

CONCEPTS ABOUT NURSING RESEARCH AND ITS USE IN PRACTICE:

A CASE STUDY OF ONE SCHOOL'S GRADUATES

by

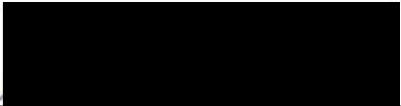
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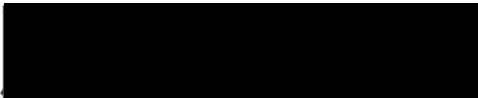
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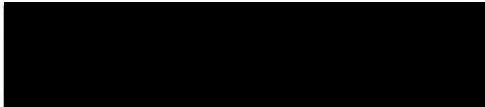
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FOREWORD

RESEARCH AS A PART OF NURSING

Research when really understood is the province of every nurse.

It is simply a question of doing things, anything, well.

It is not an outside, extra thing.

When the researcher is alive in any nurse, whatever her kind of work may be, she becomes an inventive, searching, daring, self-expressing creature. She disturbs, upsets, enlightens, and she opens ways for a better understanding. Where those who are not researchers are trying to close the book, she opens it, shows there are still more pages possible.

The world would stagnate without her, and the world would be beautiful with her; for she is interesting to herself and she is interesting to others. She does not have to be a professor or administrator to be a researcher. She can work in any practice setting role.

L.R. Cafferky adapted from
R. Henri about art

In Lieski, A.M. (1986). Clinical nursing research: A guide to undertaking and using research in nursing practice. Rockville, MD: Aspen Systems Corp.

CHAPTER I

INTRODUCTION

The first nursing research efforts began with Florence Nightingale (Polit & Hungler, 1987). Until the 1950's most nursing research revolved around nursing education. In the early 1950's the profession of nursing began efforts to develop research-based knowledge to support professional nursing practice. These efforts were assisted by Nursing Research Grants and Fellowship Programs established by the Division of Nursing (Krueger, Nelson, & Wolanin, 1978). Increasing the number of nurse researchers was emphasized and by 1969 there were close to 600 nurses with earned doctoral degrees (Krueger, Nelson, & Wolanin, 1978). Notter (1971) reported that there were great improvements in the quality of nursing research, however, nursing research was not having an impact on the education and practice of nurses. Abdellah (1970) observed that "A major gap in nursing is translating significant research findings into practice and education" (p. 245).

In response to written concerns and in response to observations by others drawing similar conclusions about the existing gap between nursing research and practice, several groups rallied to help the cause of

research in nursing. Ketefian (1975) conducted a study illustrating the claim that nursing research was not affecting nursing practice. Major studies (CURN project, 1980-1983; Krueger, Nelson, & Wolanin, 1978) were undertaken to explore methods of resolving the gap between research and practice. These researchers, (CURN project, 1980-1983; Krueger, Nelson, & Wolanin, 1978) did not anticipate difficulties in finding studies that met study protocols for useability in practice. They discovered that nurses were not prepared to evaluate research for its usefulness in practice; even so the studies claimed successful results.

There have been many changes in nursing research since the 1970's. The quantity and quality of nursing research from 1952 to 1980 increased (Brown, Tanner, Padrick, 1984) and more nurses are currently educated for research roles (Maraldo & Solomon, 1986). The American Nurses' Association in 1985 developed research priorities and goal statements to facilitate reaching these priorities by the year 2000. The American Nurses' Association says that, "The future of nursing practice and ultimately, the future of health care in this country depend on nursing research designed to

constantly generate an up-to-date, organized body of nursing knowledge" (Directions, 1985).

Despite all the attention and energy focused on nursing research, there still remains a major problem: very little is known about the use of nursing research in practice. There are varying perspectives and opinions about what constitutes the use of nursing research in practice.

One perspective suggests that the use of research in practice consists of using research products in practice, while an alternative perspective suggests that the use of research in practice consists of the use of the research process to resolve nursing and patient care problems encountered in the practice setting. These differences in perspectives are not in and of themselves problematic, but their effects may be, especially if only one view is promoted. The different perspectives affect many facets of the use of research in practice, such as: how and what students are taught about research, strategies employed to increase the use of research in practice, and indicators used to evaluate the impact of using nursing research on practice and patient care.

The problem, lack of knowledge about the use of nursing research in practice, is important for study

because its consequences are critical to the practice of nursing. In order for nursing research to have its hoped for effects on the quality of patient care and health care, nurses need more knowledge about what constitutes the use of research in practice. As nurses gain increased knowledge and awareness about the use of research in practice, potential options for resolving the gap between nursing research and nursing practice will be generated. The gap between nursing research and practice needs to be resolved if nursing as a profession is going to be based on an "up-to-date body of knowledge."

Moreover, this problem, lack of knowledge about the use of research in practice, has important implications for theory. The author believes that how you think about research, your knowledge about research and its value to you, influences your ability and motivation to use research in practice. Increased knowledge about possible ways to use research in practice would increase the number of available options and would set the stage for further research exploring chosen options.

Many possible approaches to resolve this problem have been suggested. Some suggest increasing the availability of nursing research findings through

establishment of a clearinghouse for nursing research (Miller & Messenger, 1978). Others recommend research conferences targeted jointly for researchers and clinicians. Some suggest continuing education to develop nurses' skills in evaluating research. Still others indicate that the best and quickest way to resolve the gap between research and practice is through formal education for nurses (Faculty interviews, personal communication, October-December, 1987).

This study sheds some light on one possible route for resolving the gap between research and practice, academic education. This solution was examined from the perspective of employed master-prepared graduates of the Oregon Health Sciences University (OHSU) School of Nursing. This school was selected for this case study because of accessibility and because of recent revisions in the graduate curriculum that make nursing research a primary focus (The Oregon Health Sciences University, 1985-1987).

The purpose of the study was to affirm and expand what is known about the use of research in practice. This study provides information that could be useful to administrators and faculty of nursing programs in planning and evaluating graduate school experiences for

future students. The study also provides information about factors that influence the use of research in practice which may be useful to nursing administrators as they explore ways of supporting the use of research in practice in their organization. Increased knowledge about the use of research in practice will contribute to helping nursing reach the high ideals held by The American Nurses' Association (Directions, 1985), Lindeman (1976), and others (Dickoff, James, & Semradek, 1975) who suggest that excellence in nursing practice will only occur when clinical nurses are actively involved in nursing research.

Review of the Literature

The literature review is divided into six sections: a) commentaries addressing the need for studies about the use of research in practice, b) early attempts to increase the use of research in practice, c) barriers to the use of research in practice, d) an alternative perspective about the use of research in practice, e) organizational elements affecting the use of research in practice, and f) outcomes of master-preparation in relation to the use of research in practice.

Commentaries Addressing the Need for Studies about the
Use of Research in Practice

The first twenty years of nursing research, 1948-1968, have been labeled as the developmental years (Krueger, Nelson, & Wolanin, 1978). Early studies explored the role of the nurse and nursing education. Over the years there has been a call to focus the direction of future research towards priority clinical nursing areas (Abdellah, 1970; CURN project, 1980-1983; Directions, 1985; Faculty interviews, personal communication, October-December, 1987; Ketefian, 1975; Krueger, Nelson, & Wolanin, 1978; Notter, 1971).

In response to this need, a Delphi study (Lindeman, 1975) was conducted by the Western Interstate Commission for Higher Education (WICHE). Panel members ($N = 433$) were surveyed and identified over 2,000 priorities in clinical nursing research. Studies exploring methods for achieving greater use of research in practice were ranked the second highest of all those prioritized. Lindeman suggested that increased use of research in practice would make major contributions to patient care.

Twelve years later, the use of nursing research in the practice setting continues to be a high priority research concern as demonstrated by a three-round

Delphi study of 129 nursing and health administrators (Henry, et al., 1987). The second highest ranked research priority was the question, "How can nursing research in the practice setting be used to decrease cost, improve the quality of care, and increase patient and nurse satisfaction?" (p. 312).

These studies demonstrate the continuing importance the nursing profession places on the use of research in practice. However, they also demonstrate that there remain many unresolved issues about the use of research in practice which continue to challenge the profession of nursing.

Early Attempts to Increase the Use of Research in Practice

In the 1970's several major studies were conducted that focused on the use of research in practice. These studies assumed that applicable published nursing research existed and that methods needed to be developed for using this research in practice. Two of these studies will be reviewed.

The Western Council for Higher Education in Nursing (WCHEN) was the originator of a six year Regional Program for Nursing Research Development (Krueger, Nelson, & Wolanin, 1978). The purpose of the project was to help nurse researchers transform their

ideas into useful research. The Regional Program for Nursing Research Development consisted of three separate parts: (1) collaborative research: non-targeted, (2) collaborative research: targeted, and (3) research utilization. The third part of the project, research utilization defined as the use of research-based findings in practice, will be the focus of this review.

The research utilization project was based on a five-phase resources linkage model. The participants ($N = 133$) recruited in the first phase were accepted as pairs ($N = 68$), and were not from the same agency, but from the same community or geographic area. Prior to attending the first workshop (phase 2), each pair was to identify a nursing care problem and three nursing studies addressing that problem.

The first workshop (phase 2) focused on change process, problem refinement, evaluation of research, and development of a plan for implementing research findings. Following the workshop, participants were given five months to implement projects in their agencies (phase 3). Five months after workshop 1, participants returned to workshop 2 (phase 4) where reports of implementation were shared, analyzed, and evaluated. The last phase (phase 5), done by phone and

letter, followed the continuation of the projects in each agency.

A problem solving framework was the impetus for looking at existing research findings. However, nurses had difficulty finding studies addressing their identified problems. Also, nurses were, for the most part, not prepared to evaluate the research identified for applicability in practice.

The five-phase resources linkage model was tested with three different groups of nurses and some phases were revised between groups so that in the end three different models were used in the study. The preparatory assistance given participants increased with each group, especially in guiding problem identification towards areas where studies with applicable findings for use in practice had been discovered.

Krueger, Nelson, and Wolanin (1978) reported that sixty-six per cent of the pairs had successful outcomes, helping other nurses use nursing research in clinical practice. Even so, Krueger, Nelson, and Wolanin recommended that no large scale research utilization projects be attempted until research findings were identified, evaluated, collated, and put into a form for easy location and use.

A second major project that developed and tested a method for using research in practice was the Conduct and Utilization of Research in Nursing project (CURN Project, 1980-1983; Haller, Reynolds, & Horsley, 1979; Horsley, Crane, Bingle, 1978), a five year federal grant funded project initiated by the Michigan Nurses Association. Three groups were involved in conducting the study: University of Michigan School of Nursing, Institute for Social Research, and Michigan State University School of Nursing. The purpose of the study was to help nurses working in acute care settings use research-based knowledge in their practice through the development and testing of one method.

Thirty-two hospitals in the state of Michigan, Joint Commission accredited (JCAH), nonpsychiatric, and having more than ninety-nine beds, participated in the study. The hospitals were further stratified based on number of beds and whether or not they were in a metropolitan area. Using hospitals and not individuals as the sampling unit reflects the researcher's perspective that using research in practice is the responsibility of the organization and not individual nurses. Seventeen hospitals were identified as experimental sites and fifteen hospitals as comparison sites.

The study identified six phases of research utilization: 1) identifying practice problems and a current research base pertaining to identified problems, 2) evaluating whether the research-based findings were pertinent to the identified problem, 3) designing a nursing innovation, 4) conducting a pilot of the innovation, 5) making a decision to accept, change, or reject the innovation, and 6) planning ways to extend the innovation to the rest of the hospital.

Initially, criteria for identifying research findings suitable for use in practice settings were developed. Research-based findings that met the criteria for use in clinical practice were identified and developed into protocols. Only ten different protocols were developed because most nursing research studies did not meet the project criteria for usability in practice.

Based on the ten developed protocols a patient care problem identification guide was developed. The problem identification guide listed fourteen potential patient problems and was used in conjunction with a structured interview schedule to identify patient problems that were perceived as high priority at each hospital in the study. These tools, with a pre-established list of potential patient problems, were

used to assist nurses from the seventeen experimental hospitals in identifying their priority problems.

Next, a plan, using research-based findings which addressed the previously identified high-priority problem, was developed by each hospital in the study. Staff development nurses and administrators prepared staff nurses on one unit to test the protocol by incorporating the protocol into their practice. After nursing staff preparation, the innovation was piloted on the unit. Data collected on specially developed forms were analyzed and outcomes noted.

As a result, ten research-based practice protocols were developed and field tested, criteria for identifying research findings that could be used in practice were developed, many terms were defined, and a method for incorporating research-based findings was developed and tested.

Both of the reviewed studies on methods for introducing research in practice (CURN project, 1980-1983; Krueger, Nelson, & Wolanin, 1978) focused on the use of research-based findings in practice. Important variables identified include: nurse and/or organization responsibility for use of research in practice, varied ways to foster a research-based practice, the need for studies focusing on problems of

concern to staff nurses, and the need for preparing staff nurses to evaluate research for potential use in practice. The CURN project researchers, in an attempt to learn from problems identified by the WICHE project, reviewed the literature and developed protocols first to relieve participants of the difficulties discovered in this area. However, the CURN project literature review identified only ten research-based findings meeting the criteria for use in practice. These projects tested essentially similar approaches to resolving the problem of helping nurses use research in their practice.

Barriers to the Use of Research in Practice

A different approach to gaining knowledge about what must be done to help nurses use research in their practice was demonstrated by the following studies that assessed the current status of use of research in practice and identified barriers that interfere with the use of research in practice. One of the first studies done in this area was conducted by Ketefian (1975).

Ketefian studied the effect of research findings about techniques of measuring oral temperature on the practice of registered nurses. Ketefian developed five criteria for identifying specific research findings to

be used as a prototype in the study. Oral temperature techniques, tested in studies meeting the specified criteria, were identified during a review of Nursing Research, 1961 to 1973, and American Journal of Nursing, for ten previous years.

The nurses ($N = 87$), from a variety of settings in New York and Massachusetts, were selected for inclusion in the study by their supervisors. A questionnaire was developed to evaluate the nurses' knowledge about measuring oral temperatures. Ketefian reported that only one nurse out of the 87 identified correct placement time for oral thermometers. Also, Ketefian reported that even though sixty-three per cent of nurses reported use of the oral mode for assessing temperature, the majority, ninety-eight per cent, reported that the rectal mode was the most accurate for assessing temperature. Ketefian concluded that nurses were either completely unaware of research findings or else they could not use research findings because of unknown barriers.

Miller and Messenger's (1978) study was based on problems identified from many opinion articles that discussed difficulties in applying nursing research findings in practice. Data were collected via questionnaires sent to 499 randomly selected nurses

from the Genessee Valley Nurses' Association of the New York State Nurses' Association in an attempt to identify specific obstacles to applying nursing research findings in practice. All of the 215 respondents identified accessing research findings as the most frequently encountered difficulty in using research findings in practice. Eight-nine per cent of respondents reported that they occasionally, seldom, or never read or understand research reports. Eighty-four per cent indicated that when they did find, read, and understand research reports the findings were not relevant for practice. It should be noted that the questionnaire presented pre-selected response options about potential obstacles and their solutions which could have limited the potential range of responses.

Stoke's (1981) study, like that of Miller and Messenger (1978), was in response to problems and difficulties in applying nursing research findings in practice. A close-ended questionnaire was sent to 95 staff nurses employed in 23 Navy hospitals to determine whether research findings were reaching practicing nurses and the effect of these findings. The study concluded that "research findings continue to have little effect on current nursing practice by staff nurses" (p. 233). A major limitation of the study was

the use of a close-ended questionnaire that limited responses to those pre-determined by the researcher.

Brett (1987) recently surveyed 279 nurses employed full time in acute care settings to determine whether they used nursing research findings in practice. The use of nursing research findings in practice was evaluated by a questionnaire which briefly described fourteen innovations and rated nurse's awareness of these innovations and whether they used them in their practice. The fourteen innovations consisted of nine research-based findings that Brett identified from five different nursing research journals, reviewing years 1978 to 1983, and five innovations from the CURN project. The nine published research-based findings were identified in accordance with CURN project criteria. Data were collected from 216 responding nurses who were selected by a nonrandom sample which was stratified based on the employing hospital bed size. Brett reported that some nurses were at least aware of all fourteen innovations. Five innovations were noted by some respondents as being implemented in their practice, and one innovation was indicated as being used always in practice by at least some of the respondents.

