). However, if the explained variance is less than the minimum acceptable range for social science investigations (60%) the investigator may not have the degree of confidence required in the subscale scores to facilitate further multivariate analysis and other options may need to be considered (Andrich, 1988; Argyrous, 1996; W.P. Fisher, 1993; Wright & Masters, 1982). An alternative and more powerful model for rating scale analysis that allows for the creation of respondent equal-interval level scores and also assessment of items is the Rasch Measurement Model (Andrich, 1988; A. Fisher, 1993; W.P. Fisher, 1993; Van Der Linden, 1994; Wright & Masters, 1982; Wright & Stone, 1979).

Whilst there is common ground between the theoretical underpinning of the Rasch model of measurement and the other measurement models of Thorndike and Thurlstone, there are also fundamental and significant differences (Engelhard, 1994, A. Fisher, 1993; W.P. Fisher, 1993). The major commonalities and differences are summarised in Table 16 (p. 92) adapted from Engelhard (1994) and A. Fisher (1993).

Essentially, the probability-orientated Rasch measurement model is concerned with two facets – the people who complete an inventory or rating scale related to a specific latent construct and the items that constitute the scale.

Table 16
Comparison of Traditional Psychometric Assumptions and Rasch Measurement

<u>Issue or Statistic</u>	<u>Traditional Psychometrics</u>	<u>Rasch Measurement</u>
Utilised latent trait concept	Yes	Yes
Level of analysis	Group	Individual
Assumed distribution of attitude or ability	Normal	None required
Tests of Fit	Model to data	Data to model
Person measurement/ Item calibration	Separate process	Simultaneous process
Person score	Person's total score on test; sample-dependent and test-dependent.	Logistic transformation of the person's total raw score; test-free.
Item difficulty	The <i>p</i> -value; proportion of the sample that responded appropriately to the item; Sample-dependent	Log-linear transformation of the <i>p</i> -value; sample-free
Item discrimination	Index of discrimination (D): difference between the proportion of a higher-scoring group who passed the same item; no well accepted criteria for interpretation	All items calibrated such that 50% of the sample of an attitude/ability level matched to the difficulty of the item; sample-free statistic
Item Fit	Point biserial correlation: provides an index of whether or not the item fits or is related to the same construct or variable assessed by the other items in the scale	Mean square residual (MnSq) difference between observed and expected scores; expected value close to 1.0; not affected not affected by sample size Standardised mean square (t); expected value close to zero; overly sensitive to misfit with large sample sizes
Reliability	Kuder-Richardson 20 (K-R 20) or Cronbach alpha; a measure of internal consistency that evaluates the ability of the items to reliably separate people by level of attitude/ability based on sample-dependent raw score <i>p</i> -values Standard error of measurement of the sample	Separation reliability: ratio of the unbiased sample SD to average SE of test; linear in interpretation; computed for each facet Rasch equivalent to K-R 20 or alpha; or alpha; similar in formulation and interpretation. Standard error of estimate determined for each person and for each item.

Note: Adapted from: Historical views of the concept of invariance in measurement theory. (p.92-93) by Engelhard,G. in Wilson M. (Ed.) Ablex: New Jersey; and The assessment of IADL skills: an application of many-faceted Rasch analysis by Fisher. A. 1993. The American Journal of Occupational Therapy. 47 p.327.

The latent construct (in this situation 'attitude to nursing research') could be conceptualised as a single (unidimensional) concept that can be represented by a line. Respondents can be placed along this line according to how they perceive a particular aspect related to an attitude to nursing research as indicated by their response to specific items. Order along the line is created by the items within the scale.

The easiest item (base) and the hardest item (ceiling) delimit the length of the line.

See also Figure 3 (A. Fisher, 1993; Wright & Stone, 1979).

