



The intraoperative experience in baccalaureate nursing education
by Cheryl Lynn Koski

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF NURSING
Montana State University

© Copyright by Cheryl Lynn Koski (1985)

Abstract:

Although many authors believe that the intraoperative (operating room) experience is a valuable clinical learning experience, little or no research to date has been done concerning the merits of a formal operating room experience in a baccalaureate nursing curriculum. This study was conducted for the purpose of examining the relationship between type of intraoperative learning experience and the development of comprehensive knowledge of the nursing care needs of the surgical patient in a baccalaureate nursing curriculum.

This study utilized a quasi-experimental design and a non-probability convenience sample. Forty-nine (n=49) junior-level nursing students enrolled in medical-surgical nursing courses in the Montana State University College of Nursing participated in this study. The subjects were divided into three groups: one control and two experimental. The control group consisted of those students who had not had an intraoperative clinical experience. The first experimental group consisted of those students who had an intraoperative clinical experience, which involved observation of the surgical procedure only. The second experimental group consisted of those students who also had an intraoperative clinical experience, but one which involved actual participation as well as observation. For each subject data were acquired on the age, sex, quarter in school, prior experience in the operating room and/or as a nurse's aide, prior education, and previous nursing courses taken. Subjects were pre-tested and post-tested. Each test measured level of knowledge concerning the nursing care needs of the surgical patient. A combination of descriptive and inferential statistics were utilized to analyze the data. Results of the analysis showed that Groups II and III, which had an intraoperative clinical experience, obtained higher mean post-test scores and higher mean change scores than Group I, which did not have an intraoperative clinical experience. It was concluded that an intraoperative clinical experience in a baccalaureate nursing curriculum appears to play a significant role in influencing the level of knowledge among junior-level nursing students. The major implication of this study is that the intraoperative experience cannot be dismissed by baccalaureate nursing educators as irrelevant or unimportant. The impact of this experience in undergraduate nursing education requires further investigation.

THE INTRAOPERATIVE EXPERIENCE IN BACCALAUREATE
NURSING EDUCATION

by

CHERYL LYNN KOSKI

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF NURSING

MONTANA STATE UNIVERSITY
Bozeman, Montana

October, 1985

MAIN LIB.
N378
K847
Cop. 2

APPROVAL

of a thesis submitted by

CHERYL LYNN KOSKI

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and is ready for submission to the College of Graduate Studies.

10-17-85
Date

Kathleen Ann Long
Chairperson, Graduate Committee

Approved for the Major Department

10-17-85
Date

Anna M. Shannon
Head, Major Department

Approved for College of Graduate Studies

10-30-85
Date

W. B. Malve
Graduate Dean

STATEMENT OF PERMISSION TO COPY

In presenting this thesis in partial fulfillment of the requirements for an advanced degree at Montana State University, I agree that the Library shall make it freely available for inspection. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by my major professor, or, in her absence, by the Director of Libraries. It is understood that any copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Signature Cheryl L. Koski

Date October 15, 1985

TABLE OF CONTENTS

Chapter		Page
	Approval	ii
	Statement of Permission to Copy	iii
	Table of Contents	iv
	List of Tables	vi
	List of Figures	vii
	Abstract	viii
1	INTRODUCTION	1
	Statement of the Problem	2
	Statement of the Purpose	7
	Definitions	7
	Conceptual	7
	Operational	8
2	REVIEW OF THE LITERATURE	10
	Perioperative Experience in Baccalaureate Curriculums	10
	Nursing Care Needs of the Surgical Patient	19
	Summary	27
3	CONCEPTUAL FRAMEWORK	29
	Definition of Terms Related to the Models	29
	Principles of Learning Essential to the Models	31
	Model A	32
	Model B	39
4	METHODOLOGY	47
	Design	47
	Sample	49
	Instruments/Measures	50
	Data Production/Protocols	52
	Protection of Human Subjects	53
	Data Analysis Plan	55
5	FINDINGS	59
	The Sample	59
	Descriptive Analysis	62
	Examination of Demographic Variables	70
	Examination of Treatment Variables	74
	Discussion	78

TABLE OF CONTENTS - Continued

Chapter		Page
6	CONCLUSIONS	81
	Discussion	81
	Limitations	83
	Implications	83
	BIBLIOGRAPHY	88
	APPENDICES	97
	Appendix A - Introductory Statement	98
	Appendix B - Letter to Participants	100
	Appendix C - Agreement to Participate	103
	Appendix D - Demographic Questionnaire	105
	Appendix E - Knowledge of the Surgical Patient Test	108
	Appendix F - Instrument Content Areas	123

LIST OF TABLES

Table		Page
1	Demographic Characteristics of Sample	60
2	Range of Scores on the Pre-test and the Post-test for Groups I, II and III	62
3	Frequency Distribution - Pre-test and Post-test Scores for Group I	64
4	Frequency Distribution - Pre-test and Post-test Scores for Group II	65
5	Frequency Distribution - Pre-test and Post-test Scores for Group III	66
6	Comparison of Mean and Standard Deviation on Pre-test and Post-test Scores	68
7	Analysis of Variance on Pre-test Scores among Groups I, II and III	70
8	t-Test on Mean Pre-test Scores among Groups I, II and III	71
9	t-Test on Demographic Variables	73
10	Analysis of Variance on Post-test Scores among Groups I, II and III	75
11	F-test on Post-test Variances among Groups I, II, and III	76
12	t-Test on Mean Post-test Scores among Groups I, II, and III	77

LIST OF FIGURES

Figure		Page
1	Model A - Schematic Model of Teaching-Learning Processes and Outcome of Baccalaureate Education in Nursing	33
2	Model B - Schematic Model of Perioperative Teaching and Learning Processes and Outcomes for Baccalaureate Nursing Education	40

ABSTRACT

Although many authors believe that the intraoperative (operating room) experience is a valuable clinical learning experience, little or no research to date has been done concerning the merits of a formal operating room experience in a baccalaureate nursing curriculum. This study was conducted for the purpose of examining the relationship between type of intraoperative learning experience and the development of comprehensive knowledge of the nursing care needs of the surgical patient in a baccalaureate nursing curriculum.