In Brett's study only fourteen innovations were identified from research published in 1982 or earlier. Brown, Tanner, & Padrick (1984) reported that the quantity of published nursing research has increased between 1952 and 1980 and yet Brett identified only nine research-based findings in addition to the ten identified by the CURN project. Brett, in a list of characteristics of nurses who tend to adopt research innovations, suggested a positive correlation between reading Nursing Research and RN and adoption of the fourteen innovations. Unfortunately, Brett failed to state what percentage of the 216 respondents were represented by this correlation. Brett also suggested a negative relationship between master's degree preparation and innovation adoption. However, only two per cent of the respondents had master's preparation. Brett's article suggested that important variables for study include relationships between type of journal read, level of education and the use of research in practice.

All of the studies reviewed thus far (Brett, 1987; CURN Project, 1980-1983; Ketefian, 1975; Krueger, Nelson, & Wolanin, 1978; Miller & Messenger, 1978; Stokes, 1981) focused on the use of research-based findings in practice. Many studies evaluating the use

of research in practice defined "use of research in practice" as the use of research-based findings in practice (Brett, 1987; Ketefian, 1975; Miller & Messenger, 1978; Stokes, 1981). Data from these studies suggested that nursing research findings do not influence nursing practice and patient care. No studies were reported using other indicators to evaluate the use of research in clinical practice.

An Alternative Perspective about the Use of Research in Practice

There is an alternative perspective about the use of research in practice which suggests that the use of research in practice is the process of using research methods to resolve practice problems (Allen, 1986; Dickoff, James, & Semradek, 1975a, 1975b; faculty interviews, personal communication, October-December 1987; Hunt, 1987). The focus of this definition is not so much on findings as on the process, and that the research have immediate application to present problems.

This alternative perspective views the role of the nurse as being both scientist and practitioner. The "scientist-practitioner" role, according to Barlow, Hayes, and Nelson (1984), has three components which include: "consumer of new research findings from

research centers," "evaluator of his or her own interventions using empirical methods that would increase accountability," and "researcher, producing new data from his or her own setting and reporting these data to the scientific community" (p. 5).

Dickoff, James, and Semradek (1975a) also suggested that the role of the nurse is simultaneously both that of scientist and practitioner. They recommended that research be done in service settings, on a daily and on-going basis, and that all nurses participate. They (Dickoff, James, & Semradek, 1975b) suggested that when nurses conduct research within their own clinical setting numerous advantages are provided. Advantages specified by Dickoff et al. included: making research more economical, increasing political freedom, stimulating the invention of new designs that fit "natural settings," and "using inquiry rather than supervision as the method for promoting quality service and minimizing service horrors" (p. 172). Dickoff, James, and Semradek (1975b) say that research results include more than findings, and could include changing attitudes, increasing attention to a problem, fostering habits of looking for needed change opportunities, and increasing political ability. They conclude (Dickoff, James, & Semradek, 1976) that "a

valid research base for nursing is a spirit of inquiry broadly based" (p. 65).

A demonstration project, which appeared to be consistent with this alternative perspective of the use of research in practice (Hoare & Earenfight, 1986), attempted to demonstrate the dual role of nurses as both scientists and practitioners. In a preliminary report, the purpose of the project was described as facilitating the initiation, design, and conduct of research by nurses in response to identified problems. Nine health care agencies participated in the unit-based project which included: educational courses, mentoring, and consultation from doctorally-prepared researchers. The model was based on experience with 33 nurses (22% of the nursing staff) nurses who volunteered for the project. These nurses, all baccalaureate or master-prepared, were split into three groups and each group facilitated the use of research on their own unit. The units were currently in the process of conducting research that addressed current unit problems and simultaneously provided data about the effects of unit-based research.

This study (Hoare & Earenfight, 1986) represents beginning efforts to understand the impact of this alternative perspective by increasing the use of

research in clinical settings. Further research exploring this perspective and its application in practice settings is needed.

Organizational Elements Affecting the Use of Research in Practice

Organizations were identified as a factor that affect the use of research in practice. Many elements within organizations that support the use of research in practice have been suggested.

Egan, McElmurry, and Jameson (1981) reviewed the conceptual framework from their study evaluating the research climate of an acute care hospital. They suggested that the role of nurse executives in facilitating research within organizations is critical. Their framework identified eight areas, possibly influenced by nurse executives, that affect the research climate in an organization. Factors to be assessed when evaluating the research climate include: incentives to encourage personnel to participate in research, funding mechanisms for research, availability of essential facilities and resources for research, and the presence of some personnel with previous research experience or interest. Unfortunately, because of confidentiality concerns, only parts of the study (Egan, McElmurry, & Jameson, 1981) were reported.

Davis (1981) identified several apparent needs while promoting nursing research in a clinical setting. Davis noted two potential ways to help nurses legitimize research activity: granting "released clinical time" for research and recognizing nursing research through the institution's formal reward system.

Dean (1982) focused on the important role of nurse managers in facilitating the use of research in practice. She suggested that nurse managers can facilitate research in their practice settings by supporting research verbally and financially, locating research planning meetings away from immediate patient care areas, encouraging wide communication about research activities, and developing teams of nurses with mixed research and clinical skills.

Cronenwett (1986) identified several issues that affect the use of research in clinical practice. According to Cronenwett, barriers to use of research in practice include: multiple levels of nurse preparation for entry into practice, little if any commitment on the part of nurses to use or generate research findings in practice, poorly defined research role in job descriptions of nurses, lack of sufficient full time equivalents to cover time required by research related

activities, and staff nurses' perception that research projects are "extra work." Cronenwett suggested that organizations facilitate the use of research in practice by incorporating research activities into career ladders, encouraging a climate of critical thinking and inquiry, giving rewards for research activities, encouraging colleagues to be supportive of peer involvement in research activities, developing research support groups within the organization, and providing some funds for research in the budget of each nursing unit.

So far, many factors have been suggested that support the use of research within the organization. However, only one study (Egan, McElmurry, & Jameson, 1981) attempted to validate these factors in one setting, and did not report results completely.

Outcomes of Master-Preparation in Relation to the Use of Research in Practice

Graduate education was identified as a route for resolving gaps between research and practice and for promoting the use of research in practice. The next two studies reviewed were undertaken for the purpose of evaluating outcomes of specific graduate programs in relationship to the objectives of the program. The writer chose to only review parts of the studies that

focused on outcomes of master-preparation in relation to the use of research in practice.

Hayter (1978) did a followup study of graduates from a master's program to determine what kinds of experiences, work or educational, they had or planned to have and to determine what graduates' and their employers' opinions were about the appropriateness of the graduates' academic education. Questionnaires were sent to the 87 graduates, completing between 1970 and 1975, and to their employers by participating graduates. Of the 74 graduates (86%) that returned the questionnaires, 18 reported involvement in research activities since graduation. Graduates consistently rated themselves higher on their preparation for systematic inquiry than did their employers. Hayter (1978) suggested that employment longevity of less than six months is one reason why 1975 graduates received overall lower ratings by employers than graduates from other years.

Smith's (1980) study is a replication of Hayter's (1978) in a different setting. Smith mailed questionnaires to 53 graduates, receiving degrees from 1974 (the beginning of the program) through 1978, and to the graduate's employers. Data from 37 graduates (77%) and 20 employers (54%) who returned the

questionnaires identified research and scholarly endeavors as the least performed of all of the master's program objectives after graduation. Smith did not examine any relationship between the nature of the tasks specified by employers and the objectives of the master's program.

Both studies, Hayter's and Smith's, indicated a need for further exploration of the use of research in practice. Were results affected by varied interpretations of what constitutes the use of research in practice? Perhaps the discrepancy in rating scholarly activities found by Hayter was the result of a difference between graduates and employers in their conceptions about systematic inquiry. Both studies acknowledged the importance of input from graduates and employing organizations when evaluating outcomes of master's preparation.

There are varying opinions about the role of research in graduate programs. According to Ackerman (1976), reasons for including research in the curriculum of master's degree programs include: preparation for doctoral work, preparation for completion of required thesis, preparation for later independent research, and to become a research consumer. The research focus in graduate school should

include: developing an appreciation and enthusiasm for using research-based findings in practice (Ackerman, 1976) and preparing nurses to critically evaluate and apply research results in practice settings (Firlit, Kemp, & Walsh, 1986).

Alternative opinions about the role of research in the education of graduate nurses exist. Allen suggested that one purpose of graduate education is to teach students to "value the content and methods of science in developing their practice and in pursuing problems which require investigation" (1986, p. 151). Hunt (1987) described the role of teachers in facilitating research as being that of promoting "research-mindedness." It was suggested that it is not feasible or practical to teach nurses all research methodologies. However, if teachers would promote the development of research-mindedness in graduates they would then be prepared to critically evaluate present practices and change practice based on sound data.

There is obvious disagreement in the opinion articles presented. Ackerman, Perry, and Firlit et al. based their perspectives about research goals for master-prepared graduates on the assumption that use of research in practice means use of findings. Hunt and Allen based their perspectives about research goals for

master-prepared graduates on an alternative perspective that viewed use of research in practice as a process. The perspective of Ackerman, Perry, and Firlit et al., that use of research in practice is limited to the use of research-based findings, when tested in practice settings was found to be problematic (Brett, 1987; Ketefian, 1978; Miller & Messenger, 1978; & Stokes, 1981). Perhaps the reason previous studies (Brett, 1987; Ketefian, 1978; Miller & Messenger, 1978; & Stokes, 1981) did not identify nurses using research in their practice was because those studies defined use of research as use of research-based findings in practice. The perspective of Hunt and Allen, that use of research in practice consists of more or something different than just the use of findings, has not yet been tested.

The review of literature indicated the need for studies exploring the use of research in practice. Perhaps nurses were in fact using research in their practice, but not in ways that fit within traditional definitions of research and research utilization. Also, many authors listed factors that may influence the use of research in practice, but only one study (Egan, McElmurry, & Jameson, 1981) explored or validated any of these factors. Further study was needed.

Conceptual Framework

The first part of the conceptual framework defines essential terms used in this study in an attempt to limit interpretations to those intended by the researcher. The second part of the conceptual framework presents a model that provided an organizing basis for the study. The concepts, definitions, and relationships in this framework were extracted from the literature, faculty interviews conducted by the researcher, and from personal experience of the researcher.

Definitions of Terms

In order to more accurately address current theoretical perspectives about the use of research in practice, the following terms need definition: research, research utilization, the phrase "use of research in practice," and the phrase "supporting the use of research in practice."

The term "research" means different things to different nurses as demonstrated by the wide variety of definitions encountered in the literature. Sometimes the term "research" is used as a noun and other times as a verb (Webster, 1956). The author chose to define research as "disciplined scholarly inquiry" and stipulated that research activities are pre-planned and

have effects that transcend the setting where the study occurred.

It is important to note that in some practice settings the term "research" may not be used as a label for disciplined scholarly inquiry activities that are pre-planned and have effects that transcend the setting. The term research brings with it a certain mystique, and therefore, in some settings it may be politically expedient to label research activities with terms such as quality assurance, systematic study, problem solving, nursing process, or program evaluation. This is not a complete listing of terms that might be used as substitutes to label research activities and does not imply that all of these labels always refer to research.

Research utilization has been defined as "transferring research-based knowledge into innovation protocols for nursing practice" (Haller, Reynolds, & Horsley, 1979, p. 46). The focus of this definition is on "knowledge," findings, or products from research that are synthesized into organizational standards of care. Use of research products (research utilization) also includes the use of results, instruments, and intervention procedures from reported research studies by individual nurses in relation to identified practice

problems. The Haller, Reynolds, and Horsley perspective about research utilization has been frequently cited in opinion and research articles.

The author observed that "use of research in practice" and "research utilization" are sometimes used interchangeably. However, in this study "research utilization" was defined as being a part of the "use of research in practice." This was done in an attempt to broaden the sphere of what might be considered by nurses as examples of using research in their nursing practice. Also, the author was aware of differences in the definition of research utilization which are in part reflective of one's definition of research (Faculty interviews, personal communication, October-December 1987). Another reason for using the term "use of research in practice" was an overt attempt to avoid semantic entrapments. Therefore, in this study "use of research in practice" refers to four and perhaps more processes. The processes that are part of the use of research in practice include: a) use of research products (research utilization), b) use of research methods (conduct of research, quality assurance, program evaluation), c) use of the research process in practice for resolving practice problems (decision-making), d) use of research-mindedness as an approach

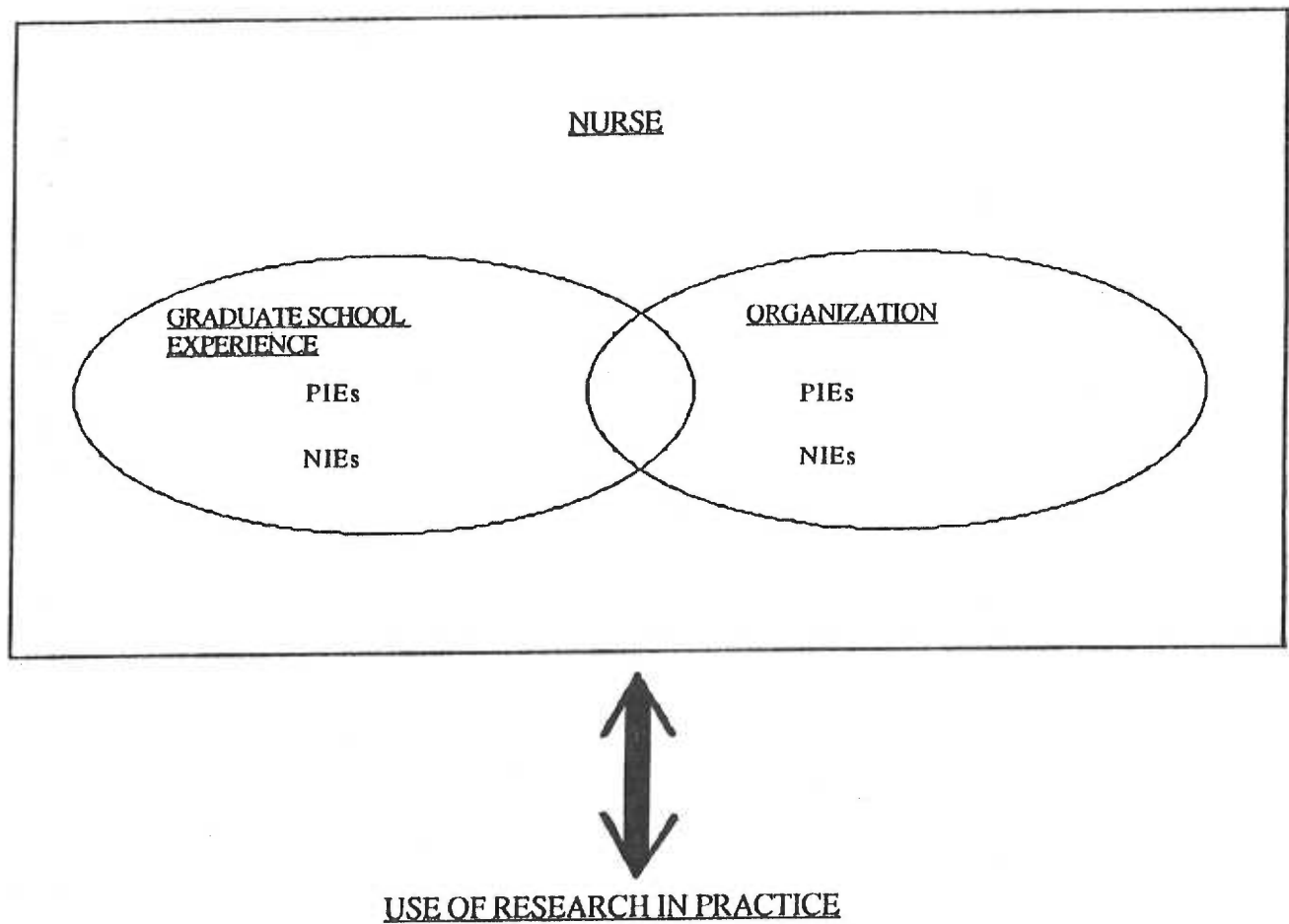
to patient care, e) and other yet to be identified "disciplined scholarly inquiry" activities, cognitive or behavioral, that are pre-planned and have effects that transcend the setting.