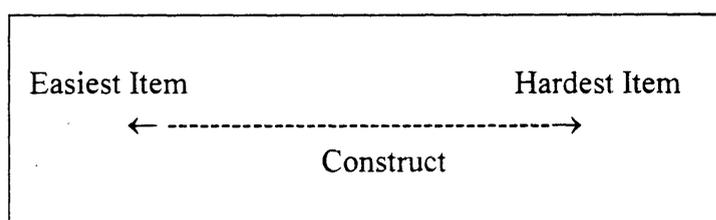


Figure 3. Rasch measurement item order.

The Rasch model can be used to evaluate construct validity. The sensitivity of the scale is determined by how many items are positioned along the line, how closely they are positioned, and how well the difficulty of the items matches the ability of the persons who have been tested. The quality of the scale will be determined by how close to the line the items fit. If there is high goodness of fit then it suggests that the items are a good representation of the underlying construct (A. Fisher, 1993; Wright & Masters, 1982; Wright & Stone, 1979).

Rasch modelling allows not only item difficulty calibration (from easiest to most difficult item to respond to) but also person ability calibration or measures. The Rasch model involves two assertions, first, that the easier the item the more likely it is to be answered appropriately by any respondent. The second assertion is that the more able or positive the respondent; the more likely they are to answer appropriately harder items than the respondent who is less able or more negative (A. Fisher, 1993; Wright & Stone, 1979). See also Figure 4.

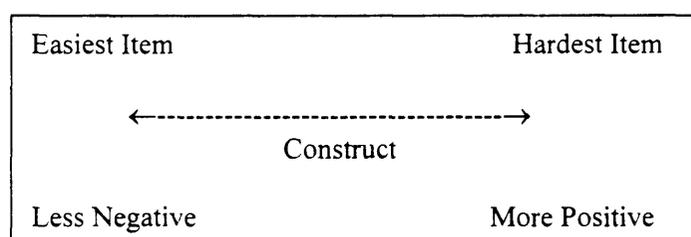


Figure 4. Rasch measurement person ability order.

The Rasch computer program models these assertions mathematically. Items are placed on the line according to the proportion of respondents that chose a correct or appropriate response (positive for attitude to nursing research), and persons are placed on the line according to the number (or proportion) of items they answer correctly or appropriately (A. Fisher 1993). A logistic transformation of the proportion of respondents obtaining a given item score allows the conversion of observed counts of ordinal data (the Likert scale responses) into an approximately equal-interval number line (with the linear continuum representing the variable). The

derived item difficulty calibrations and respondent ability measures, are expressed in equal-interval units of measurement based on the logarithm of the odds (logs-odd probability or logits) of responding appropriately to a given item when a respondent of a given attitude or ability is scored on an attitude item.

Equal-interval scores can also be established for the other two variables under consideration: self esteem and job satisfaction by building their item specific responses into the Rasch model.

The derivation of equal-interval scores for the variables will then facilitate further multivariate analysis that would be impossible or even suspect if unadjusted summative scores from the ordinal data were used. The availability of the equal-interval level scores will allow multiple regression analysis to examine the relationships between the variables (W.P. Fisher, 1993).

Further analysis using Multivariate Analysis of Variance (Manova) and univariate One-Way Analysis of Variance (Anova) could be attempted to examine if there were any differences between different types of nurses and on what basis these groupings occurred (Hair et al., 1995; Tabachnick & Fidell, 1996).

6. SUMMARY

An inventory was designed based on previous literature and the particular investigative needs of the researcher. A one-pass (no follow-up) mail survey was conducted with two groups of registered nurses in NSW. Characteristics of the sample (nominal data) were assessed through frequency distribution examination, crosstabulation and chi square analysis. Inventory Likert scale items (ordinal level data) were examined for frequency distribution and factor analysis conducted to determine the presence of any latent factors and to verify construct validity. The items relating to subsequent identified factors and those items relating to job satisfaction and self esteem have undergone examination and transformation using the Rasch Measurement Model. Rasch measurement facilitated the derivation of equal-interval scores for respondents allowing further multivariate analysis to test the model and to examine for differences between subgroups.