This study utilized a quasi-experimental design and a non-probability convenience sample. Forty-nine (n=49) junior-level nursing students enrolled in medical-surgical nursing courses in the Montana State University College of Nursing participated in this study. The subjects were divided into three groups: one control and two experimental. The control group consisted of those students who had not had an intraoperative clinical experience. The first experimental group consisted of those students who had an intraoperative clinical experience, which involved observation of the surgical procedure only. The second experimental group consisted of those students who also had an intraoperative clinical experience, but one which involved actual participation as well as observation. For each subject data were acquired on the age, sex, quarter in school, prior experience in the operating room and/or as a nurse's aide, prior education, and previous nursing courses taken. Subjects were pre-tested and post-tested. Each test measured level of knowledge concerning the nursing care needs of the surgical patient. A combination of descriptive and inferential statistics were utilized to analyze the data. Results of the analysis showed that Groups II and III, which had an intraoperative clinical experience, obtained higher mean post-test scores and higher mean change scores than Group I, which did not have an intraoperative clinical experience. It was concluded that an intraoperative clinical experience in a baccalaureate nursing curriculum appears to play a significant role in influencing the level of knowledge among junior-level nursing students. The major implication of this study is that the intraoperative experience cannot be dismissed by baccalaureate nursing educators as irrelevant or unimportant. The impact of this experience in undergraduate nursing education requires further investigation.

CHAPTER 1

INTRODUCTION

Students in many schools of nursing have only a brief rotation through the operating room. In other schools, the student's entire operating room (intraoperative) experience consists of a single "follow-through" assignment, which generally involves observation of what happens to a patient in the surgical and recovery suites. Some schools of nursing have entirely eliminated the operating room experience.

The operation itself is the focal point of all that happens to the patient admitted to the hospital for a surgical procedure. There is no doubt that what happens to the patient in the surgical suite greatly affects the nursing care needs both preoperatively and postoperatively.

Nursing students must develop the ability to meet the needs of the total person. These needs include physical, psychosocial, and spiritual. Through a combination of didactic and clinical experience, nursing students learn to recognize these needs and how to assist the patient in meeting these needs.

Although many authors believe that the intraoperative experience is a valuable clinical learning experience,

little or no research has been reported concerning the merits of a formal operating room experience in a baccalaureate nursing curriculum. This study is designed to determine whether an intraoperative experience assists nursing students to learn to meet the comprehensive nursing care needs of the surgical patient.

Statement of the Problem

Over the last three decades, nursing practice and education have undergone many changes. Thirty years ago, state boards of nursing required students to have a rotation through the operating room (Wells, 1980). According to Wells (1980), the skills learned by the student facilitated the transition into the then primarily technical role of the registered nurse in the operating room.

Wells (1980) states that starting in the early 1960's, nursing education began to shift gradually away from technical nursing skills. Theoretical models of nursing emerged which focused on the psychological and physiological dimensions of the "whole patient" (Wells, 1980). According to Huff (1980), traditional nursing experiences, which had closely resembled a medical model, were replaced by an integrated and conceptual approach to teaching the nursing process. Huff (1980) states that today, the operating room rotation as a clinical nursing experience is virtually absent in baccalaureate nursing programs.

The impact of the removal of the operating room experience from the baccalaureate curriculum was observed by Patricia Armitage (1979), an instructor in medical-surgical nursing at Georgetown University School of Nursing, Washington, D.C. In the supervision of senior nursing students, Armitage (1979) observed the following: (a) students lacked an adequate understanding of the concept of asepsis; (b) preoperative teaching was done on an elementary level; (c) students were unable to alleviate some of the patient's fears of the unknown in describing the operating room environment, personnel, or equipment; (d) students knew little about anesthesia and its action on the body; (e) little knowledge was demonstrated by the students regarding stress and its action on body systems; and (f) students displayed little empathy toward patients' postoperative pain. In addition, Armitage (1979) asserts that without the experience of witnessing a surgical procedure, students lacked a genuine understanding of tissue trauma and the subsequent pain related to the healing process. Armitage (1979) found that students emphasized the basic tenets of postoperative care - coughing, deep-breathing, and turning, but with little specificity to the individual's surgical intervention.

Many nurses and nurse educators, as well as the Association of Operating Room Nurses (AORN) have expressed concern about the elimination of the operating room

experience from nursing education. The operating room is felt to be an essential component of a complete nursing education (Armitage, 1980; Friedman, 1979; Hercules, 1980; Huff, 1975; LaMontagne, 1982; Lindeman, 1980; Peers, 1970; Wells, 1980; Young, Takahashi, & Cheney, 1981). The AORN is committed to promoting the perioperative learning experience and asserts that the operating room challenges students to integrate the nursing process with anatomy, physiology, microbiology, and pharmacology (Young et al, 1981). In addition, the AORN maintains that in the operating room "...students can perfect skills in asepsis, time management, and team interaction for patient care" (Young et al, 1981, p. 920).

Armitage (1980) states that the perioperative experience allows students the opportunity to develop a more complete picture of the surgical patient. The advent of new techniques and new complex equipment used in the treatment of patients will necessitate more and more patients who enter hospitals for treatment be exposed to surgical therapy (Gruendemann, Shetler, Casterton, Hesterly, & Minckley, 1970). Gruendemann et al (1970) maintain that the time spent in the operating room forms the focal-point of hospitalization for the patient undergoing surgery and that all preoperative care should be geared toward this one event and all postoperative care should be based on what has taken place in surgery. Can nursing students adequately

understand what the patient will be experiencing if they have not at least witnessed this experience? Can nursing students adequately meet the bio-psycho-social needs of the surgical patient without this experience?

Atkinson and Kohn (1978) state that nursing judgements are based on knowledge of patient needs. According to Atkinson and Kohn (1978), the surgical patient faces a grave threat to the basic needs of a human being. These needs are physical, psychosocial, and spiritual (Atkinson & Kohn, 1978). Pleitez (1972) states that a surgical procedure whether major or minor, emergency or optional, always affects the patient physically and emotionally. According to Luckmann and Sorensen (1980), some alterations associated with surgery are the following: (a) the stress response is elicited; (b) the defense against infection is lowered; (c) the vascular system is disrupted; (d) organ functions may be disturbed; (e) the body image may be disturbed; and (f) life styles may change.

Atkinson and Kohn (1978) state that a basic understanding of operating room technique and intraoperative procedures is essential for the total care of the surgical patient. In addition, Atkinson and Kohn (1978) maintain that the professional nurse must have a knowledge of the operative site and procedure, the effects of operative trauma on the body, and the problems of recovery and rehabilitation. Knowledge in these areas is viewed by

Atkinson and Kohn (1978) as essential for the nurse to plan and manage the preoperative, intraoperative, and postoperative nursing care regimen of the surgical patient in order to meet individualized needs.