"Supporting the use of research in practice" was defined as promoting, advocating, backing, and defending the use of research (as previously defined) in practice. This support can assume many forms, some of which have been identified in the literature review and others which have not yet been discovered or at least made explicit.

Conceptual Model

The conceptual model for this study (see Figure 1) views the nurse as the primary determinant of whether or not he/she uses research in practice. The nurse has personal and professional past experiences that determine to a large extent how his/her world is viewed and input interpreted. The nurse's interpretation of inputs affects his/her use of research in practice. This is not to say that other factors have no bearing on the nurse's use of research in practice. However, even with ideal supports for using research in practice, the individual nurse in the end controls the extent of the use of research in practice. For example, is use of research in practice given just

Figure 1. Elements that influence nurses' use of research in practice



Note: PIEs = Positive influencing elements
NIEs = Negative influencing elements

superficial lip-service? Or does the use of research in practice infiltrate all aspects of the nurse's approach to nursing problems and patient care?

Two factors that provide input that affects whether or not master-prepared nurses use research in their practice are identified in this model: the graduate school experience and variables within organizations where nurses are employed. Positive and negative influencing elements exist within each of these factors. The two factors and their interaction within nurses determine the subsequent use of research in practice.

The first factor affecting master-prepared nurse's use of research in practice is the nurse's perception about graduate school experience. Graduate school experience was defined broadly to include many varied elements such as formal coursework, informal discussions, networking opportunities with faculty and peers, and a variety of other non-specific elements that are all part of the graduate school milieu. Other possible positive influencing elements (PIEs) and negative influencing elements (NIEs) within graduate school experience have been identified and described based on input from participants in the study.

The second factor affecting the use of research in practice by a master-prepared nurses is the organization where the nurse is employed. The majority work for a variety of organizations that have some control over the function of all employees. Therefore, the nature of tasks and responsibilities delegated to nursing will in part relate to the kinds of services the organization provides. These tasks and responsibilities may be specified in the nurse's job description and have some impact on the nurse's use of research in practice.

Administrators in employing organizations must be supportive of the use of research in practice in order for it to survive and prosper within an organization. The administrator's attitude about research activities determines the extent to which these activities are allowed, tolerated, supported, or encouraged (Dean, 1982; Egan, 1981; faculty interviews, personal communication, October-December 1987). Other possible PIEs and NIEs within organizations have been identified and described based on input from participants in the study.

Finally, there is an on-going, two way relationship between the nurse and his/her use of research in practice. Experiences of the nurse in

using research in his/her practice and the nurse's interpretation of these experiences has an effect on whether or not this nurse will continue to use research in practice.

Research questions

Specifically, the research questions identified for study include:

1. What nursing behaviors and thought processes did master-prepared nurses label as the use of research in practice?
2. What elements, as perceived by master-prepared nurses, influenced the use of research in practice (Horsley, 1985)?
3. What were the effects of the use of research in practice on patient care, nursing, health care organizations, and other effects as perceived by master-prepared nurses?

Chapter II

METHODS

The purpose of this study was to affirm and expand what is known about the use of research in practice. This chapter presents information about the study's design, subjects, data collection, procedures, and data analysis.

Design

The research is a descriptive case study. Its purpose was to increase knowledge about research and its use in practice and to identify elements within the factors person, graduate education experience, and organization that influence the use of research in practice. Because little is known about what comprises the use of research in practice, except for what is known about the use of research-based findings in practice, a descriptive study was indicated. This study lays the groundwork for further research with different nurse populations.

Subjects

The target population for this study was master-prepared nurses. The accessible population was graduates of the Oregon Health Sciences University (OHSU) School of Nursing. The OHSU School of Nursing designed its graduate curriculum with nursing research

as a primary focus (The Oregon Health Sciences University, 1985-1987). The importance and high priority the School of Nursing places on research in the graduate program was obviously apparent to students (C.A. Lindeman, personal communication, November 3, 1987). Since this nursing program emphasizes research, graduates were assumed to be a rich resource for data about the use of research in practice and factors that affect its use. These were the reasons that master-prepared graduates of OHSU School of Nursing were selected for this case study.

A random sample ($n = 8$) was drawn from Master in Science (M.S.) graduates of OHSU School of Nursing who completed graduation requirements prior to January 1, 1987 ($N = 28$). Other criteria for inclusion in the study included: current employment as a nurse, availability for interview within ninety miles from the school of nursing, and consent to participate.

Potential participants, identified by random sampling, were mailed a letter (see Appendix A) explaining the study, time commitments, and procedure. Enclosed with the letter was a consent form (see Appendix B) and an abbreviated copy of the interview guide (see Appendix C). Interviews were scheduled by phone and some were reconfirmed by a followup phone

call. It was ascertained at the time of scheduling whether the potential participant met inclusion criteria. Two graduates were excluded from the study after numerous unsuccessful attempts to contact them. Also, one other graduate, being too busy to participate, was excluded from the study. These three graduates were replaced by random selection for a total of eight participants ($n = 8$) in the study.

At the time of scheduling an attempt was made to identify an environment for conducting the interview that would be quiet, interruption-free, and convenient for the participant. Five of the interviews were conducted in the participant's office, one in the participant's home, one in a school of nursing conference room, and one in a student lounge. The majority of interviews were conducted early in the participant's work day. Two were conducted in the evening on the participant's day off, and one was conducted at the end of the participant's work day.

Instrument Development

The interview guide was developed by the researcher and based on literature review, interviews with faculty, and experience of the researcher. The questions in the interview guide (see Appendix D) address the four areas identified in the conceptual

framework: nurse, graduate school experience, organization, and use of research in practice.

A group of experts, consisting of committee members and School of Nursing faculty, reviewed the interview guide and made suggestions for changes. The interview guide was revised based on these recommendations.

The interview guide was piloted with a group of current graduate students ($N = 3$). Subjects that participated in the pilot demonstrated interview times of approximately one hour, one and one-half hours, and two and one-half hours. Most of the variance was related to the potential for long responses to the open-ended questions. Unfortunately, the pilot turned out to be deficient because it only focused on interview guide problems and did not address other methodological issues. The pilot participants were personal friends of the researcher who reacted differently to the interview process than did participants in the study. For example, during the pilot, lists about influencing elements and effects that had been extracted from the literature were quick and easy to validate.

The revised interview guide has content validity based on review of the literature, review by a panel of

experts which included school of nursing faculty, and personal experience of the researcher. Initial questions address whether or not use of research in practice was occurring in the work setting. Questions about the use of research in practice were asked first because of the researcher's belief that this would result in a broader range of responses that were not narrowed by recent thoughts about graduate school experience. The first questions are open-ended and are followed by a more focused exploration of items that could be categorized as use of research in practice.

Next, elements that influence use of research in the organization (PIEs and NIEs) are addressed. This is followed by questions addressing PIES and NIEs in the "graduate school experience" that affect the graduate's use of research in practice. Then participants are asked to identify any effects they had observed as a result of using research in practice.

The interview guide was used to assure that all general areas were included in each interview. During the interviews the guide was not adhered to rigidly so that the interviews could be more conversational. Several questions on the interview guide are pertinent to a specific research question in order to ensure

complete coverage of each research question (see Appendix E).

Data Collection

Data were collected by interview conducted on a face-to-face basis by the researcher. Use of the interview process for data collection encouraged more complete and more complex responses (Polit & Hungler, 1987).

It was important for the interviewer to use permission-giving introductions to some questions in order to decrease the incidence of socially desirable responses. Participants needed to be made aware that "they are not alone in their behaviors or attitudes so that admitting to them becomes less difficult" (Polit & Hungler, 1987, p. 235). Also, participants were asked for examples to validate and clarify their responses.

Some data were recorded during the interview. Additional recording for completeness of thought was done immediately after the interview under the appropriate question on the interview guide. In addition, interviews were taped. The data on the audiotapes were not transcribed (with the exception of one tape), but the tapes were used to supplement notes taken during the interview and were all reviewed a

second time to check the accuracy of the transcripts in conveying responses.

The interviewer became less dependent on the interview guide as the interviews progressed. The interviewer was for the most part an active listener during the interview commenting only when redirection was necessary. At the end, specific responses were clarified and in some cases items from the literature presented as lists to the participant for validation. However, the majority of participants did not have time to respond to all of the lists about influencing elements and effects of using research in practice that had been gleaned from the literature. Therefore, the lists were only used after the first interview as cues when participants were having difficulty with a general question.

The interviews closed with a summary by the researcher about definitions of the use of research in practice. Participants were asked to react to each part of the definition and validate each part with an example from their practice.

After the interview, participants were asked to complete a demographic data sheet (see Appendix F) which included information to help explain findings. The demographic data included position title,

organizational longevity (number of years employed with the current organization multiplied by the average number of full time equivalents), and specialty area within nursing. Participants were also asked to provide the researcher with a copy of their current job description. However, only two job descriptions were collected. The missing data necessitated dropping job description data analysis from the study.

Anonymity of participants was assured by coding each interview with an identification number and by presenting results in such a way that individual persons and institution were not identifiable. It was explained that the study was not designed to evaluate one person's use of research in practice, but rather to evaluate the combined responses of many nurses. All audiotapes of interviews were destroyed following the completion of this study. The study was reviewed by OHSU Committee on Human Research and determined to be exempt (see Appendix G).

Analysis

The data collected were grouped within the different areas of the conceptual framework for each interview. During each interview some notes were written and then immediately following the interview, additional notes were added as the researcher reviewed

the audiotape. In one interview, the participant's use of research in practice was so thoroughly integrated that it was necessary to transcribe the interview in its entirety in order to facilitate identification of interview guide related responses.

Data were sorted physically so that data pertinent to each question on the interview guide and each category were placed together. Some data were placed in several categories. The audiotapes were reviewed again at a later time and compared to previous notes for accuracy.

Next, all participant's responses to each question were compiled on one interview guide and sorted according to research question (see Appendix E). Each response was coded with the participant's identification number, so that variables such as organizational longevity and general role title could be associated with the response.

After the data were appropriately organized, the data relating to one research question were read. Similar responses were grouped and variant responses were noted. Categories emerged and were later refined to provide an organizing scheme for the presentation of results. These categories expanded the conceptual framework of the study.

Chapter III

RESULTS AND DISCUSSION

Description of the Participants

The participants in this study ($n = 8$) were randomly selected from graduates of the newly instituted M.S. program of the OHSU School of Nursing who completed graduation requirements prior to January 1, 1987 and were available for interview within ninety miles of the school of nursing ($N = 28$). Graduates gave a variety of responses about why they were willing to participate in the study. The majority expressed a sense of feeling obligated to participate as recent graduates; others expressed an appreciation for the opportunity to discuss their experiences since graduation.

All participants were currently employed in fulltime nursing positions. Three participants were in nursing management roles, three in direct care roles, and two in research related roles.

Length of employment with an organization was reported as organizational longevity since this measure provides a way to compare participants with full-time and part-time employment, and accounts for changes in employment status during the duration of employment with an organization. Organizational longevity is the

product of length of employment with an organization in years and average full time equivalent (FTE). For example, two years of employment with one organization at .5 FTE (twenty hours per week) would be equal to one year of organizational longevity. Organizational longevity varied considerably between participants, with a range of one-half year to twelve and one-half years, and a mean of slightly less than seven years.

Participants in management roles had the most organizational longevity with a mean of almost 10 years. Participants in research related roles had mean organizational longevity of almost seven years. Participants in direct care roles had the least organizational longevity with a mean of only three and one-half years.

Five participants were employed with the same organization as they entered graduate school, throughout graduate school, and since graduation. Four of these five participants continued in the same position throughout this time period. And, three participants changed to new positions with new organizations during or following graduate school.

Participants represented a variety of specialty areas and most participants identified more than one specialty area. Specialty areas were not reported

because their specific nature might violate confidentiality.

Use of Research in Practice

The first research question was "What nursing behaviors and thought processes did master-prepared nurses label as the use of research in practice"? As a way to address this question, participants were asked whether or not they found it feasible or practical to use research in their practice. All eight participants were able to describe at least one way that they used research or supported others' use of research in their practice. Participants' responses about using research in their practice were quite varied. One participant initially identified only one use of research in her practice, findings from one published study. A second participant identified assisting others with the conduct of research as the primary way she used research in her practice. And for a third, use of research in practice was so well integrated into all that this participant did that it was difficult to separate out specific answers to interview guide questions from the discussion.

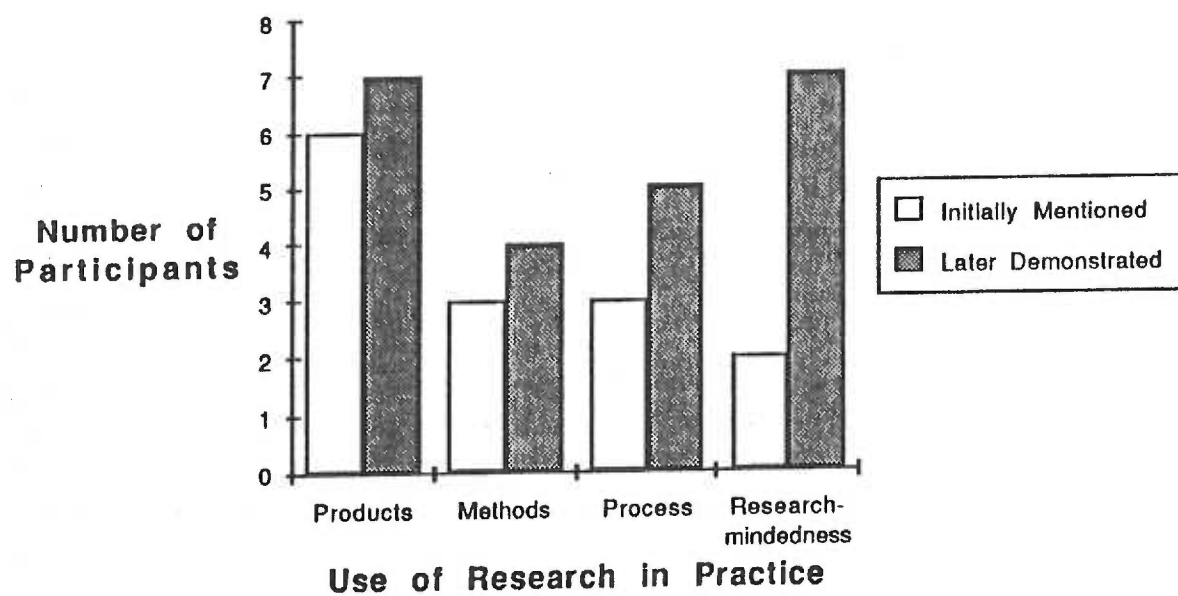
After participants talked generally, without cueing, about their use of research in practice, they were asked to focus on some specific pre-identified

areas, applicable to some nurses in some practice settings, but probably not to all nurses. They were asked whether they had had involvement with any of the pre-selected items in their practice. The pre-selected items include: quality assurance programs, identifying standards, use of systematically collected documentation, and varying levels of involvement in the conduct of a research project (see Appendix D). These pre-selected items had been identified as potential areas where nurses might incorporate the use of research into their practice.

Participants' solicited and unsolicited comments about their use of research in practice were sorted into four categories that had been identified prior to the study: use of research products, use of research methods, use of the research process, and use of research-mindedness. These four categories spanned the scope of responses from participants; therefore, no additional categories were identified. Results and discussion pertaining to the use of research in practice are presented according to these four categories and then summarized (see Figure 2).

Analysis of the use of research in practice by general title role could have been attempted because of the representation of three distinctive role subgroups

Figure 2: Summary of participants' use of research in practice according to four parts



within the randomly selected sample. However, because of small numbers in each of the general role title subgroups it is more likely that differences in the way graduates in the different roles used research in practice were more reflective of individual differences, rather than differences related to role. Therefore, the relationship between the use of research in practice and general role title is an area that would merit study with a larger sample.