Knowledge of the nursing care of the surgical patient must be a vital component of nursing education programs. Knowledge of preoperative, intraoperative, and postoperative nursing problems as well as the bio-psycho-social needs of the surgical patient are essential in order to provide adequate care.

The perioperative period includes three phases - preoperative, intraoperative, and postoperative. The preoperative phase begins at the time the patient is admitted to the hospital for the surgical procedure and continues until the patient is transferred to the operating room. The intraoperative phase begins from entrance to the operating room until transfer to the recovery room. The postoperative phase begins at the time the patient is admitted to the recovery room until discharge from the hospital (Groah, 1983). The role of intraoperative clinical experience in assisting students to develop knowledge of the comprehensive nursing care needs of the surgical patient has not been reported. Therefore, a study that focuses on the intraoperative learning experience in the baccalaureate curriculum will assist in establishing the significance of this clinical experience in the development of knowledge in

students of the nursing care of the surgical patient. The present study will focus on the intraoperative learning experience of nursing students in a baccalaureate curriculum and its relationship to the development of knowledge regarding the nursing care needs of surgical patients.

Statement of the Purpose

The purpose of this study is to examine the relationship between type of intraoperative learning experience and the development of comprehensive knowledge of the nursing care needs of the surgical patient among junior nursing students in a baccalaureate nursing curriculum.

Definitions

Conceptual

Intraoperative Learning Experience - coordinated and planned didactic instruction and supervised clinical experience in care of the patient from entrance to the operating room until admission to the recovery room.

Comprehensive Knowledge of the Nursing Care Needs of the Surgical Patient - knowledge of the biopsychosocial needs of the surgical patient preoperatively, intraoperatively, and postoperatively.

Junior Nursing Students - students in the first year of upper division study (third year of the curriculum) at a college of nursing which prepares students for a Bachelor of Science Degree in Nursing.

Baccalaureate Nursing Curriculum - a four year program of study at a college of nursing which prepares students for a Bachelor of Science Degree in Nursing.

Operational

Intraoperative Learning Experience - coordinated and planned didactic instruction and supervised clinical experience in care of the surgical patient from entrance to the operating room to admission to the recovery room presented in the junior-level baccalaureate nursing curriculum at Montana State University College of Nursing. The courses included in this study are N356 (Medical-Surgical Nursing I) and N357 (Medical-Surgical Nursing II) at the extended campuses of Billings and Missoula.

Baccalaureate Nursing Curriculum - a four-year program of study at Montana State University College of Nursing which prepares the student for a Bachelor of Science Degree in Nursing.

Comprehensive Knowledge of the Nursing Care Needs of the Surgical Patient - knowledge of the biopsychosocial needs of the surgical patient preoperatively, intraoperatively, and postoperatively. Knowledge of the biopsychosocial needs of the surgical patient is measured by test scores attained on the "Knowledge of the Surgical Patient" test, developed by this investigator. This test includes the following areas:

- (1) Knowledge of human anatomy and physiology.
- (2) Knowledge of principles of asepsis.
- (3) Knowledge of anesthesia and its affect on the body.
- (4) Knowledge of nursing process as applied to the care of the patient preoperatively, intraoperatively, and postoperatively.
- (5) Knowledge of human responses to actual and potential health problems associated with surgery in surgical patients.

Junior Nursing Students - students in the first year of upper division study (third year of the curriculum) at Montana State University College of Nursing which is preparing the student for a Bachelor of Science Degree in Nursing.

CHAPTER 2

REVIEW OF THE LITERATURE

There is little literature which examines the relationship of the perioperative learning experience to the development of knowledge about the comprehensive nursing care needs of the surgical patient. However, a significant amount of literature addresses the individual areas of:

- (1) the perioperative experience in nursing education, and
- (2) the nursing care needs of the surgical patient.

Perioperative Learning Experience in Baccalaureate Curriculums

Huff (1980) states that the foundation of professional nursing is baccalaureate education. Porter and Feller (1979) state that undergraduate nursing education is concerned with "...preparing and producing a professional practitioner of nursing capable of providing quality service in the expanding health care delivery system" (p. 27).

To achieve the goal of a well-prepared nurse, Porter and Feller (1979) state that nurse educators are concerned with educative experiences which will promote excellence in learning. Clinical laboratory experiences are particularly significant in the education of nurses; they constitute the

essence of the academic program of study in baccalaureate programs of nursing (Porter & Feller, 1979).

According to Porter and Feller (1979), the planning and implementation of clinical practice by nurse educators has a profound effect on the proficiency of a graduate nurse. The acquisition of nursing knowledge and skills is affected by the structuring of clinical practice. In support of the need for structuring, Porter and Feller (1979) state that the "...clinical practicum constitutes 50 percent of the baccalaureate nursing students' program of study; therefore it is of utmost concern to nursing education that the clinical portion of a curriculum be planned and implemented to provide educationally sound learning experiences" (p. 27).

The National League for Nursing (NLN) Criteria for the Appraisal of Baccalaureate Nursing Programs (1977) does not specifically designate the amount and type of clinical experiences necessary in a nursing education program. However, the Criteria (1977) do require that the curriculum focus on the knowledge and practice of nursing and draw on relevant arts and sciences, and that "...the liberal and professional education requirements should be organized so that knowledge, understanding, and skills are developed progressively throughout the program" (p.14).

According to Young et al (1981), the perioperative experience includes three phases - preoperative,

intraoperative, and postoperative. The preoperative phase includes the period during which the patient is admitted to the surgical floor and is prepared physically, emotionally, and legally for the operation (Groah, 1983). During the preoperative phase, the emphasis is upon the correction of physiologic and psychologic problems that might increase surgical risk, thorough and complete explanations of the specific surgery, and instruction in and demonstration of exercises that will benefit the patient during the postoperative period (Groah, 1983).

The intraoperative phase includes the period during which the patient is transferred to the operating room, is anesthetized, and undergoes the surgical procedure (Groah, 1983). The emphasis during the intraoperative phase is on asepsis, hemostasis, and safe administration of anesthesia (Groah, 1983).

The postoperative phase includes the period during which the patient is observed and assisted in recovery from the anesthesia and from the stress of surgery itself (Groah, 1983). During the postoperative phase, maintenance of body system functioning, the alleviation of pain and discomfort, and adequate discharge planning and teaching is emphasized (Groah, 1983; Kneedler & Dodge, 1983).