Use of Research Products (Research Utilization)

Use of research products was described first and without prompting by six participants as a way they used research in their practice. After further discussion, one additional participant identified use of research products as a way she used research in her practice (see Figure 2). The immediate identification of the use of research products was not a surprising finding, since use of research products, had been a major focus in past literature about the use of research in practice (Brett, 1987; Brown, Tanner, & Padrick, 1984; CURN, 1980-1983; Haller, Reynolds, & Horsley, 1979; Horsley, Crane, & Bingle, 1978; Hunt, 1987; Ketefian, 1975; Krueger, Nelson, & Wolanin, 1978; Miller & Messenger, 1978; Stokes, 1981; Tanner, 1987).

Participants described the use of research products as primarily the use of results in their practice. They focused only on using the identified study results (findings) in their practice, and did not describe use of instruments or interventions from reported studies. Therefore, their definition of the use of research products in practice appeared to be limited to the use of identified findings.

Four participants described research findings, (e.g., findings about head lice control, effects of postural drainage and suctioning on intracranial pressure, and methods for controlling nausea and vomiting) that had been useful for identifying organizational standards for judging nursing care processes and outcomes. These examples represent a the more formal use of research products, the synthesis of findings from reported studies for the development of innovation protocols.

Six participants viewed the terms "use of research products" and "research utilization" as synonymous. However, one participant described research utilization more broadly and described it as including not only the use of research products, but also the use of research methods in practice and went on to say, "you shouldn't do research unless your going to use it."

Participants described several issues surrounding the use of research products in practice. The first, lack of nursing research specific to practice problems, was described by five participants. Three participants, all in management roles, said that they had not experienced a lack of research products pertinent to nursing management issues, but that the lack of research products primarily applied to clinical nursing problems. Other participants described instances where research had been done, but it did not address their specific questions. For example, one participant described research comparing specific types of thermometers (e.g., glass, electronic, and paper). She said that much research about the thermometers and assessing temperature existed, but what she needed to know, the acceptability of the different types of thermometers to different patient groups, had not been addressed.

The lack of nursing research specific to current practice problems is not a new finding. This problem has been encountered by others (CURN, 1980-1983; Krueger, Nelson, & Wolanin, 1978). Brown et al. (1984) reported that the quantity of clinical nursing research had increased; however, according to participants in this study, the issue of research products not

addressing current practice problems remains largely unresolved. One wonders whether it is realistic to expect to find research products pertinent to all specific practice problems. Even as the knowledge base of nursing develops, there may always be some specific practice-oriented problems that have not been studied. It may not be feasible for the profession to rely solely on the use of research products for resolving all practice problems.

The second issue about use of research products in practice is related to nurses' use of research products from disciplines other than nursing. Five participants found that research products from other disciplines, such as medicine, psychology, and social work, were useful in their practice. Three participants said that they used research products from other disciplines, but not from nursing. Two of these participants attributed not using nursing research products to their not having access to nursing research products addressing their specific clinical practice problems. These two participants described medical research about medication interventions that was useful and easy to incorporate into their practice (e.g., studies about specific types of medications). One participant described her practice area as being so specialized

that very little pertinent research existed and what did exist was primarily medical research. Two other participants also mentioned the dearth of research, especially clinical nursing research, pertinent to their practice. One participant expressed concern about having a void in her knowledge about research products from other disciplines upon completion of graduate school. She described awareness of research products from many disciplines besides nursing as being crucial to her practice.

This issue, the relationship between research products from other disciplines and nursing knowledge base, needs further exploration. What are the important overlaps between the knowledge base of nursing and that of other disciplines? It was apparent from participants' descriptions that they found the use research products from other disciplines helpful and sometimes essential in their current practice. Does the discipline of nursing attempt to isolate its research base from the research base of other disciplines in order to better define the boundaries of what truly belongs to nursing?

The third issue about use of research products described by participants related to the dissemination of research products. Several participants,

particularly those in management roles, described the volume of published research as being so great that it was difficult to keep abreast with it all.

Some expressed concern over not even being aware of research that was being conducted locally at OHSU, not to mention research at other universities. One participant thought that an OHSU research newsletter with abstracts should go out annually to alumni as one possible solution to local dissemination problems. Another participant suggested that nursing needed some sort of quarterly publication to highlight significant research products. A third participant described her frustrations, related to the current level of specialization in nursing, from trying to stay up-to-date in several specialty areas.

Concern about dissemination of research products is not a new issue. Many others (CURN, 1980-1983; Krueger, Nelson, & Wolanin, 1978; Miller & Messenger, 1978) have voiced concerns about the dissemination of research products. The participants in this study suggest that dissemination problems persist.

A fourth issue about the use of research products, that nurses are not prepared to evaluate research products for their potential use in practice (CURN, 1980-1983; Krueger, Nelson, & Wolanin, 1978), did not

arise in this study. None of the participants identified this problem. In fact, three participants described the emphasis in their graduate school experience on critiquing research literature as the most helpful of all their graduate school experiences.

The interviews demonstrated that seven out of eight participants in this study were using research products in their practice. These findings suggest a very different trend than suggested by previous research (Brett, 1987; Miller & Messenger, 1978; Stokes, 1981). However, none of the previous studies used a homogenous population of only master-prepared nurses. It appears, at least for the eight master-prepared nurses who participated in this study, that graduate education had been successful in resolving one previously identified barrier to nurses using research in their practice.

In summary, interview data demonstrated that seven of the eight participants used research products, primarily research findings, in their practice. Issues identified from participant's descriptions about their use of research products included: lack of research products specific to identified practice problems, use of research products from other disciplines,

dissemination of research products, and preparation for critiquing research for useability in practice.

Use of Research Methods (Conduct of Research)

Three participants initially described themselves as using research methods in their practice; however, the interviews later demonstrated that actually four participants used research methods in their practice (see Figure 2). Participants described involvement in formal research projects. Later in the interviews, some participants labeled their involvement with less formal quality assurance projects as examples of the use of research methods in practice.

The type of problems studied or being studied by the participants in their practice settings included but were not limited to the following topics: effects of different patient teaching approaches on compliance, effects of postural drainage on intracranial pressure, effectiveness of patient-controlled analgesic pumps, factors surrounding falls in hospitalized patients, evaluation of the need for foil on IV bottles with adriamycin, and the effect of the timing of chemotherapy administration on observed side effects.

The four participants who described themselves as not using research methods in their practice were similar. Together these participants included all

three participants in direct care roles as well as the three participants with the least amount of organizational longevity. It should be noted that two participants in direct care roles also had the least amounts of organizational longevity. Because it was impossible to distinguish between the effects of the variables, role and organizational longevity, on the use of research methods in practice, the implications of both variables are discussed.

None of the participants in direct care roles described any type of involvement in the conduct of research since completion of their master's research projects. Participants in direct care roles said that research was so time-consuming and that their role dictated other priorities for them. Time constraints and pressures from other role responsibilities had been previously described as factors affecting the use of research in practice (Cronenwett, 1986; Davis, 1981). Comments by participants in direct care roles about the formal, time-consuming nature of use of research methods suggested that possibly the formality they associated with the use of research methods was a barrier to their willingness to even try to use research methods in their practice.

Although final responsibility for using research in practice rests with the individual nurse, it appears that organizational variables can support or block the use of research, especially research methods in practice. Would the use of research methods by nurses in direct care roles increase if organizations granted released clinical time for research and/or included use of research methods as a role responsibility, suggested remedies by Cronenwett (1986) and Davis (1981)? One wonders what effect role models within the organization conducting clinical nursing research would have on the use of research methods by nurses in direct care roles. Analysis of data from participants suggested a need for further research to test proposed ways for increasing the use of research methods in practice, especially in clinical practice settings.

The lowest organizational longevity of the eight participants characterized three of the participants of the four who did not use research methods in their practice. Perhaps nurses need a certain length and intensity of contact with an organization in order to mobilize organizational supports to use research methods in their practice. Since this category of the use of research in practice, use of research methods, is a more formal use of research in practice, use of

research methods may require more organizational supports, such as time, personnel, and financial resources than other uses of research in practice. Analysis of data from participants in this study suggested that further exploration of the relationship between organizational longevity and use of research methods in practice is indicated.

Comments of participants as they discussed use of research methods in practice indicated varying perceptions of possible differences and similarities between use of research methods and procedures followed as part of programs for quality assurance (QA).

Illustrative comments are:

"I'm not sure there is a difference between research and QA when you get down to the nitty-gritty."

"Research is more refined than QA."

"QA does not equal research."

"QA is lots of different activities that wouldn't formally be labeled as research, but meet research standards in terms of sample size, sampling procedures, and so forth."

Other comments by participants in management roles about differences between QA and research describe research as requiring: more "formalization of data

collection," a longer plan ("quality assurance plans are only three to four pages in length"), and formal consent approvals from patients and physicians (whereas "quality assurance projects are the right of the organization to conduct without consent"). Similarity was seen by one participant in a management role, who after much discussion about quality assurance, exuberantly suggested that "quality assurance is a way of involving nurses in research, a lot of staff nurses can relate to quality assurance when they can't relate to sophisticated research."

It would appear, based on comments from participants, that the degree of formality of a QA project influenced whether or not it was conceived of as research. How long did a proposal have to be in order to call it research? Did a proposal have to be formally written in order to call it research? Would it be advantageous for nursing to make explicit that quality assurance activities are in fact research when they consist of "disciplined scholarly inquiry" and include activities that are pre-planned and have effects that transcend the setting? These were issues that need further debate and study.

The writer is not suggesting that all quality assurance activities be labeled research as there

appears to be considerable variation in what is described as quality assurance among the participants. Six of the eight participants described involvement with quality assurance activities in their practice setting. However, some participants suggested that their quality assurance activities were part of a weekly staff meeting to review how things were going; another participant described quality assurance as being formal projects involving more than 200 patients over a six month data collection period. As mentioned in the conceptual framework, the mystique surrounding the word "research" may be a barrier to the use of research in practice. Quality assurance may be a more politically expedient label for these "disciplined scholarly activities" that are preplanned and have effects that transcend the setting.

Quality assurance (QA) projects may perhaps be a route for facilitating the use of research methods in practice. One advantage of this route is that it has the support of health care administrators needing to satisfy standards for reimbursement and/or accreditation. QA may be a less threatening route for introducing staff nurses to the use of research methods, since it is a process with which they are somewhat familiar. However, not all QA can be

accurately labeled as use of research methods in practice. The formality of a pre-planned project, the rigors of methodology, design, and analysis, preclude that all QA projects be accorded a label, use of research methods in practice. The potentials for expanding the use of research methods in practice through quality assurance projects would merit further thought and examination.

In summary, the interviews demonstrated that four of the eight participants were using research methods in their practice. Variables identified that affected the use of research methods in practice included nursing role and organizational longevity. Participants identified that many of their quality assurance projects were examples of the use of research methods in practice and that these may provide an acceptable route for incorporating the use of research methods into practice.

Use of the Research Process in Resolving Practice Problems (Decision-Making)

Use of the research process, was described by participants, as a less formal, more "piece meal" problem solving approach. It is a less conventional use of research methodology principles, skills, and techniques in resolving practice problems.

Initially, only three participants described themselves as using the research process in their practice. However, the interviews later demonstrated that a total of five participants had used the research process in their practice (see Figure 2).

Selected participant comments about use of the research process in their practice include:

"I use my research skills all the time; I don't use them as a research package; I would like to more often, but I don't have the time..."

"I use my research skills continually, while I may not do active research, whether or not they are the skills of this appropriate design and sample size and methodology and that sort of thing..."

"I use my research skills not as a package, but more in pieces, with the different pieces of the research process..."

Participants described data collection activities, or the use of systematically collected data as the most frequent way they used the research process in their practice. They described collecting data for resolving a variety of management and clinical practice problems. Examples of practice problems resolved by use of the research process include: problems with regular

checking of the code cart, problems keeping the medication cart locked, problems with a high rate of patient falls, and problems related to the use of restraints. Efforts to resolve these and other practice problems through use of the research process included: collecting data, determining the costs of testing a potential solution, testing of interventions, and evaluating whether the data had sufficient reliability and validity for decision-making. Three participants described using the research process in their quality assurance activities: deciding data collection parameters, interpreting results, being aware of factors that affected results, and "coming to a decision that is supported with facts."

One participant, when first asked about the use of the research process in practice, stated, "You're going to make me remember the research process"? This participant later discussed the important role of data collection in her practice for decision-making and funding. She described the worth of taking time to make decisions, gather more information, and ask more questions of clients. She talked about specific changes made in her patient care based on systematically collected data that she had stumbled onto rather serendipitously. While collecting data to

secure funding, she discovered patterns and trends that were useful in resolving patient care problems.

Another participant discussed the value in collecting data for decision-making. She had tried to set up a card file on clients to do "problem trending" and just did not have time to keep up with this process. Her priority was to spend time with patients rather than spend time collecting additional data to resolve practice problems. There was no mention of the possibility of using data she was already collecting for problem resolution; rather, she saw use of the research process in practice as requiring documentation that would be in addition to her usual documentation.

Another participant said that she collected data requested by her supervisor and did not know what that person did with it. This participant did not initial the collection of this data, did not make any decisions based on this data, and did not identify any practice problems that could be resolved by this data. Therefore, collecting data did not demonstrate use of the research process in her practice.

One wonders whether the use of the research process in practice could be increased by making explicit that research skills and techniques may have applicability to many situations, not just the conduct

of formal research. It was apparent that many participants were not initially aware of the potential use of the research process for problem solving.

Additionally, there may be merit in pre-planning routine documentation so as to service immediate needs for documentation as well as facilitate later problem resolution. It might be possible to get more mileage out of required documentation by pre-planning what will be collected, how it will be arranged, and how it might be later used. Systematically collected data could then be available for retrieval and analysis without significantly adding to time necessary for data collection. Perhaps functions of this sort are part of what had been described as the scientist-practitioner role (Barlow, Hayes, & Nelson, 1984). Participant responses suggest that exploration of the potential impact of systematically collected data on resolving practice problems and decision-making has merit.

The variable, organizational longevity appeared to have an effect on participants' use of the research process in their practice. The three participants who did not describe themselves as using the research process in their practice had the least amount of organizational longevity. Two of the participants with low organizational longevity were employed in direct

care roles. Since participants in direct care roles had less organizational longevity than those in other roles, it was not possible to determine whether their less frequently reported use of the research process in practice is related to organizational longevity, role, or other unidentified variables. However, since one participant in a direct care role with eight years of organizational longevity did use the research process in practice, her example demonstrated that it was possible to use research process in direct care practice. Unfortunately, the small sample in this study ($n = 8$) made other determinations impossible.

In summary, five participants described using the research process in their practice. The research process was defined as a less formal, less conventional application of research skills and techniques in resolving practice problems. Participants described use of systematically collected data for decision-making as the way they most frequently used the research process.

Use of Research-Mindedness (Inquiry) as an Approach to Patient Care

Use of research-mindedness was mentioned during the first part of the interview by only two participants. However, by the end of the interviews it

was apparent that seven participants were research-minded in their approach to patient care (see Figure 2) since they identified interesting and important questions in their practice that needed study.

Additionally, participants described their research-minded approach as:

"Being open to find a better answer to advance the knowledge base about what you are doing."

"Looking for new ways to approach a patient: getting input from peers, the literature, and data collection in practice."

"Having an attitude that there is always something new to try."

"Keeping an open, questioning mind,...questioning what you do and why you are doing it."

One participant demonstrated the use of research mindedness in practice by describing her custom of keeping a list of questions that needed study. She said it was her list of questions that motivated her to return to graduate school, she wanted to learn how to find answers to her practice problems.

Hunt (1987) has suggested that development of research-mindedness would prepare graduates to critically evaluate their practice and change their practice based on data. Five participants

demonstrated that they had been able to use research-mindedness in this way in their practice setting, not only to identify practice problems, but to move beyond to making decisions based on sound data. However, two participants did not move beyond identifying the questions.

In summary, a "spirit of inquiry broadly based," (Dickoff, James, & Semradek, 1976) was demonstrated by seven of the participants from their descriptions of important and interesting questions in their practice. However, several participants described difficulty with the next step; moving beyond asking questions to working towards potential resolution.

Summary of the Use of Research in Practice

For this study, definitions about the use of research in practice were expanded beyond those traditionally accepted. Use of research methods was expanded to include quality assurance studies that met the definition of research used for this study. Use of the research process in practice was expanded to include a less conventional use of research skills and/or techniques to help make decisions about practice problems that were supported with sound data. The use of the research process in practice was a less formal use of research in practice when compared with the use

of research methods. Use of research-mindedness included: identification of interesting and important questions in practice, a sense of there always being something new to try, questioning routines and standards in practice, an openness to change, and a sense of permission to dream about how things should be. The definition for the use of research products did not expand, but continued to represent products; findings, instruments, and procedures from reported research. Perhaps participants' familiarity with the concept research products contributed to the stability of this concept. Certainly, the other three parts of the use of research in practice need study and exploration to further specify definitions and explore the scope and boundaries of each concept.

All interviewed M.S. graduates ($n = 8$) identified some way in which they used research in their practice, however the entire scope of their use of research in practice was broader for most than what they initially suggested. Interview data suggested that it was practical and feasible for graduates within each of the represented general role titles to use research in their practice, with one exception, none of the participants in direct care roles used research methods in their practice.

At the close of the interview, participants were asked which one of the four components of the use of research in practice was most salient in their graduate education, in their employing organization, and for them personally. The most frequently reported response was that the use of research products and the use of research methods received the most emphasis in graduate school. However, in their practice settings and personally, the use of the research process in resolving patient problems was described as the most prevalent use of research by the majority.

Their report that the use of the research process was most prevalent in their practice and personally was not consistent with their earlier descriptions of how they most frequently used research in their practice. Seven of the eight participants described and gave examples of use of research products and use of research-mindedness in their practice. Five described use of the research process, and four described use of research methods. So even though they chose use of the research process in resolving practice problems as the most common way in which they used research, analysis of interview data suggested that they most frequently identified practice problems and then went to the literature in search of products to answer their

questions. Only a few moved towards using their research skills in parts (use of the research process) or formally (use of research methods) to answer questions in their practice.

Several rationales for why this occurred are possible. Several participants had never considered the potential for using their research skills in less formal and less conventional ways to help resolve practice problems; therefore, this had not been a response option available to them. Several participants sounded somewhat in awe and/or terrified by the thought of using research methods in their practice. They suggested that the use of research methods was "someone else's responsibility" or that they did not have time, or that they would never want to go through what they had endured previously while conducting research in graduate school. These and other unknown explanations may have had a role in why master-prepared nurses in this study did not consistently use research methods in their practice.

One person in a management role talked the entire interview time with almost no direction from the interviewer. Her comments demonstrated a complete integration of research into her practice. While in graduate school she had applied what she was learning

directly to her practice. This person's description demonstrated the function of the nurse as both scientist and practitioner (Barlow, Hayes, and Nelson, 1984). One person's report of the daily use of research in her practice demonstrates that it is possible to use research in practice as recommended by Dickoff, James, and Semradek (1975a).

Supporting the Use of Research in Practice

During the course of the interview, participants volunteered or were asked about their role in supporting the use of research by other nurses in their practice setting. Participants in management and research roles were active in supporting the use of research in practice by other nurses in their practice setting. However, several commented that in addition to supporting the use of research by nurses, they also supported the use of research by persons from a variety of disciplines within their practice setting.

Examples given to demonstrate supporting the use of research by others in their practice setting included: circulating pertinent research articles, sharing information at practice setting meetings, encouraging and collaborating with nurses and other disciplines in the conduct of research, making time and financial resources available for using research in practice,

sharing ideas for research projects, consulting on instrument design and analysis procedures, and "standing behind nurses who are willing to try new things even though there is some risk involved."

Elements that Influence the Use of Research in Practice

Results pertaining to the second research question, "What elements, as perceived by master-prepared nurses, influenced the use of research in practice (Horsley, 1985)?" are presented and discussed in the next three subsections. The factors, organizations and graduate school, were identified as containing elements that affect the use of research in practice. Influencing elements within these two factors, organization and graduate school, were described in the literature (Cronenwett, 1986; Davis, 1981; Dean, 1982; Egan, McElmurry, & Jameson, 1981; faculty interviews, Hayter, 1978; Smith; 1980). Since the purpose of this study was to affirm and expand what is known about the use of research in practice, selected representative responses were reported even though some may have been noted by only one person.

Organization: Positive Influencing Elements

Participants were asked to identify specific elements within the organizations where they were

employed that had influenced their use of research in practice. Initially, they were asked to describe influencing elements they thought they had experienced; later they were asked to validate possible influencing elements that had been gleaned from the literature. Many influencing elements within organizations, both positive and negative, were identified by participants as being present in their current practice setting.

Influencing elements, both positive and negative, were grouped into four general categories in order to make comparisons of supports (PIEs) and barriers (NIEs) easier. The categories describe influencing elements related to: personal factors, other people within the practice setting, the discipline of nursing, and other influencing elements (besides people) within the practice setting. Some responses could fit into several categories, but were grouped into the category that appeared a best fit on the basis of context in which participants made the responses.

All participants were able to identify some PIEs within their organization regardless of their personal use of research in practice (see Table 1). The most frequently mentioned PIEs were people within the practice setting and other elements within the practice

Table 1: Positive influencing elements (PIEs) within organizations identified by participants as supports to their use of research in practice.

Personal Supports (1)

Primary faculty appointment

Other People as Supports (7)

#Colleagues support (7)
 #Administrative support (5)
 #Teams of nurses with mixed skills (3)
 Research experts available (3)
 Clinical nurse specialist in-house (3)
 Positive attitude of staff (curiosity, willingness)

Other Elements in the Practice Setting as Supports (8)

#Paid leave or funded travel to attend conferences (8)
 Good patient access (5)
 #Climate of critical thinking and inquiry (4)
 #Staff development programs about research (3)
 #Wide communication in organization about research (3)
 Sharing of information from conferences (2)
 Opportunities for collaborative studies (2)
 Variety in patient mix
 Research review board
 Computer time
 Data analysis results go directly back to staff
 Time provided for research
 Personal computers instead of mainframes
 Higher education is encouraged and valued

Discipline of Nursing Related Supports (2)

Organization has a formal relationship with the School of Nursing (2)

Note: The number in parenthesis indicates the number of participants with the same response.

= Solicited response

setting that were supportive of the use of research in practice.

The types of people within the organization that were described as supportive of the use of research in practice include: colleagues, administration, clinical nurse specialists, research experts, and staff with positive attitudes about research that have a mixture of skills. A majority of participants experienced support from colleagues and administration. All of the participants in management roles, and one from each of the other two roles, identified administrative support for using research in practice as being present.

Participants in management roles described the important potential role of the clinical nurse specialist as a catalyst and modeler of the use of research in practice and as being supportive to use of research in practice by other nurses within the practice setting. The participants in management roles also identified that working with teams of nurses with mixed skills was supportive of their use of research in practice. One participant in a management role described her staff as having positive attitudes about the use of research in practice; she went on to describe them as being curious and willing to participate in new things. Participants in research

and one in management had research experts available within their organization as resources. Participants were able to validate opinions expressed in the literature (Cronenwett, 1986; Dean, 1982; Egan, McElmurry, & Jameson, 1981) that people within the organization who are supportive of the use of research in practice make a significant impact on whether or not research is used in practice.

It was noted that those participants who most consistently described themselves as using research in their practice also had the most organizational longevity. There appear to be important links between organizational longevity, perception of administrative support, and use of research in practice. The relationship between perception of administrative support and use of research in practice, is consistent with what the literature suggests (Dean, 1982; Egan, McElmurry, & Jameson, 1981).

Participants described many other elements within their organizations as supporting the use of research in practice (see Table 1). Organizational supports mentioned by more than a majority include: paid leave or funded travel to attend conferences, good patient access for research, and a climate of critical thinking and inquiry within the organization. Seven out of

eight participants said that their organization provided funding for education. All the participants in direct care roles, as well as one participant in management and one in research, described good patient access as a support. The climate of critical thinking and inquiry was described as a support by all of the participants in management roles and one participant in a direct care role.

Only one participant identified a personal reason that supported her use of research in practice, that being her primary faculty appointment at OHSU. Two other participants identified formal relationships between their organization and the School of Nursing as supportive of their use of research in practice. These connections provided them with counseling, mentoring, resources, and expertise not otherwise available to them in their organization.

The interviewer asked participants to validate whether PIEs suggested by the literature as being supportive of the use of research in practice were present and viewed as supportive in their practice setting. Many PIEs were validated by participants as being present in their practice setting; these have been noted in Table 1. Some PIEs described in the literature (Cronenwett, 1986; Davis, 1981; Dean, 1982;

Egan, McElmurry, & Jameson, 1981) were not present in the majority of practice settings in the study and included: released clinical time for research, formal rewards for research activities, formal criteria for evaluating nurses use of research in practice, space away from clinical areas for nurses to work on their research, secretarial and computer support, research assistance, funding for research, journal clubs, and career ladders that incorporate research activities. Participants said that all of the above items would probably be supportive of the use of research in practice. An exception was stated by one management participant in regard to "formal rewards for research activities." The participant commented, "If you really want research incorporated as a matter of practice, then it becomes a matter of practice, not something they are rewarded for separately, but that you expect on an everyday basis for good care."

Organization: Negative Influencing Elements

Participants were asked to identify negative influencing elements (NIEs) that interfered with or blocked their use of research in practice (see Table 2). In reviewing these items, many appear to be rationalizations for why participants do not use research in their practice. Were they perhaps blaming

Table 2: Negative influencing elements (NIEs) within organizations identified by participants as barriers to their use of research in practice.

Personal Barriers (7)

Lack of time (7)
 Research not a priority (3)
 Scarier on you own, risk taking
 Research is not glorifying work
 Lack of decision-making and moving on to try
 solutions based on descriptive data gathered
 Discouragement, feelings of loss of control
 Myths, old knowledge, old techniques
 Poor writing skills

Other People as Barriers (6)

Lack of administrative support (3)
 Poor links between those prepared to do research
 and those in practice (2)
 Staff not prepared or motivated (2)
 Clinical nurse researcher not supporting the use
 of research in practice (2)
 Others affect the accuracy of my data collection
 Researcher's lack of appreciation for the role and
 knowledge base of staff nurses
 Low staff nurse morale
 No system to get academics to study practice
 problems
 Lack of physician support
 Peer nurses view nursing research as garbage and
 frivolous
 Lack of communication with other nurses and
 support staff
 Clinic manager is not a nurse
 Infighting among nurses

Other Elements in the Practice Setting as Barriers (4)

#Research is viewed as extra work (3)
 No money to conduct or implement (2)
 Disruptive day to day environment
 No computer support
 No statistical package
 No nurse researcher on staff
 Hard for outsiders to get access for research
 Poorly organized nursing service

Discipline of Nursing Related Barriers (6)

- #Multiple levels of nurse preparation (2)
 - Mystique surrounding nursing research
 - Research jargon
 - Lack of transition between research and practicing nurses
 - Takes too long for research to be incorporated
 - Research not specific to practice issues
 - Much research that does not make a difference in practice
 - Research does not focus on anything nursing controls
 - Impossible to keep up with all the literature
 - Specialization in nursing
 - Research not scientifically sound (not replicated)
-

Note: The number in parenthesis indicates the number of participants with the same response.

= Solicited response

themselves, other people within their organization, other elements within their organization, or the discipline of nursing for their not using research in practice?

In order to help accomplish the purpose of this study, to affirm and expand what is known about the use of research in practice, Table 2 includes all responses about NIEs that were made, including those by just one participant. However, due the great number of single responses, the text is focused only on responses made by two or more persons.

Seven participants cited lack of time as a personal reason that interfered with their use of research in practice. Research not being a personal priority was identified as a barrier by three participants, two in direct patient care roles and one in management. Those in direct patient care roles described the constant pressure on them to carry larger and larger case loads, rather than to use research in their practice. The results may confirm that Cronenwett's (1986) and Davis's (1981) suggestion that nurses need designated time for research was accurate. The need for additional time for research was also implied by the three participants who described research as being "extra work."

Six participants identified people within the organization who were barriers to the use of research in their practice. People identified as barriers include: administrators, nurse researchers, clinical nurse specialists, physicians, nurse managers, colleagues, staff nurses, and miscellaneous "others."

Three participants, two in direct care roles and one in research, described lack of administrative support as a barrier to the use of research in practice. The same three participants happen to have the least organizational longevity of those in the study and demonstrated the most limited use of research in their practice. It is therefore again suggested that important links between organizational longevity, perception of administrative support to use research in practice, and use of research in practice exist. As previously noted, the relationship between administrative support and use of research in practice has been suggested in the literature (Dean, 1982; Egan, McElmurry, & Jameson, 1981).

Poor links between those in practice and those prepared to do research were identified by one participant in a management role and by one in a research related role. This barrier brings up

questions about who is responsible for establishing these links.

Staff not prepared or motivated to use research in their practice was described as a barrier by two participants. Who is responsible for preparing and motivating staff nurses to use research in their practice? Do nurses in various roles (management, education, research, direct care) assume that a role other than their role has this responsibility? Neither of the two participants, who described lack of staff nurse preparation and motivation as a barrier, identified that preparing and motivating staff nurses to use research in their practice was their responsibility.

Two participants in management roles, who were previously described as viewing clinical nurse specialists as supporting the use of research in practice, also viewed clinical nurse specialists as barriers to the use of research in practice. This was because of negative role-models among clinical nurse specialists in their practice settings. Some of the clinical nurse specialists had such large patient loads that it caused them to be described as ineffective with regard to use of research. Other clinical nurse specialists were viewed as negative role models for use

of research in practice because they did not use research in their own practice in any visible ways. The literature suggests that personnel with experience or interest in research were important in supporting the use of research in practice (Egan, McElmurry, & Jameson, 1981).

Four participants described other elements within their organization, besides people, that were barriers to using research in their practice. Three participants, one in management and two in direct care roles, described research as being extra work in the practice setting. One of the participants suggested that research is always extra work unless it is integrated into all aspects of what a nurse does. Only one participant in this study demonstrated this type of integration. When research is extra work, then it requires extra time which was not allocated by seven of the organizations in this study. Therefore, Cronenwett's (1986) comments about research being perceived as extra work were validated by some participants in this study.

Another barrier described in practice settings was that the agency did not provide the money to conduct research or use products from research in practice. This perception was expressed by a participant from

management and one from direct care. The participant from direct care went on to describe problems with implementing important research products in her practice because the organization could not bear the expense of the intervention and neither could clients. Concerns about the barrier, lack of organizational funding to support the use of research in practice, have been discussed in the literature (Cronenwett, 1986; Dean, 1982; Egan, McElmurry, & Jameson, 1981); however, lack of funds to support research-identified interventions has not been examined.

Six participants described barriers related to the discipline of nursing that they had encountered in their organizations. Multiple levels of nurse preparation were seen as a problem by two of the participants. They suggested that some of the nurses in their practice settings had such a limited perception of the scope of nursing that they were primarily technicians who "walked around in a daze."

Many organizational barriers (NIEs) affecting the use of research in practice were identified during the literature review. Several barriers described in the literature (Cronenwett, 1986; Hinshaw & Smeltzer, 1987) were not mentioned or not validated by participants. These include: determining which practice problems are

researchable, planning the research so as to resolve a problem in the practice setting as well as make a contribution to nursing, designing studies to provide unbiased results, and poorly defined research roles in job descriptions of nurses. The first three of the unvalidated organizational NIEs relate only to the use of research methods in practice and may therefore be reasons why they were not encountered or described by participants.

The interviewer observed that participants had more difficulty in identifying organizational PIEs than organizational NIEs. This was demonstrated by the rather lengthy list of organizational NIEs (see Table 2). The writer suggests that this was in part due to the fact that few participants initially viewed themselves as significantly using research in their practice, and therefore, had identified reasons why they were not using research rather than supports within their organization. Organizational PIEs were primarily solicited responses. It is apparent, however, that there are many elements within organizations that affected the use of research in practice.