Wells (1980) noted that although the perioperative experience includes three phases, many baccalaureate programs concentrated only on the preoperative and

postoperative phases. According to Hercules (1980), many nurses and nurse educators believe that the intraoperative or operating room experience is an essential component of a complete nursing education and that the operating room experience is a valuable part of the curriculum. Wells (1980) supports the need for intraoperative learning experience when she states that inclusion of the intraoperative experience allows students to study the person as a holistic being which will lead to the provision of comprehensive nursing care. Hercules (1980) asserts that students can learn in the intraoperative experience since "...a nursing diagnosis from the patient unit can be transferred to the operating room. Likewise, patient problems identified intraoperatively can become a basis for nursing care in other settings" (p.799).

McNeill (1975) reports that many nursing school curricula provide operating room experiences ranging from two to nine weeks; however, some programs provide only one-to-two day experiences of observation only. In this limited time, according to McNeill (1975), it is impossible to learn effectively about the surgical patient's needs and the techniques, skills, and attitudes required of the operating room nurse.

Experience in the operating room enables the student to reinforce the basic knowledge of anatomy and physiology and gain an understanding of the principles of aseptic technique

that can be applied to other areas of clinical practice (McNeill, 1975). In addition to enabling students to gain a better understanding of anatomy and physiology, experiences in the operating room enable students to gain a better understanding of the pathological condition that necessitated the surgical procedure (Sharp, 1980).

McNeill (1975) further states that experiences in the operating room assist the student in developing a more extensive knowledge of the surgical patient. This knowledge, when transferred into practice according to McNeill (1975), assists in developing a better understanding of the physical, emotional, and psychological needs of the surgical patient.

Atkinson and Kohn (1978) state that many generalist nursing behaviors may be learned from experiences in the operating room by focusing on what happens to the patient during surgical intervention. In addition, they state that participation in and observation of the nursing process in the operating room can offer the student an opportunity to:

- (1) investigate the nursing care process through assessment and implementation of nursing actions in the OR (operating room) that correlate the operative procedure with other aspects of patient care.
- (2) promote an understanding of the patient's total surgical experience by demonstrating the ability to assess physiological, psychological, and sociological patient needs through preparation of a nursing care plan.
- (3) reinforce basic knowledge of anatomy and physiology and gain knowledge of the total patient

experience as a basis for management of preoperative patient anxiety related to body image and postoperative pain related to site of incision and intraoperative procedure.

- (4) assist patients with the management of anxiety by assessing their needs for psychological support preoperatively and by anticipating their psychological and physiological needs in the postoperative recovery period through an understanding of the total surgical experience.
- (5) recognize the effects of preoperative medication, anesthesia, positioning on the operating table, site of incision, and operative procedure as a basis for planning the patient's postoperative recovery and rehabilitation.
- (6) develop an appreciation of the meaning of the surgical experience for patients and their families as a basis for correlating the intraoperative phase with establishment of priorities for teaching and planning all aspects of surgical patient care to promote continuity of care.
- (7) become a more effective communicator with patients through pre- and postoperative teaching based on knowledge of the intraoperative procedure as it relates to each individual patient and his or her family.
- (8) identify the members of the OR team and the legal responsibility of each member for the care of the conscious or the unconscious patient as a basis for establishing and maintaining inter- and intra-departmental functions that ensure continuity of surgical patient care.
- (9) participate in making collaborative decisions that demonstrate his or her willingness to cooperate with members of the OR team on behalf of the patient.
- (10) decrease the potential eventuality of an environmentally acquired infection by understanding the principles of aseptic technique and by demonstrating the ability to adhere to them (p. 6-7).

Many nurses who work on surgical units, according to Kneedler and Dodge (1983), may have limited knowledge of the

effects of intraoperative occurrences on patients and a limited knowledge of what transpires in the operating room. Crawford (1975) asserts that frequently such nurses or nurses without operating room experience do not understand patient needs since it is hard to understand what one has never been taught or experienced. Crawford (1975) warns that more apathy on the part of nurses involved in the care of preoperative and postoperative patients may be seen unless the operating room is returned to the nursing student's curriculum.

Although many authors believe the intraoperative experience is a valuable component in the baccalaureate nursing curriculum, Hicks (1975) identified five reasons why the operating room experience has frequently been omitted from nursing school curricula. The first reason discussed by Hicks (1975) is that with the vast increase in knowledge in nursing, it is no longer possible for students to have experiences with every type of patient and in every department of a hospital. As a result, it has been necessary to select representative experiences for students (Hicks, 1975).

A second reason cited by Hicks (1975) for exclusion of the operating room experience is that the nurse's role has changed. The nurse is no longer the 'handmaiden of the physician', "...but a colleague with a distinct contribution to the delivery of health care to individuals and families "

(Hicks, 1975, p. 633). With this changing role of the nurse, many nurse educators believe that the operating room experience focuses unnecessarily on technical tasks which are nonessential or can be learned elsewhere (Gruendemann et al, 1970).

The third factor discussed by Hicks (1975) is a combination of the impact of the knowledge explosion and the changing role of the nurse. This has led to the recognition by nursing educators that "...it is no longer possible, necessary, or practical to prepare practitioners for specialized professional nursing functions" (Chioni & Schoen, 1970, p. 50). Students cannot be prepared for everything in nursing practice because of insufficient time (Hicks, 1975). In response to the problems of time limitation and knowledge explosion, the National Commission for the Study of Nursing and Nursing Education (1970) proposed a two-tract system for the preparation of nurses: episodic practice which emphasizes the creative and restorative aspects of nursing and distributive practice which emphasizes the prevention of disease and the maintenance of health. This approach has led to the adoption by nursing faculties of an integrated approach to curriculum development (Elder & Smyth, 1970; Hicks, 1975). Courses have been developed to center on the learning objective rather than on the clinical unit where the student is assigned (Elder & Smyth, 1970). The extended experience

in the operating room has not fit with this integrated curriculum pattern and has tended to be omitted (Hicks, 1975).

The fourth reason cited by Hicks (1975) is the change in the operating room clinical experience itself which is often outside the control of the nursing education institution. Previously, students in the operating room were primary members of the operating team. With the proliferation of health care workers, students are now frequently so far removed from the operating table that they cannot even see the patient (Hicks, 1975). According to Hicks (1975), the learning needs of other health professionals in the operating room have superseded those of nursing students.