Graduate School: Positive and Negative Influencing Elements

The conceptual framework and literature review (Ackerman, 1976; Allen, 1986; Firlit, Kemp, & Walsh, 1986; Hayter, 1978; Hunt, 1987; Smith, 1980) identified that graduate school is a factor that affects the use of research in practice. Participants were asked questions about their graduate school experience in order to affirm and expand what is known about the effect of graduate school on the use of research in practice.

Initially, participants were asked to identify differences that education in research during graduate school had made in their practice of nursing. These differences were categorized into three areas: nursing role, personal development, and research skills.

Seven participants described differences that graduate school had made in their nursing roles. Three participants entered graduate school with the intent of role change. These three participants did move into new nursing roles during or following graduate school. The other five participants remained with the same organization they had been with prior to graduate school. Four of these five participants remained in the same position and identified a broadening in their

scope of practice because of their graduate school experiences.

Six participants identified differences that graduate school had made in their personal development that influenced their use of research in practice. Two participants said that since graduate school they were more critical in all aspects of their life. Many of the differences in personal development were individual and revolved around growth in research-mindedness as described by Hunt (1987) (see Table 3).

Six participants identified specific differences that graduate school had made in their research skills. Three participants said that they read literature much more critically and two participants said that they gathered more specific data. There were many differences that, although mentioned by only one person seemed to have potential for representing unexpressed ideas of the other participants; for this reason all responses have been listed (see Table 3).

All eight participants said that graduate education prepared them to use research in their practice of nursing. However, three participants qualified this response by describing their preparation as rough, basic, and introductory.

Table 3: Differences that education in research during graduate school made in the practice of nursing.

Differences in My Nursing Role (7)

Changed my role in nursing, totally new (3)
 Broadened scope in my practice (4)
 Gave me more status in my same job
 Felt equal with colleagues

Differences in My Personal Development (6)

More critical (2)
 Shook up myths and assumptions from over the years
 Increased my awareness of people's rights
 Changed how I think about nursing
 Do not accept things at face value because
 something's always been done that way
 Gave me more confidence to think about doing
 research
 Opened me to fresh ideas
 Helped me see the importance of conceptual
 frameworks
 Motivated me to try things out for myself
 Helped me become less concrete, more conceptual
 Helped me to dream about how things should be, not
 simply take things for the way they appear
 Learned where I can go to get information
 Gave me a step of what the next step had to be
 Increased my awareness of the time-consuming
 nature of conducting research
 More supportive others who are conducting research

Differences in My Research Skills (6)

Read literature more critically (3)
 Gather more data and more specifically (2)
 Check procedure references for currency
 Make fewer assumptions
 Evaluate outcomes differently
 Evaluate data much differently
 Use research references in lectures
 Read research articles

Note: The number in parenthesis indicates the number of participants with the same response.

Next, participants were asked to identify elements (PIEs) within graduate school milieu that had helped them in using research in their practice. The graduate school PIEs were categorized into five areas: master's research project (MRP), courses, people contacts, fun times, and employment as a research assistant. Specific comments have been included to elaborate on what was helpful about each of the five areas (see Table 4).

Five participants described their master's research project (MRP) as the most helpful part of their graduate school experience in terms of influencing their subsequent use of research in practice. These are the same five participants who had the most organizational longevity. Except for one, these participants MRP addressed a problem in their practice setting which may help account for why they saw this experience as helpful. Three of these five participants were employed in management roles. Two of the five commented specifically about the support they received and continued to receive from members of their thesis committees.

Four participants described projects and assignments in courses that were helpful and positively influenced their subsequent use of research in

Table 4: Positive influencing elements (PIEs) from graduate school identified by participants as being the most helpful in supporting their use of research in practice

MASTER'S RESEARCH PROJECT (MRP) (5)

- "My thesis committee was very supportive." (2)
- "Writing the proposal was very frustrating, but most helpful."
- "It was exciting to apply what I had learned and see that it really works."
- "My MRP had impacts on education and the community."
- "I picked a new fresh topic for my MRP, not one I had focused on all during school."
- "Conducting my MRP increased my interview skills."
- "I choose a project that related to my practice and that is what made it so valuable to me."

COURSES (4)

- Critiquing of studies, "tearing studies into pieces" (3)
- Learning about statistical data analysis (2)
- Doing massive amounts of reading
- Doing population needs assessment
- "Research was incorporated into all my courses so it changed my thinking tremendously."

PEOPLE CONTACTS (4)

- Faculty, many great models for research (2)
- Colleagues
- Distinguished campus visitors

FUN (2)

EMPLOYMENT AS A RESEARCH ASSISTANT (1)

Note: The number in parenthesis indicates the number of participants with the same response. The statements were selected as representative of quotations and phrases and do not make an exhaustive list of the responses.

practice. All three of the participants in direct care roles indicated various things about courses that had been helpful to them in using research in their practice. Three mentioned the critiquing of studies as valuable in helping them decide the soundness of research products for use in their practice. Two of the participants who described "tearing studies into pieces" as helpful were employed in direct care roles. Also, information about statistical data analysis was identified as helpful by two participants. These two elements that were viewed as helpful, critiquing studies and information about statistical data analysis, are consistent with recommendations for research focus in graduate education as described by Firlit et al. (1986) and Ackerman (1976).

Four participants identified people contacts as the most helpful and lasting effect of graduate school on their use of research in practice. They described their contacts with specific faculty, faculty groups, colleagues, and distinguished campus visitors as the most helpful to them.

Other elements viewed as helpful include the fun associated with the graduate school milieu and employment as a research assistant. The participant who worked as a research assistant (RA) said that "if

you don't work as an RA you don't get the same learning."

Participants were also asked to identify elements within their graduate school experience that were barriers (NIEs) to using research in practice. The NIEs have been grouped into four areas: dissonance between academia and practice, MRP, people contacts, and courses. These areas are listed in Table 5, along with selected representative comments about each area.

Seven of the eight participants described dissonance between what they had learned in school about research and what actually occurred in their practice. Three participants noted dissonance in relation to the school's suggestions about the amount of time you spend on a research project, your ability to control variables in practice, and permissions needed for conducting research in a practice setting. Participants in direct care settings noted a disparity between academia and practice in regard to the value placed on research (see Table 5).

Five participants described their MRP as the element that most interfered with their use of research in practice. It was interesting to the interviewer that four of the participants who identified the MRP as a graduate school NIE also identified it earlier as a

Table 5: Negative influencing elements (NIEs) from graduate school identified by participants as turnoffs to their use of research in practice

DISSONANCE BETWEEN ACADEMIA AND PRACTICE (7)

"In the school setting everyone is doing research and it is valued, this is not true in practice." (2)

"The amount of time school suggests you spend on a research project is not reality based."

School expectations are different than the real world. (In school "research must be clean, control all variables,...no MD permission is needed.")

MRP (5)

"The rigors, the hoops you have to jump through." (3)

"Faculty don't promote students doing research in what they are most interested in and would be most useful in their practice. These problems are seen as not acceptable, yet some are real questions in nursing, but the concepts are harder to grasp."

"It's got to be a bitch, because it's in the practice setting."

"Doing my thesis was so difficult, it was like giving birth to a child. Frankly, I don't think I'll ever want to go through that again. It totally discouraged me from doing much research and I don't think that is what they intended."

PEOPLE CONTACTS (4)

Attitude of faculty, "In practice you are treated with respect, in school you have no power... feel like you are being manipulated." The attitude is that "You are here to learn and we are here to teach you." (2)

"...very painful process, but wounds heal. The problems were within people in my specialty area."

Lack of support from my advisor.

COURSES (3)

"Didn't learn when to use less formal types of research."

"Didn't learn a balance of time, money, for change in practice."

"No acknowledgement of research in disciplines outside of nursing. This would facilitate communication with other disciplines."

"Pressure was so incredible."

"Very little self analysis."

"Too much focus on statistics,...not useful in practice."

Note: The number in parentheses indicates the number participants with the same response. The statements were selected as representative of quotations and phrases and do not make an exhaustive list of the responses.

graduate school PIE. For this group the MRP had been the most demanding part of their graduate school experience and, even though they could identify the experience as helpful, they still had scars from the process. It was noted that the comments about the MRP as a graduate school NIE were much more process oriented than comments about the MRP as a graduate school PIE.

Four participants described some of their contacts with people, particularly faculty, as graduate school NIEs that interfered with their use of research in practice. There was one participant who described her colleagues as graduate school PIES while describing faculty contacts as graduate school NIEs. Two participants in management roles said that faculty did not treat them with any respect, which was quite different than their practice setting where they were viewed as accomplished and successful experts. They suggested that "a learning together and from each other attitude" would have made big differences in their learning with some faculty.

Three participants recounted specific things about courses they took while in graduate school that interfered with their use of research in practice. They regretted not having learned about less formal

types of research and how to realistically balance time and money resources with the impact of the use of research on practice. One participant from a multidisciplinary direct care role described how research from disciplines outside of nursing was crucial to her practice and wished that some graduate school course would have addressed the body of knowledge from other disciplines that was an essential part of her practice.

Comparison of the graduate school experience PIEs and NIEs indicated that several of the same areas were viewed as both helpful and as barriers. This incongruence is true of the MRP, courses, and people contacts that were part of the graduate school milieu.

The same participant from a direct care role that had identified knowledge from other disciplines as being important to her practice also described the graduate program as placing too great an emphasis on statistics. Her perception, that she and the majority of her peers in school would not be conducting formal research in their practice and therefore, did not need to know so much about statistics, is consistent with previous research evaluating the use of research by master-prepared nurses. Hayter (1978) and Smith (1980) found that very few graduates of the programs they

evaluated described any use of research in practice, especially the use of research methods.

Although four of the eight participants in this study were using research methods in their practice, those that were using research methods described their preparation for such formal use of research in their practice as being "basic" and "introductory." Analysis of this data suggests that perhaps a goal of expecting master-prepared nurses to independently conduct formal research is not realistic.

The OHSU School of Nursing Catalog (1985-87, p. 25) states that one objective for graduates of the master of science component is that they be able to "use the research process to investigate clinical problems and improve clinical practice." According to this study's definition for use of the research process, OHSU School of Nursing is not claiming to prepare master-prepared nurses in conduct formal research. However, since the catalog does not make explicit the definition of "use of the research process" the intended meaning of this statement is not known. Is preparing nurses to conduct formal research a realistic goal of master's programs? Allen (1986) and Hunt (1987) recommended that graduate school

programs prepare nurses to use research-mindedness and the research process to resolve practice problems.

Summary of Elements that Influence the Use of Research in Practice

Participants identified that people within the organization greatly influenced their use of research in practice. Some of the specific people mentioned by participants include: administrators, colleagues, clinical nurses specialists, research experts, staff nurses, and physicians. The influence of people, especially those in leadership roles, on the use of research in practice was identified in previous literature (Cronenwett, 1986; Dean, 1982; Egan, McElmurry, & Jameson, 1981) and appears to also be suggested by this study. When other resources (time, money, personnel, equipment) were available in the organization, they were viewed as very supportive of the use of research in practice. The presence of these resources usually indicated administrative support of the use of research in practice.

Seven participants described lack of time as an element that interfered with their use of research in practice. This finding would support the recommendation of Cronenwett (1986) and Davis (1981)

who suggested that nurses need designated time for research.

Influencing elements in the graduate school experience were noted. Participants identified that education in research during graduate school made differences in their nursing role, personal development, and research skills. Seven participants moved into new practice roles or broadened their scope of practice in present roles. Many personal differences that were described evolved around the development of research-mindedness. Participants described their skills in critiquing literature as making very important differences in their practice.

Four participants viewed the MRP as having both positive and negative influences on their use of research in practice. Participant's comments about the MRP as a NIE were much more process oriented, especially when compared with comments about the MRP as a graduate school PIE. Most participants said they had learned a lot, but gave indication of retained scars from the process. The effect of the MRP process on graduates has not been described in previous literature and certainly needs further study. What is more important, the content or the process? The sample was too small to be able to know whether the experience

described by four of the participants in conducting research while students was unique to them or whether it might possibly parallel the experiences of other graduate students.

Seven participants identified areas of dissonance between the academic setting and their practice setting. They noted that in school research was valued, whereas in practice it was viewed as a nice, but not necessary extra. They also observed research expectations as being different in the academic setting from those in the practice setting ("the real world"). Highlighting this difference was the amount of time spent for research.

There were many influencing elements, both positive and negative, that participants identified in their employing organization and in their graduate school experience. Elements within organizations had been previously described in the literature (Cronenwett, 1986; Davis, 1981; Dean, 1982; Egan, McElmurry, & Jameson, 1981). However, little had been described about the effect of graduate school on later use of research in practice, except to evaluate whether students were using research in their practice (Hayter, 1978; Smith, 1980).

Participants in this study affirmed that their use of research in practice was greatly influenced by their employing organization and by their graduate school experiences. More information about graduate school PIEs and NIEs is needed in order to maximize the role of academic education towards resolution of the problem of nursing research not being used by nurses in practice.

Effects from the Use of Research in Practice

In this section, results that addressed the third research question, "What were the effects of the use of research in practice on patient care, nursing, health care organizations, and other effects as perceived by master-prepared nurses?" are presented and discussed. Dickoff et al. (1975a & 1975b) and conceptual framework suggested that there are effects from the use of research in practice that may be as significant or even more significant than creating new products from the use of research in practice.

Participants were asked whether they had observed any benefits (see Table 6) from their use of research in practice. Effects of using research in practice were noted by participants within all general title roles and even those who used research less frequently noted some effects. Participants had difficulty

Table 6: Positive effects (benefits) based on
participant's experience with the use of research in
practice

PATIENT RELATED BENEFITS (7)

- #Increased the quality of patient care (6)
- Put us on the "cutting edge of what works" (3)
- "By using research findings as a beginning basis
for solving practice problems, we are going
to have a better change that it will work."
- Improved standards of care (2)

DISCIPLINE OF NURSING RELATED BENEFITS (6)

- #Increased nurses' political ability (7)
- Increased nurses' awareness of a problem (3)
- It made people question what they do and why they
are doing it. (2)
- Increased nursing's acceptance by other
disciplines.
- Increased confidence about what we say, not just
opinion.
- Nurses looked at their practice in the context of
a larger setting instead of being task
oriented.

PERSONAL BENEFITS (6)

- "Knowing what's been done gives you opportunity to
try new things,...expands options." (3)
- "It's been fun." (2)
- "Increased my self-esteem,...ego booster" (2)
- "Helped change my attitudes and dispel old myths"
- "It saves you time by preventing you from doing
things that don't matter."
- "Change makes things better and makes work more
exciting."

HEALTH CARE RELATED BENEFITS (4)

Increased the quality of health care (4)

Stimulated collaborative research projects with
other disciplines.

Note: The number in parenthesis indicates the number of participants with the same response. The statements were selected as representative of quotations and phrases and are not an exhaustive list of the responses.

= Solicited response

getting started in identifying benefits, but with cueing the following results were noted.

The first mentioned and most frequently identified benefit was that use of research in practice had increased the quality of patient care. Many specific examples were given to illustrate increased quality of patient care, but will not be described in order to maintain participant confidentiality. Other patient related benefits included being on the "cutting edge of what works" and improvements in standards of care. Most of the patient related benefits were as a result of the use of research products in practice.

Several discipline of nursing related benefits were noted. Those described by more than one participant are mentioned in the narrative. Participants agreed that use of research in practice increases nurses' political ability (Dickoff, James, & Semradek, 1975a). Comments about this benefit include:

"It gives power to back up feelings and make decisions with facts."

"It convinces politicians."

"You have more clout if you know what your talking about."

"It puts us on a more even basis with other disciplines who have been using research for longer."

It is important to note that increased quality of patient care and increased political ability were solicited responses and; therefore, the high response rate for these items, six and seven participants respectively, may be related to solicitation.

Another discipline of nursing related benefit was that use of research in practice increases nurses' awareness of a problem (Dickoff, James, & Semradek, 1975a). One participant described how during a QA fall study the fall rate went down, another participant described how her nurses would probably never forget certain potential patient problems that were highlighted during their participation in the conduct of research. An additional benefit for the discipline of nursing was that using research in practice made people question what they do and why they do it. In other words, it fostered the development of "research-mindedness."

Personal benefits from using research in practice mentioned by more than one participant include: increased self-esteem, fun, and expansion of options. The health care benefit from using research in practice

described by the most participants was increased health care quality. Increased quality of health care was distinguished from increased quality of patient care based on the number of people effected by the use of research in practice; if it effected an entire nursing unit or a group of patients with a similar medical diagnosis then it was referred to as a health care benefit rather than a patient care benefit.

Participants were asked to validate whether they had experienced specific benefits from using research in practice that had been suggested in the literature. Unfortunately, due to time constraints, not all participants were asked about each of the effects noted in the literature. However, some of the specific effects mentioned in the literature were spontaneously identified during the interview and a few participants were asked about all of the literature-identified effects.

A more complete listing of benefits is presented in Table 6. The quotations selected are representative of quotations and phrases and are not an exhaustive list of responses.

Participants were asked whether they identified any difficulties, challenges, or problems resulting from their use research in practice. Five participants

identified disappointment with what the use of research had not accomplished. For example, three participants said that they could not use data directly, but had to adapt it to their situation. Many other responses were also suggestive of a dissonance between their hopes for what research might offer and the practice reality (see Table 7). Three participants, two from direct care roles and one from a research related role did not express this dissonance. This may be related to the lesser use of research in practice described by these participants. Two participants encountered patient problems related to the use of research products and research methods. One participant reported that families had much greater access to health care research through the media and that this had caused some conflicts about selected health care interventions. The other participant commented on a study where the inconveniences of the research were too great in relationship to the potential outcome of the study. She described poor compliance of data collectors related to the data collector's perception that the timing of data collection was inappropriate. Data collectors had expressed that "it was a terrible time to disturb a sick patient with a dumb question." Two participants described how the volume of nursing

Table 7: Negative effects (problems) based on participant's experience with the use of research in practice.

DISSONANCE BETWEEN HOPES FOR WHAT RESEARCH MIGHT BE AND THE PRACTICE REALITY (5)

"Data can't be used directly, but must be adapted to the situation" (3)

Difficulty finding answers to questions we raise

"Not all prepared nurses contribute to the project up to their skill level"

Repeated descriptive studies collecting data without ever moving on to prescriptive studies

"Very little clinical practice research comes out of nursing"

Research has no connection with practice

"Our studies are not specific enough to the issues that we have"

Research studies do not address problems that are within the scope of nursing to resolve

"Never the change in practice you hoped for...nursing issues too big, too global"

DISCIPLINE OF NURSING RELATED PROBLEMS (3)

"So much information out there, it is hard to keep abreast of it" (2)

Lack of order in the way the nursing knowledge base is being developed

"Basing practice decisions on small amounts of data"

RESEARCH RELATED PROBLEMS (3)

Research demonstrates that "garbage in equals garbage out"

Not all research designed to be easily used

Too much jargon

"Forms so complex...patient compliance in study is low"

PERSONAL PROBLEMS (3)

Difficult to discipline yourself
More knowledge makes for greater liability
Losing control of the quality of the data, as
others collect and enter it for me (2)
"People don't like your questions"
"Enormous amount of work"

PATIENT RELATED PROBLEMS (2)

Families misunderstand research reported in the
media which sets up potential conflicts
"...Awful to disturb a sick patient with a dumb
question"

HEALTH CARE RELATED PROBLEMS (1)

Lack of money, "clinic and community can't afford
new things"

Note: The number in parenthesis indicates the number
of participants with the same response. The
statements were selected as representative of
quotations and phrases and are not an
exhaustive list of the responses.

literature created difficulties in staying current. Problems keeping up with and informed of new research findings (dissemination issues) have been suggested in studies evaluating the use of research products in practice (Brett, 1987; Miller & Messenger, 1978; Stokes, 1981).

Several problems about research design issues were noted. And, three participants described personal problems encountered when using research in practice, such as: lack of self-discipline, increased liability with increased knowledge, problems with motivating others to collect your data, people not liking your questions, and the enormous amount of work the use of research was for them. One participant described some health care related problems encountered when she attempted to institute a change in a standard of care based on research findings, and discovered that there was not money to fund the important change in care.

Participant responses demonstrated that effects from research occur and have great significance as proposed by Dickoff et al. (1975a & 1975b). However, many of the effects mentioned by participants in this study are not those described in the literature. Dickoff et al. (1975b) suggested that when nurses use research in their own practice settings that it would

be more economical, stimulate the invention of new designs, minimize service horrors, and foster habits of looking for change opportunities. The majority of participants strongly disagreed with the suggestion by Dickoff et al. (1975b) about research in the practice setting being more economical to conduct; several participants agreed with one participant who said, "You only transfer the cost to another party, but the cost is still there." Perhaps part of the reason many of the effects mentioned by Dickoff et al. (1975a & 1975b) were not validated by this study was because not all participants were asked directly about each of these potential effects.

The third research question was, "What were the effects of the use of research in practice on patient care, nursing, health care organizations, and other effects as perceived by master-prepared nurses"? Dickoff, James, and Semradek (1975a & 1975b) suggested that there are effects from the use of research in practice that may be as significant or even more significant than the initial use of research. Participants, after initial cueing, identified effects from their use of research in practice.

Positive effects (benefits) from using research in practice were categorized as: patient related,

discipline of nursing related, health care related, and personal benefits. Increased quality of patient care and increased political ability of nurses were the most frequently described benefits, however, these were described only following solicitation in most interviews. Each of the identified categories merit further study. Several of the effects described by Dickoff et al. (1975a & 1975b) were mentioned by participants, however, several participants disagreed with Dickoff et al. in regard to one effect from the use of research in practice by expressing that the use of research in practice did not make research more economical to conduct.

Negative effects (problems) from using research in practice were categorized as: dissonance between hopes for what research might be and the practice reality, patient related problems, discipline of nursing related problems, research related problems, personal problems, and health care related problems.

Participants in this study did identify important effects from using research in their practice. Until further study is done it will not be known whether these effects are typical of the experience of all graduate nurses or just those participating in this study.

Chapter IV

OVERVIEW, LIMITATIONS, AND IMPLICATIONS/RECOMMENDATIONS

Overview

Although the quantity and quality of nursing research (Brown, Tanner, & Padrick, 1984) has increased, studies evaluating the use of research products in practice continue to suggest that nurses are not using research in their practice (Brett, 1987; Miller & Messenger, 1978; Stokes, 1981). Part of the problem has been that little is known about the use of research in practice. This study was designed to affirm and expand what is known about the use of research in practice. In addition, a purpose of the study was to identify elements within graduate education and employing organizations that had influenced the use of research in practice and to identify effects from the use of research in practice.

The author chose to define research as "disciplined scholarly inquiry" and stipulated that research activities are pre-planned and have effects that transcend the setting. The use of research in practice was described as being comprised of four or perhaps more parts. The first part, the use of research products in practice, has received much attention in various studies. Using research products

in practice, or what some label "research utilization," (Haller, Reynolds, & Horsley, 1979) includes the use of research findings, instruments, and intervention procedures from reported research. The second aspect of use of research in practice was labeled the use of research methods (the conduct of research) in practice. The third and fourth parts of use of research in practice had their source in an alternative perspective (Allen, 1986; Dickoff, James, & Semradek, 1975a, 1975b; faculty interviews, personal communication, October-December 1987; Hunt, 1987). This alternate perspective about the use of research in practice suggested that additional aspects of the use of research in practice include: use of the research process in practice for resolving practice problems (decision-making) and the use of research-mindedness (inquiry) as an approach to patient care.

The conceptual model for this study viewed the nurse as the primary determinant of whether or not he/she used research in practice. Identified factors that affect whether or not the nurse uses research in practice included graduate school experience and the organization where the nurse was employed. The factors, graduate school experience and organization, were seen as containing both positive (PIEs) and

negative (NIEs) influencing elements that affect the use of research in practice.

Studies (Brett, 1987; Miller & Messenger, 1978; Stokes, 1981) defining the use of research in practice as the use of research products had reported that the majority of nurses were not using research in their practice. Several possible solutions to the problem are suggested in the literature. Academic education has been suggested as one possible route for resolving the problem of nurses not using research in their practice.

In order to gain more information about academic education as a potential solution to the problem, master-prepared graduates of the OHSU School of Nursing were selected as the accessible population for this study. Because of the strong research focus in the school's graduate program, it was assumed that graduates of this program would provide a rich resource for data about the use of research in practice. A random sample ($n = 8$) was drawn from Master in Science (M.S.) graduates of OHSU School of Nursing who completed graduation requirements prior to January 1, 1987 ($N = 28$) and met other study criteria. Potential participants were mailed a letter explaining the study, time commitments, and procedure.

The sample included three participants in management roles, three in direct care roles, and two participants in research related roles. Organizational longevity (the product of length of employment with an organization in years and average full time equivalent held) varied with a range of one-half year to twelve and one-half years, and a mean of about seven years.

An interview guide was developed by the researcher and based on literature review, interviews with faculty, and experience of the researcher. The interview guide was not adhered to rigidly, but focused conversations with participants.

Responses were sorted by question on the interview guide and then sorted according to research question (see Appendix E). Each response was coded with the identification number of the participant making the response, so that variables such as organization longevity and general role title could be associated with the response. As the responses were reviewed, several categories emerged which provided an organizing scheme for presenting results.

Limitations

The study had several limitations. Since data were collected from a very specific accessible population, with a sample size of eight, it was not

possible to generalize results beyond the initial accessible population of twenty-eight master-prepared graduates from OHSU School of Nursing.

The researcher's personal closeness with the experience of participants in the sample had both positive and negative implications for the study. The researcher being a student in the same graduate program appeared to help with accessing participants, establishing rapport with participants, and encouraging openness and frankness. Participant's comments characterizing this response included: "...you know what I mean....," and "I'm sure you can relate to this."

The researcher was constantly aware of potential threats to validity based on researcher bias. Therefore, results are best described as the researcher's perceptions of perspectives about research and its use in practice as described by eight OHSU master-prepared graduates. To help control for bias, the original data were consulted numerous times to verify a participant's response and its context. Also, many quotations were included in the presentation of results, especially responses pertaining to graduate school experience.

Implications/Recommendations

The theoretical contributions of the study were heuristic in nature. The study suggested an expanded framework for elaborating theory about the use of nursing research in practice. It suggested that there are at least four and potentially more parts that comprise the use of research in practice: use of research products, use of research methods, use of the research process, and use of research-mindedness. The four parts that comprise the use of research in practice need further study to expand definitions and boundaries. Also, with further study additional parts of the use of research in practice may be discovered.

The study has implications for practice because the data were from described experiences of nurses employed in a variety of practice settings. The data could be useful to administrators, educators, and those concerned about the research productivity of nurses in a variety of organizations that employ nurses and are interested in supporting the use of research within their organization.

The data affirmed that support by health care administrators and nurses in leadership roles within health care settings, was essential in order for use of research to flourish. Nurses in leadership roles

played key roles in making resources such as time and finances available as well as in supporting a climate of inquiry within the organization. One wonders about potentially exciting effects from using research in practice that could perhaps occur should if all nurse leaders within health care organizations made the use of research a priority in their organization.

Participant responses and literature review suggest that the use of research in practice results in effects that benefit patient care, health care, the nursing profession, as well as individual nurses. The extent of these benefits has yet to be experienced and explored.

Implications for nursing educators in health care settings were numerous. Continuing education is one route for contact with nurses in currently in practice. Continuing educators could make resources available to nurses which would help them reach their personal potentials for using research in their practice. Continuing educators could also be instrumental in encouraging and providing links between nurse researchers using research methods in the conduct of formal research and nurses in the practice setting that would have mutual benefits as well as numerous other effects.

Many implications for nursing educators in academic settings were identified. Participants suggested that graduate students, accomplished and successful experts in their practice settings, learn best from educators that approach teaching with a "learning together and from each other attitude."

There are important differences in students based on their reasons for entering graduate school that appear to influence subsequent use of research in practice. Based on analysis of participants in this study, graduate students who return to school in hopes of moving into a new role have more difficulty integrating the use of research in their practice than those who remain in the same positions before, during, and after graduate school. Perhaps students planning to enter new roles after graduation would benefit from courses about organizational change and biculturalism issues. These courses could provide a forum for addressing concerns about the use of research in practice in a new practice setting.

Several participants commented that being allowed to focus on a problem they had identified in their practice setting made the MRP one of their most helpful and meaningful graduate school experiences. They were able to work through barriers and problems in their

practice while supported in the student role. Two of the participants in this study continued with phase two of research projects begun while students that allowed them opportunity to observe longterm effects of the use of research in their practice setting.

And finally, one participant wished that at least one graduate school course would have addressed the body of knowledge from other disciplines that was an essential part of her practice. These comments, wishes, and observations provide insights into potential parts of the graduate school experience that merit further exploration.

Data from this study provide beginning insights that could have implications for nursing education. The following recommendations were made based on these insights from the interview data and the personal experience of the researcher.

- 1) Early in a nursing student's academic experience the student (undergraduate and graduate) needs to be made aware of the various ways that research may be used in practice. Nurses in practice need access to this same information about the different ways that research may be used in practice.

- 2) Nurses should be encouraged to actively use inquiry and creative problem solving in practice

settings. Nurses participating in this study described interesting and important problems needing resolution within their practice setting, but many did not move beyond to work towards problem resolution. One wonders what would happen if nurses, students and clinicians, were encouraged and supported to use inquiry and creative problem solving in resolving actual practice problems.

3) Course projects should be reality based in terms of time, formality of written work, and with immediate applicable outcomes for practice. Several participants suggested that using research methods in practice would take too much time and that problems needed to be resolved in a more timely fashion. Participants shared that use of research methods was not a viable option because the proposal and final documenting would require too much writing and would never get done.

4) Continued mentoring of graduates, especially those in new practice roles could be facilitated by encouraging current students to work with former graduates towards resolving practice problems identified by graduates in their practice setting. This would make the student projects very reality-based and would provide a support network for graduates in

new roles. These network would create a visible modeling of linkage between academic settings and health care organizations. It is exciting to think about the limitless potential of faculty, students, and graduates working collaboratively towards resolution of health care problems.

5) A final recommendation: perhaps academic and continuing education should have greater focus on teaching the research process rather than content about research, so that nurses learn how to resolve practice problems in ways that are practical and feasible within the constraints and realities of the practice setting. For nurses to become familiar with what is known about the use of research products, methods, process, and research-mindedness may be a starting place for learning, but the learning must quickly move to application, a process focus, where nurses are supported as they begin to use research in their practice setting. One wonders whether this would make the use of research in practice more feasible and practical for more nurses.

The data could also be used to assist School of Nursing administrators and faculty in the evaluation of the M.S. curriculum and "graduate school experience" in general. The findings about graduates' use of research

in practice, influencing elements in their employing organizations and from their graduate school experience, and effects from their use of research in practice could be incorporated into formal graduate program evaluations. Incorporation of data such as these would provide an on-going mechanism for the continued affirmation and expansion of what is known about the use of research in practice from the perspective of M.S. graduates.

This study brings up more questions than it resolves. However, as a result of this study, many nurses (study participants, current students, faculty, and others) were made aware of some beginning ideas about research and its use in practice, and hopefully, this awareness will have some affect on their future use of research in practice and in their support of the use of research by others in practice their practice setting.

This study would merit replication with other groups of nurses such as: nurses with different academic preparation or nurses with academic preparation from a variety of different schools of nursing. Replicating the study with a larger and more representative sample of nurses with graduate education in nursing would allow comparisons based upon

differences in practice settings, nursing roles, organizational longevity, specialty area, and other variables as well as differences in program. Moreover, data from this study could be useful in developing a questionnaire which would substantially decrease the cost of replicating the study. As a result of this study, more is known about the use of research in practice and factors that influence the use of research in practice from the perspective of employed master-prepared nurses.

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Appendix A
Letter to Participants

Launa Rae Cafferky, R.N., B.S., CCRN
17653 N.W. Dogwood Court
Beaverton, OR 97006
503/629-9744

(date)

(inside address)

Dear (name of randomly selected participant):

This letter is to share with you my concerns about the use of research in practice. The number of nurses with formal research preparation has increased and so has the amount of published nursing research, however, these changes appear to have had minimal affect on patient care and nursing practice. The use of research in practice is a critical issue both for the profession of nursing and health care in general and is currently the subject of much discussion. Are nurses using research in their practice? What factors influence the use of research in practice? What can be done to support the use of research in practice? And finally, what difference does the use of research in practice make, if any? These concerns and questions form the basis for my research project.