The final reason cited by Hicks (1975) for elimination of the operating room experience is the lack of faculty who are experienced in the operating room. The lack of proficiency among nursing faculty in the care of the patient intraoperatively has made nursing faculty hesitant to instruct students in this area. Also, nursing faculty are no longer able to remain with students while they are in the operating room due to the number of students and the variety of their experiences. This has also contributed to removal of the operating room experience from the curriculum (Hicks, 1975).

Nursing Care Needs of the Surgical Patient

Atkinson and Kohn (1978) define needs as "...factors that must be controlled or redirected to restore altered function" (p. 33). Nursing judgements are based on knowledge of patient needs (Atkinson & Kohn, 1978). Atkinson and Kohn (1978) state that surgical patients face a grave threat to their physical, psychosocial, and spiritual needs. They describe the physical needs as the life-sustaining necessities such as food, water, oxygen, sleep, and warmth; psychosocial needs as the needs for security, belonging, inclusion, affection, recognition, self-esteem, identity, and control; and spiritual needs as the support of a person's religious views or belief in a supreme being(s) whose guidance influences a person's life.

In addition to altering the ability to meet the basic needs, surgery creates other specific problems for patients which affect them physically and emotionally (Hewitt, 1984; Pleitez, 1972; Saylor, 1975). Individuals confronted with surgery experience fear of the unknown, hopes for the future, an awareness of potential losses, and moments of crisis (Palmateer, 1983; Saylor, 1975).

According to Luckmann & Sorensen (1980), although each type of surgery creates its own specific problems, all surgery is associated with a number of systemic reactions by the patient. These reactions may include the following:

- (a) eliciting the stress response;
- (b) lowering the

defense against infection; (c) disruption of the vascular system; (d) disturbed organ function; (e) disturbance in body image; and (f) changes in life style.

In general, the terms injury, stress, and trauma are used to denote any threat to a person's well-being (Marcinek, 1977). Murray (1975) defines stress as "... a physical and emotional state indirectly observable, always present, but intensified when internal or external environmental change or threat occurs" (p. 69) and stressor as "... an agent or factor that causes intensification of the condition of stress" (p.69). Stressors include cold, heat, radiation, infectious organisms, disease processes, mechanical trauma, forced muscular exercise, hemorrhage, pain, fear, imagined events, or intense emotional involvement (Selye, 1956).

Surgery is considered a stressor (Fraulini, 1983; Janis, 1958; Murray, 1977; Palmateer, 1983; Pleitez, 1972). Janis (1958), in his classic work regarding surgery and stress, states:

From a psychological standpoint, a major surgical operation constitutes a stress situation which resembles many other types of catastrophes and disasters in that the 'victim' faces a combination of three forms of imminent danger - the possibility of suffering acute pain, of undergoing serious body damage, and of dying (p. 10).

In Janis' investigation of the psychological effects of surgery, he reported that more than 75% of the patients expressed a moderately high degree of preoperative

anxiety. A greater number of patients expressed fear as the hour of surgery approached, and the level of patient fear was highest among those patients who were conscious when entering the operating room.

Surgery threatens homeostasis and elicits the stress response in individuals (Marcinek, 1977; Murray, 1977). Surgery is considered controlled trauma since it is performed under controlled conditions. However, any type of trauma, controlled or uncontrolled, elicits the stress response or general adaptation syndrome (Marcinek, 1977).

The general adaptation syndrome was first described by Selye (1956). According to Selye (1956), the stress response is a protective mechanism that enables a person to adapt to trauma and gradually regain homeostasis.

Individuals respond to stress differently, and one individual will react differently from situation to situation (Hewitt, 1984). Pleitez (1972) states that the psychophysiological reaction to a surgical procedure depends "... on the structure of the personality; on the nature, duration, course, and prognosis of the illness; on the surgeon-patient relationship; on the hospital milieu; and on the patient-staff relationships" (p. 137).

In general, however, the stress response following surgery includes several distinct physiologic reactions. The reactions following surgery are stimulation of the adrenal medulla by the sympathetic nervous system, increased

amounts of circulating epinephrine and norepinephrine, tachycardia, increased blood pressure, cool pale skin, bronchial dilatation, and increased blood sugar (Marcinek, 1977).

The anterior pituitary gland also increases its secretion of adrenocorticotrophic hormone (ACTH) following surgery. ACTH stimulates the adrenal cortex to increase its secretion of glucocorticoids (primarily cortisol) and mineralcorticoids (primarily aldosterone). Increased glucocorticoid production leads to gluconeogenesis which enables the body to meet the stress of surgery by providing energy in the form of glucose. Increased mineralcorticoid production assists in maintaining intravascular volume which is disrupted during surgery (Marcinek, 1977; McConnell, 1977).

When a patient is exposed to a surgical procedure, the first line of defense against bacterial invasion, the skin, is destroyed (Bruno, 1979; Byrner, 1979; Flynn & Rovee, 1982; Leonard, 1984; O'Byrne, 1979). As a result, the possibility of infection is an everpresent problem confronting the surgical patient. According to Lockett (1983), about one out of every twenty patients undergoing surgical procedures is likely to acquire postoperative wound infection. The acquisition of a postoperative infection increases the risk of morbidity and mortality to the surgical patient (Lockett, 1983).

Patients are also prone to respiratory complications postoperatively (Codd & Grohar, 1975; Johnson, 1975). The potential for the development of pulmonary congestion, atelectasis, or pneumonitis exists for any patient having general anesthesia and/or abdominal or thoracic surgery (Bakutis, 1972; Johnson, 1975).

The severing of blood vessels during surgery is associated with interruptions in the vascular system (Groah, 1983; Sladen, 1984). Despite the fact that the severed blood vessels are clamped by surgeons immediately, some blood loss always occurs during surgery (Kneedler & Dodge, 1983). Excessive blood loss can lead to shock and hemorrhage intraoperatively or postoperatively (Croushore, 1979; Groah, 1983; Kneedler & Dodge, 1983; McConnell, 1977; Parsons & Stevens, 1974; Sladen, 1984).

Organs are often either manipulated or removed during surgery. If the organs are manipulated, organ function may be temporarily disrupted during the postoperative period (Kneedler & Dodge, 1983; Metheny, 1975). Radical surgeries may alter the physiologic functioning of the entire body (Kneedler & Dodge, 1983). The administration of anesthetic agents may also interfere with several body functions (Holley, 1975).

Surgery can affect a person's body image. Gruendemann (1975) defines body image as "... one's conceptual profile of his body ('I-ness')" (p.636). Body image consists of

conscious and unconscious feelings, facts, and perceptions about one's body. Formation of body image begins in early childhood and continues to evolve throughout life (Gruendemann, 1975; McCloskey, 1976). Surgery can either enhance or disrupt a patient's body image. Surgical amputations of a limb or breast, disfiguring operations or removal of organs of symbolic importance may cause disturbances of body image. On the other hand, cosmetic surgeries may enhance a person's body image (Gruendemann, 1975).

Kneedler and Dodge (1983) state that surgery may necessitate changes or alterations in a patient's way of life during the immediate postoperative period. The patient's financial status, job, and recreational activities may also be affected by surgery (Atkinson & Kohn, 1983; Hewitt, 1984).

Each individual reacts to surgery in unique ways (Beyers & Dudas, 1984; Gruendemann, 1975; Kneedler & Dodge, 1983; Long & Phipps, 1985; Moidel, Sorensen, Giblin, & Kaufman, 1971; Pleitez, 1972). According to Moidel et al. (1971), "... the patient's reaction to surgery is based on his perception of the degree of immediate threat from the surgery, i.e. the physical, psychological, social, and financial sacrifices involved; his perception of the outcome of the surgery, i.e. the degree to which the surgery will ultimately improve his condition or disable him in some way;

and his usual behavior in response to a threat, i.e. withdrawal, denial, bravado, decisive action" (p. 458).

The nurse as an essential member of the health care team attempts to make surgery a more tolerable experience for the patient (Groah, 1983; Kneedler & Dodge, 1983; Long & Phipps, 1985; Smith & Germaine, 1975). Smith and Germaine (1975) state that every patient has the right to expect high quality care. The process of care requires careful, detailed planning and coordination as well as accurate assessment of the patient. Accurate assessment and planning ensure that the patient is given the maximum benefit of technical and personal care.

Kneedler and Dodge (1983) report that 45.2 percent of short-stay hospital patients have had surgery. However, Kneedler and Dodge (1983) state that nurses who work on surgical units have limited knowledge of the effects of intraoperative occurrences on patients and a limited knowledge of what transpires in the operating room.

The American Nurses Association (ANA) has identified the Standards of Medical-Surgical Nursing Practice. According to the ANA (1974), these standards provide a means for determining the quality of nursing care a patient receives. The ANA Standards (1974) require that nurses who are engaged in the practice of Medical-Surgical nursing should:

- (1) base nursing practice on principles and theories of bio-physical and behavioral sciences;

- (2) continuously update knowledge and skills, applying new knowledge generated by research, changes in health care delivery systems, and changes in social profiles;
- (3) determine the range of practice by considering the patient's needs, the nurse's competence, the setting for care, and the resources available; and
- (4) insure patient and family participation in health promotion, maintenance, and restoration (p.1).

The Association of Operating Room Nurses (AORN) Nursing Practices Committee developed the Patient Outcome Standards for Perioperative Nursing in November, 1983. The AORN's goal in developing these standards was to provide nurses with guidelines for giving the best possible care to a patient who experiences surgery (Botsford, 1984). There are six outcome standards that focus on prevention of high incidence problem areas for surgical patients (Botsford, 1984). The six standards developed by the AORN (1983) are:

- (1) The patient demonstrates knowledge of the physiological and psychological responses to surgical intervention.
- (2) The patient is free from infection.
- (3) The patient's skin integrity is maintained.
- (4) The patient is free from injury related to positioning, extraneous objects, or chemical, physical, and electrical hazards.
- (5) The patient's fluid and electrolyte balance is maintained.
- (6) The patient participates in the rehabilitation process (p.ii-1).

According to Botsford (1984); by integrating these outcome standards into practice, the nurse is able to observe

results of care given to a particular patient and measure to what extent his needs are met.

The surgical patient is an individual with interdependent physiological, psychological, and social needs (Kneedler & Dodge, 1983). According to Atkinson and Kohn (1978), in order to effectively meet the patient's requirements, nurses must have knowledge of the patient's needs, understanding of individuality, and realization of what an operation means to a patient.

A patient's needs are not likely to be satisfied by being connected to the newest machine, or simply by the nurse's understanding of the newest surgical procedure (Kneedler & Dodge, 1983). What the patient needs is personal contact, help in coping with fears and anxiety, and explanations other than those provided by the surgeon and anesthetist. These needs can and should be provided by the professional nurse.

Summary

In summary, many authors believe the intraoperative experience is a valuable component of baccalaureate nursing education. They state that in the operating room, students can learn many generalist nursing behaviors as well as be provided the opportunity to focus on patient responses to surgical intervention. Surgery creates several specific problems in the patient which make the needs of the

surgical patient unique. An intraoperative clinical experience allows the student the opportunity to recognize and meet the individualized needs of the surgical patient.

Although there are valid reasons for including an operating room experience for every student, other authors present sound reasons for the exclusion of such experience from baccalaureate nursing curriculums. The lack of adequate time to include experiences in many different areas of nursing, the changing role of the nurse, the lack of adequately prepared faculty, and the knowledge explosion in nursing are the major reasons identified in the literature.

A great deal of literature focuses on the nursing care needs of surgical patients. There is apparent concensus regarding the importance of preparing nursing students to deal with health care problems encountered by patients preoperatively and postoperatively.

CHAPTER 3

CONCEPTUAL FRAMEWORK

The conceptual framework for this study centers around the following concepts: teaching, learning, nursing, and man. These concepts have been applied to baccalaureate nursing education in general as well as to the perioperative experience in baccalaureate nursing education. Thus, there are two models for this study. Model A (see Figure 1, p. 33) depicts baccalaureate nursing education in general. Model B (see Figure 2, p. 40) depicts the perioperative experience in baccalaureate nursing education. Prior to discussing these models, the writer will define the relevant terms as they are used in the models and identify the principles of learning inherent in the models.

Definition of Terms Related to the Models

Teaching - a system of actions intended to induce learning (Dembo, 1977).

Learning - a process by which behavior is either modified or changed through experience or training (Dembo, 1977).

Nursing - the diagnosis and treatment of human responses to actual or potential health problems (ANA, 1980).

Science of Nursing - the identification, learning, and synthesis of the knowledge and skills specific to the cognitive, psychomotor, and affective domains of nursing practice (Rawnsley, 1980).

Art of Nursing - the application and incorporation into nursing practice of the knowledge and skills specific to the cognitive, psychomotor, and affective domains (Rawnsley, 1980).