As a master-prepared graduate, I am sure that you have a unique perspective about the use of research in practice. Sharing your perspective will help me learn more about the use of research in practice. Additionally, your perspective will contribute to what is known about issues surrounding the use of research in practice.

Your name was randomly selected from a list of Master in Science graduates of the Oregon Health Sciences University School of Nursing. In order to participate you must be currently employed as a nurse. I will be collecting data by interview that will last approximately one to one and one-half hours. Enclosed is a consent form and a copy of the interview guide. I will also be doing some analysis of participants' job descriptions, so I will need a copy of your job description. I will contact you by phone this week to

Page two

find out whether you are able to participate and schedule a time and place of your convenience for the interview.

Thank you so much for considering participation in my study. If you have changed phone numbers or have questions for me, please write or call me at my home (629-9744).

Sincerely,

Launa Rae Cafferky, R.N.
Graduate Student, OHSU School of Nursing

Enclosures

APPENDIX B
Consent To Be A Research Subject

The Oregon Health Sciences University
School of Nursing
Consent Form

Investigation: Concepts about Research and Its Use in
Clinical Practice

Investigators: Launa Rae Cafferky, R.N., B.S., CCRN
(Caroline White, R.N., Dr.P.H.,
Master's Research Project Advisor)

I understand that Launa Rae Cafferky, a graduate student in the School of Nursing, is doing a research project designed to affirm and expand what is known about research and its use in practice. She would like to learn my perspective about the use of research in practice. She is interested in factors I identify that influence the use of research in practice, and effects that I have observed from the use of research in practice.

I understand that if I agree to participate in this project, Ms. Cafferky will be asking me questions through an interview that will last approximately one and one-half hour. Ms. Cafferky may tape recorded the interview to help her record the information. I may give my permission at the time of the interview to be contacted after the interview is completed to clarify any information that is unclear. I also will submit a copy of my job description for use in the research project.

I understand that I may benefit from participating in this project because the interview may assist me in evaluating my use of research in practice.

My identity and the identity of the organization that I am affiliated with will remain confidential. I understand that my name will not be used for publication purposes and that I am free to refuse to participate or to withdraw from this project at any time without affecting my relationship with or treatment at the Oregon Health Sciences University.

The Oregon Health Sciences, as an agency of the State, is covered by the State Liability Fund. If I suffer any injury from the research project, compensation would be available to me only if I

establish that the injury occurred through the fault of the university, its officers or employees. If I have further questions, I will call Dr. Michael Baird at (503) 279-8014.

Dr. White (279-7709) or Launa Rae Cafferky (629-9744) will answer any questions that I might have about the project. I have read the foregoing and agree to participate in this project.

Participant's signature

Date

I approve tape recording (initial)

I approve future contact to clarify information (initial)

APPENDIX C
Abbreviated Interview Guide

Abbreviated Interview Guide

ID# _____

Please answer the following questions with reference to your current employment.

1. Varying ideas exist about research and about what comprises the use of research in practice. Whether nurses are using research in their practice is debated as is whether or not they should be. Some think that the use of research in practice is practical and feasible and others do not. Tell me, do you use research in your current nursing practice? Is it appropriate, feasible, etc.?
 - A. If yes, please describe and give specific examples.
 - B. If no, please discuss reasons (skip to #6).
2. When considering the example(s) you mentioned, what factors can you identify that supported the use of research in your practice?
3. When considering the example(s) you mentioned, what factors can you identify that interfered with or blocked the use of research in practice?
4. Were there any benefits to nursing, patient care, or other benefits that you noted as a result of any of the example(s) you mentioned?
5. Were there any problems for nursing, patient care, or other problems that you noted as a result of any of the examples you mentioned?
6. Another area that has recently been discussed is the idea that some nurses may have a role in supporting the use of research by other nurses in their practice. In your organization at the present time, have you had any involvement in supporting the use of research by other nurses in their practice?

- A. If yes, please describe and give specific examples.
- B. If no, please discuss reasons (skip to #9).

7. Were there any benefits to nursing, patient care, or other benefits that you noted as a result of your supporting the use of research by other nurses in their practice?

8. Were there any problems for nursing, patient care, or other problems that you noted as a result of your supporting the use of research by other nurses in their practice?

9. Has education in research in your master's program made any difference in your practice of nursing?
Please elaborate.

10. In your opinion, did your graduate education prepare you to use research in your nursing practice?
Please elaborate.

11. Were there any specific courses, opportunities, events, or experiences that occurred as part of graduate school which have been helpful to you in supporting the use of research in your practice setting?

12. Much has been written and discussed about gaps between what is learned in educational settings and what actually occurs in practice settings. Have you found this to be true in regard to research? Are there any specific courses, opportunities, events, or experiences that occurred as part of graduate school that demonstrate this? did this (course, opportunity, event, or experience) turn you off to the idea of using or supporting the use of research in your practice setting?

13. Is there anything else you would like to share about your perspective about the use of research in practice?

APPENDIX D
Interview Guide

Interview Guide

ID# _____

Please answer the following questions with reference to your current employment.

1. Varying ideas exist about research and about what comprises the use of research in practice. Whether nurses are using research in their practice is debated as is whether or not they should be. Some think that the use of research in practice is practical and feasible and others do not. Tell me, do you use research in you current nursing practice? Is it appropriate, feasible, etc.?
 - A. If yes, please describe and give specific examples.
 - B. If no, please discuss reasons (skip to #6).
2. When considering the example(s) you mentioned, what factors can you identify that supported the use of research in your practice?
3. When considering the example(s) you mentioned, what factors can you identify that interfered with or blocked the use of research in practice?
4. Were there any benefits to nursing, patient care, or other benefits that you noted as a result of any of the example(s) you mentioned?
5. Were there any problems for nursing, patient care, or other problems that you noted as a result of any of the example(s) you mentioned?
6. Another area that has recently been discussed is the idea that some nurses may have a role in supporting the use of research by other nurses in their practice. In your organization at the present time, have you had any involvement in supporting the use of research by other nurses in their practice?

- A. If yes, please describe and give specific examples.
 - B. If no, please discuss reasons (skip to #9).
7. Were there any benefits to nursing, patient care, or other benefits that you noted as a result of your supporting the use of research by other nurses in their practice?
8. Were there any problems for nursing, patient care, or other problems that you noted as a result of your supporting the use of research by other nurses in their practice?
9. The next questions are about specific aspects of nursing practice. Some of these may apply to you and your current nursing practice.
- A. Have you been involved in quality assurance programs in your practice setting? Please give an example.
 - B. Have you been involved with identifying standards for judging nursing care processes and outcomes? Please give an example.
 - C. Has systematically collected documentation changed your approach to patient care? Please give an example.
 - D. Have you assisted with the conduct of a research project in your practice setting? Please elaborate.
 - E. Have you conducted a research project in your practice setting? Please discuss.
 - F. Have you functioned as a consultant to a research project in your practice setting? Please discuss.
 - G. Has systematically collected data from your practice setting ever changed how you thought about a practice problem? Please explain.

H. Any other examples?

10. It has been suggested that a variety of benefits, other than those from research findings, may occur as a result of the use of research in practice. Have you observed any of the following in your practice setting?

- A. Use of research in the practice setting makes research more economical to conduct.
- B. Use of research in the practice setting increases nurses' political ability and freedom.
- C. Use of research in the practice setting stimulates the invention of new research designs.
- D. Use of research in the practice setting promotes quality patient care.
- E. Use of research in the practice setting minimizes "service horrors."
- F. Use of research in the practice setting changes attitudes.
- G. Use of research in the practice setting increases attention to a problem.
- H. Use of research in the practice setting fosters habits of looking for needed change opportunities.
- I. Use of research in the practice setting brings new perspectives to clinical discussions and problem solving.

J. Any other benefits?

11. It has been suggested that there are a variety of people and things that support the use of research in practice. Some of these may be present in the organization where you work. Please indicate whether they are present and describe any influence these factors had on you or others that you know.

- A. Released clinical time for research
- B. Formal rewards in recognition of nursing research

- C. Paid leave and/or funded travel to attend research conferences
- D. Formal criteria for evaluating nurses use of research in practice
- E. Research support group
- F. Space away from clinical areas for nurses to work on their research
- G. Secretarial and/or other support as needed (i.e. computer support)
- H. Research assistance (i.e. design or statistical consultation)
- I. Funding for nursing research
- J. Journal club
- K. Staff development programs about research
- L. Career ladder that incorporates research activities
- M. Climate of critical thinking and inquiry
- N. Colleagues supportive of peer involvement in research activities
- O. Wide communication within the organization about research activities
- P. Teams of nurses with mixed research and clinical skills
- Q. Nursing executives in your practice setting.
- R. Any other examples of ways to facilitate research

12. Several reasons why nurses do not use research in their practice have been suggested. Also, several challenges, problems, or difficulties that could be potentially encountered when using research in practice have been suggested. Have you observed or experienced any of these in your practice setting?

- A. Difficulty determining which practice problems are researchable
- B. Difficulty planning the research so as to resolve a problem in the practice setting as well as make a contribution to nursing knowledge
- C. Difficulty in providing nurses with protected time for research
- D. Difficulty in designing studies to provide unbiased results
- E. Difficulty because of multiple levels of nurse preparation for entry into practice
- F. Difficulty because of little if any commitment on the part of nurses to use research in practice
- G. Difficulty because of poorly defined research roles in job descriptions of nurses
- H. Difficulty because of lack of sufficient FTEs to cover time required by research related activities
- I. Difficulty because of some having the perception that research projects are "extra work."
- J. Any other challenges, difficulties, or problems?

13. Has education in research in your master's program made any difference in your practice of nursing?
Please elaborate.

14. In your opinion, did your graduate education prepare you to use research in your nursing practice?
Please elaborate.

15. Were there any specific courses, opportunities, events, or experiences that occurred as part of graduate school which have been helpful to you in supporting the use of research in your practice setting?

16. Much has been written and discussed about gaps between what is learned in educational settings and what actually occurs in practice settings. Have you found this to be true in regard to research? Are there any specific courses, opportunities, events, or experiences that occurred as part of graduate school that demonstrate this? Did this (course, opportunity, event, or experience) turn you off to the idea of using or supporting the use of research in your practice setting?

17. In this study, "use of research in practice" is defined as having four or more parts. Please try to give an example of how each of these descriptions plays out in your practice.

The "use of research in practice" includes:

- A. use of research products (research utilization)
- B. use of research methods (conduct of research)
- C. use of research process in practice for resolving practice problems (decision-making)
- D. use of research-mindedness (inquiry) approach to patient care
- E. Others?

18. Which one or ones of the above parts of the definition of "use of research in practice" was most prevalent in your graduate education experience?

19. Which one or ones of the above parts of the definition of "use of research in practice" is most prevalent in the organization where you are employed?

20. Which one or ones of the above parts of the definition of "use of research in practice" most closely aligns with your personal thoughts and experiences about the use of research in practice?

21. Is there anything else you would like to share about your perspective about the use of research in practice?

Appendix E
Distribution of Interview Guide Questions
By Research Question

DISTRIBUTION OF INTERVIEW GUIDE QUESTIONS
BY RESEARCH QUESTION

1. What nursing behaviors and thought processes did master-prepared nurses label as the use of research in practice?

Participant responses, grouped according to interview guide questions one, six, nine, seventeen, eighteen, nineteen, and twenty, provided the majority of information used to answer this first research question.

2. What elements, as perceived by master-prepared nurses, influenced the use of research in practice (Horsley, 1985)?

Participant responses, grouped according to interview guide questions two, six, and eleven, provided the majority of information about positive influencing elements within organizations. Participant responses, grouped according to interview guide questions three and twelve, provided the majority of information about negative influencing elements in organizations.

Participant responses, grouped according to interview guide questions thirteen, fourteen, and fifteen, provided the majority of information about

positive and negative influencing elements within the graduate school experience.

3. What were the effects of the use of research in practice on patient care, nursing, health care organizations, and other effects as perceived by master-prepared nurses?

Participant responses, grouped according to interview guide questions four, five, seven, eight, and ten, provided the majority of information used to answer this third research question.

APPENDIX F
Demographic Data Sheet

DEMOGRAPHIC DATA SHEET

ID# _____

Please fill in the blanks where appropriate.

- A. What is the title of your current position?

- B. How many total months have you been employed by this organization (this includes all positions)?

- C. During the last six months, on the average, how many hours per week did you work?

_____ Full time (40 hours/week)

_____ Part time _____ (# of hours/week)

- D. During the entire time you have been employed by this organization, has the average number of hours you are paid to work each week been consistent?

_____ Yes

_____ No

- E. If no, what would you estimate as the average number of hours per week you have worked during the entire time you have been employed by this organization?

- F. What would you describe as your specialty area in nursing?

Thank you for your participation in this study!

APPENDIX G

Committee on Human Research Communication



THE OREGON
HEALTH SCIENCES UNIVERSITY

3181 S.W. Sam Jackson Park Road, L106, Portland, Oregon 97201 (503) 279-7784/7887

159

Research Services

DATE: February 25, 1988

TO: Launa Rae Cafferky, B.S. and Caroline White, Ph.D.

L-343

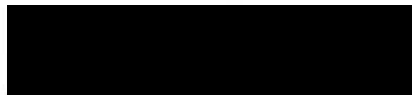
FROM: Donna Buker, Administrative Assistant
Committee on Human Research

SUBJECT: "Research and its Use in Practice as Described by employed Master-Prepared
Graduates : A Case Study of One School's Experience"

The above entitled study falls under category # 3 and is considered to be exempt from review by the Committee on Human Research. Therefore, I have put your study into our exempt files and you will receive no further communication from the Committee concerning this study.

If the involvement of human subjects in this study changes you should contact the Committee on Human Research to find out whether or not these changes should be reviewed.

If you have any questions regarding the status of this study, please contact Donna Buker at X7887.



Schools:
Schools of Dentistry, Medicine, Nursing

Clinical Facilities:
University Hospital
Doernbecher Memorial Hospital for Children
Crippled Children's Division
Outpatient Clinics

Special Research Division:
Vollum Institute for
Advanced Biomedical Research

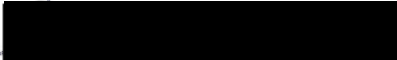
AN ABSTRACT FOR THE THESIS OF
LAUNA RAE CAFFERKY

For the MASTER OF NURSING

Date of Receiving this Degree: June 10, 1988

Title: CONCEPTS ABOUT NURSING RESEARCH AND ITS USE IN
PRACTICE: A CASE STUDY OF ONE SCHOOL'S
GRADUATES

APPROVED:


Caroline M. White, R.N., Dr.P.H., Thesis Advisor

Despite all the attention and energy focused on nursing research, very little is known about the use of research in practice. The number of nurses with formal research preparation has increased and so has the amount of published nursing research, however, these changes have had minimal affect on patient care and nursing practice. The use of research in practice is a critical issues both for the profession of nursing and health care in general and is currently the subject of much discussion. The major purpose of this study was to affirm and expand what is known about the use of research in practice. Additional purposes of the study were to identify elements within graduate education and employing organizations that had influenced the use of research in practice and to identify effects from the use of research in practice.

Since academic education has been suggested by some as one possible solution for resolving the gap between research and practice, master-prepared graduates from the

newly instituted, research-focused master of science program at Oregon Health Sciences University School of Nursing were chosen as the accessible population ($N = 28$). Graduates were randomly selected ($n = 8$) and interviewed in accordance with an interview guide developed by the researcher.

All interviewed M.S. graduates ($n = 8$), practicing in various roles and settings, identified some way in which they used or supported others use of research in practice. Participants described their use of research in practice which included: use of research products, use of research methods, use of the research process, and use of research-mindedness. Participants affirmed that support of health care administrators was essential in order for the use of research to flourish and identified elements within their graduate school experience that influenced their use of research.

As a result of this study, more is known about research and its use in practice. Data from this study provides beginning insights that have implications for groups wanting to increase the use of research by nurses (e.g., health care administrators, academic and continuing nursing educators). Data could be used to assist school of nursing administrators and faculty in the evaluation of curriculum and the "graduate school experience" in general.