Cognitive Domain - an area of nursing concerned with intellectual abilities; this area includes knowledge, understanding, and thinking skills (Bennett, 1980).

Affective Domain - an area of nursing concerned with feelings and emotions; this area includes attitudes, interests, appreciation, and methods of adjustment (Bennett, 1980).

Psychomotor Domain - an area of nursing concerned with motor skills (Bennett, 1980).

Baccalaureate Nursing Education - a four-year program of study at a college or university designed to provide the student with abilities necessary for the diagnosis and treatment of human responses to actual or potential health problems.

Man - a biopsychosocial being; a composite of physical, psychological, and social needs (Roy, 1980).

Didactic Instruction - a method of instruction in which the teacher imparts the facts, concepts, and principles to be learned to the student; reception learning.

Clinical Instruction - a method of instruction which involves actual participation in the care of patients by the student of nursing; experiential learning.

Principles of Learning Essential to the Models

The following principles of learning have been applied to the models. These principles were drawn from the work of Bigge (1964, 1982). Bigge (1964, 1982) described several principles of learning from a wide range of literature. The principles utilized in this conceptual framework from the work of Bigge (1964, 1982) are those applicable to this framework, and are as follows:

- (1) Active participation by a learner is preferable to passive reception when learning.
- (2) Repetitive practice is essential in the learning of certain skills, notably manual skills.
- (3) Transfer to new tasks will be better if, in learning, learners can discover relationships for themselves and if they have experience during learning of applying the principles within a variety of tasks.
- (4) Learning occurs more rapidly and knowledge is retained longer when students grasp relationships

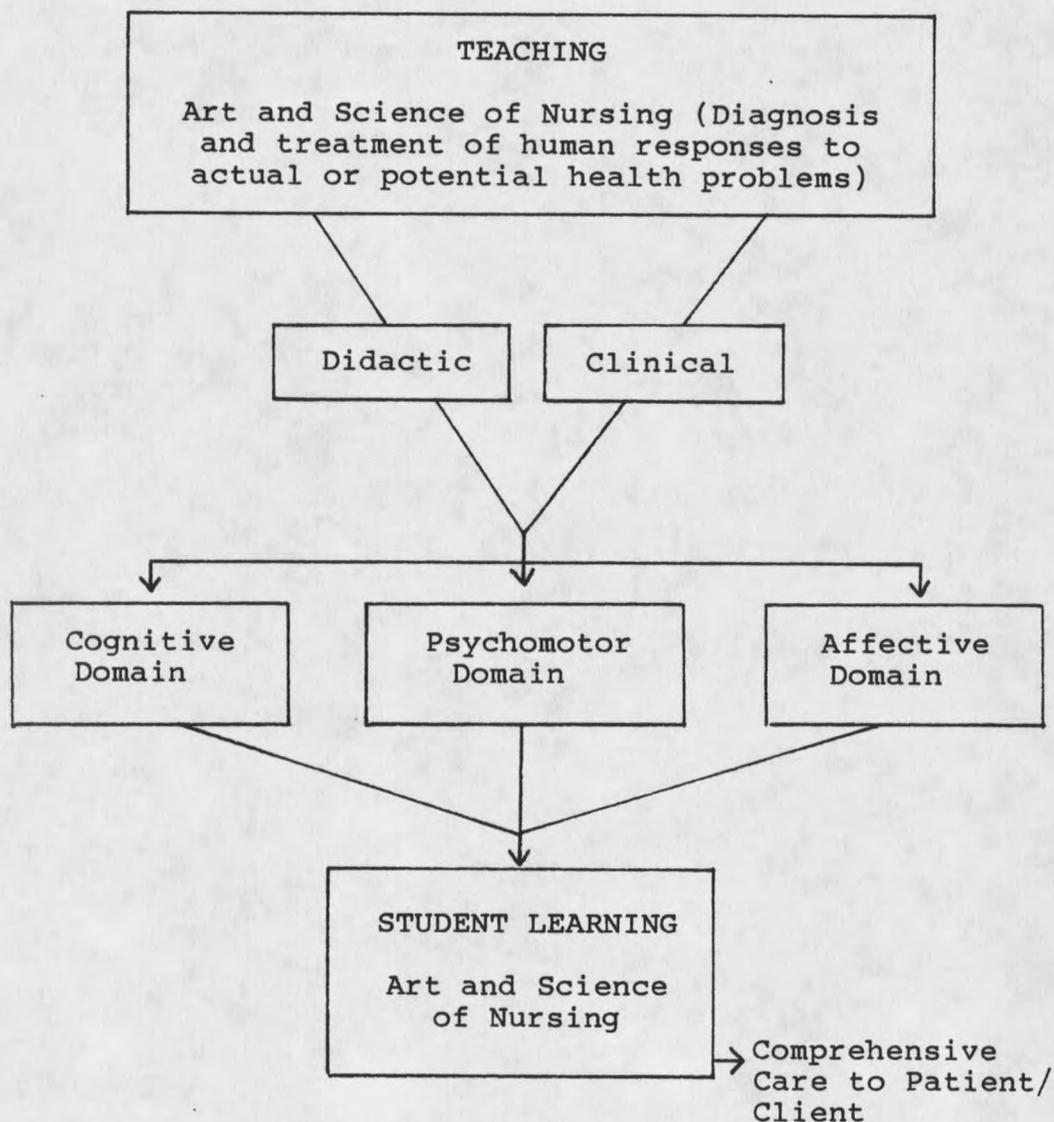
between facts, rules, principles, and generalizations for which they see some use.

Model A - Teaching-Learning Processes and Outcome
of Baccalaureate Education in Nursing

Model A (see Figure 1, p. 33) is a schematic representation of baccalaureate nursing education in general. Nursing education programs at the baccalaureate level teach in order to promote or induce learning in the nursing student. Teaching is defined as a system of actions to induce learning (Dembo, 1977). According to Redman (1976), the teaching-learning process begins when a need for knowing or gaining an ability to do something is identified. Thus, one must have a goal for the learner before initiating teaching.

In this framework, the identified goal (or learning need) of baccalaureate nursing education is that the student of nursing learn the art and science of nursing in order to develop the ability to provide comprehensive care to patients/clients. Comprehensive nursing care means that the student learns to recognize nursing care needs that the patient is presently experiencing or that the patient may potentially experience. The nursing student must also learn to assist the patient/client in meeting these needs in order to provide comprehensive patient care. The goal of baccalaureate nursing education is to provide the student, upon completion of studies, with abilities necessary for

Figure 1. Schematic Model of Teaching-Learning Processes and Outcome of Baccalaureate Education in Nursing (Model A)



"...the diagnosis and treatment of human responses to actual or potential health problems" (ANA, 1980, p. 9).

In order to meet this final goal of the teaching-learning process in baccalaureate nursing education, nursing education programs teach the art and science of nursing through the use of two types of teaching methods - didactic and clinical. Didactic teaching for this study refers to classroom teaching in which the teacher imparts the facts, principles, and concepts to be learned by the student through lecture, seminar, and discussion. Two other names for didactic instruction are expository teaching or reception learning (Dembo, 1977). Clinical teaching in this study refers to a method of instruction which involves actual supervised experience by the student of nursing in the care of patients/clients. Another name for clinical instruction is experiential learning. Didactic instruction allows for the presentation of facts or concepts in an organized fashion. Clinical instruction allows for the application of facts and principles presented, practice, and active participation by the learner. It will be shown in this framework that each one of these methods is useful in learning specific skills essential to the development of the art and science of nursing.

According to Rawnsley (1980) nursing consists essentially of three domains of learning - cognitive, psychomotor, and affective. The cognitive domain is an area

of nursing concerned with intellectual abilities. It includes knowledge, understanding, and thinking skills (Bennett, 1980). The psychomotor domain is an area of nursing concerned with motor skills (Bennett, 1980). The affective domain is an area of nursing concerned with feelings and emotions. This domain includes attitudes, interests, appreciation, and methods of adjustment (Bennett, 1980).

Baccalaureate nursing education programs focus on teaching in these three domains of nursing. The development of cognitive, psychomotor, and affective skills in nursing assists the student in developing the art and science of nursing. As a science, nursing has been gleaned from the biological, physical, and social sciences. It is composed of sound scientific facts which the nursing student must learn. Rawnsley (1980) states that the art of nursing consists of successfully incorporating all three domains into practice. The nursing student must also develop the art of nursing. From this it is evident that baccalaureate nursing education is attempting to teach the student theory as well as the application of this theory to practice.

In teaching the domains necessary to develop the art and science of nursing, Redman (1976) has stated that each domain responds best to a particular method of teaching. Facts and concepts within the cognitive domain are taught best by written materials, audiovisual aids representing the

concepts, lectures, and discussion (Redman, 1976). A student cannot apply a theory until the student has knowledge of the theory. Likewise, a student cannot have knowledge of a theory until the student knows some facts upon which the theory is based. Thus, the didactic method is probably the most effective means of aiding the student to learn in the cognitive domain in nursing.

The clinical method of instruction is also important in assisting the student in learning within the cognitive domain in nursing. In the beginning of this conceptual framework, several principles of learning were identified. It was stated that learning is greater when the student can actually see the relationships between facts, concepts, and principles; learning is also enhanced when the student can actually apply the principles taught. Clinical experience allows the student this opportunity. The student can actually witness what has been previously taught didactically. Thus, learning in the cognitive domain is increased when both methods of instruction are utilized - didactic and clinical.

The teaching of attitudes and feelings is best accomplished through the clinical method of instruction (Redman, 1976). Learning of attitudes and feelings within the affective domain does not follow automatically from a knowledge of facts, but is best learned by actual involvement and experience with patients (Redman, 1976).

According to Bennett (1980), it is not enough to "tell" the student something he needs to know in the affective domain. It is not enough that the student "hears" what is being said but must also analyze the ideas in the conscious part of the mind (Bennett, 1980). This is most effectively accomplished in a clinical situation where the student interacts with patient stimuli and the student then receives immediate feedback. The student can develop feelings and attitudes from this interaction. The learning process in the affective domain then becomes strengthened. Thus, when learning feelings and attitudes, active participation is more advantageous than passive reception.

In the learning of motor skills within the psychomotor domain, Redman (1976) states that these skills are best learned by a demonstration of the skills with subsequent practice until they are perfected. Thus, the clinical method of instruction is an essential part of the learning of psychomotor skills. The student may be taught the principles of the skill didactically. However, complete learning in the psychomotor domain cannot take place until the student has the opportunity to actually practice the skill in a clinical situation. This is also in keeping with one of the principles of learning inherent in this model - practice is essential in the learning of skills.

From the above discussion, it is evident that both didactic and clinical instruction can be useful in the three

domains of nursing; both types of instruction assist the nursing student to develop the art and science of nursing. When exposed to clinical and didactic methods of instruction in all three domains of nursing, the student's opportunity to learn knowledge, skills, and attitudes relevant to the care of the patient is enhanced.

One component of the art and science of nursing which the student of nursing must learn is knowledge of the basic needs of all persons. Man (generic term) is defined by Roy (1980) as a biopsychosocial being. This means that every human being is a composite of physical, psychological, and social needs. The physical needs include all the physiologic processes of a human being, e.g., breathing, elimination, and circulation. The psychological needs are concerned with a person's feelings, thoughts, and emotions. The person's social needs relate to the interactions a person has with other people in his environment (Roy, 1980).

The nursing student must have knowledge of man's needs as well as experience in recognizing, identifying, and meeting these needs in order to practice the art and science of nursing and provide comprehensive care to the patient. It is this author's contention that through a combination of didactic and clinical experience, the student will develop knowledge of the biopsychosocial needs of the patient. The student will be taught man's needs didactically and will

also have experience clinically in recognizing, identifying, and meeting the needs. The student will thus be able to apply the theory taught in class in the clinical setting. The knowledge learned by the nursing student concerning the biopsychosocial needs of the patient will aid in the development of the art and science of nursing in the student.

This study was designed to measure only the development of knowledge of the biopsychosocial needs of the patient; it did not assess psychomotor skills or affective development among students. Thus, the study focuses on measuring outcome in the cognitive domain. Model A indicates that once adequate learning in all three domains of nursing has occurred, and the student has successfully developed the art and science of nursing, the student is expected to be able to provide comprehensive care to the patient.

Model B - Perioperative Teaching and Learning Processes for Baccalaureate Nursing Education

The concepts described in Model A apply to Model B (see Figure 2, p. 40). However, Model B describes teaching and learning as it relates specifically to the care of the surgical patient.

In looking at Model B, it is noted again that teaching and learning are essential components of the model. The goal of the teaching-learning process with regard to the

