ABSTRACT

A METHOD FOR ANALYZING THE PROBLEM IDENTIFICATION BEHAVIOR OF BASIC BACCALAUREATE NURSING STUDENTS AND ITS RELATIONSHIP TO STUDENT PREPARATION STRATEGIES, STUDENT ROLE SATISFACTION AND FACULTY ROLE SATISFACTION

By

Joyce Y. Passos

One hundred thirty-two students and fourteen faculty in one accredited basic baccalaureate nursing program participated in testing a multifaceted methodology designed to operationalize faculty expectations of students' problem identification behavior in terms of characteristics of physically ill hospitalized adults selected for the clinical experience of students, and to identify factors which appear to be related to the quality of problem identification behavior demonstrated by three grade levels of students.

Facets of methodology.--(1) Faculty expectations of students' problem identification behavior were identified by posing seven questions to each faculty member about the amount of information necessary to identify the number of nursing problems which she felt each patient presented, and about the success of each student in gathering the necessary information and identifying the presenting nursing problems.

The answers of faculty to those seven questions served as the criterion measures for scores of all students on accuracy and efficiency of problem identification behavior.

(2) Students' problem identification behavior was operationalized by characterizing assigned patients in terms of the type and source of nursing problems they presented; the amount, source and meaning of information necessary to identify their presenting nursing problems; and their degree of illness. Characterizations were derived from content analysis of students' written nursing care plans and from faculty responses to the seven questions cited previously.

(3) Descriptions of preparation strategies used by students on assessment day were based upon a questionnaire in which students indicated the specific activities in which they engaged and how much time they spent in each activity.

(4) Role Satisfaction Indices of students and faculty were derived from responses to items on parallel forms of a questionnaire in which respondents indicated whether they had had certain opportunities or experiences, and whether they felt they should have had such opportunities or experiences.

(5) Interaction between students and teachers in the classroom portion of each of three clinical courses was observed and analyzed in terms of the amount and kind of active student participation which was stimulated by Eliciting and Didactic teacher behaviors. Active student participation which was not clearly related to any observable teacher behavior was classified as Emitted Student Behavior.

Characteristics of the population studied.--(1) Analysis of the answers of faculty at each grade level to the seven questions about one student-patient pair revealed that faculty differed by grade level in the areas of greatest variability in judgments. (2) Analysis of the characteristics of patients selected for clinical experience of three grade levels of nursing students revealed significant differences among patients in terms of the number of nursing problems they presented; the distribution or incidence of major and minor nursing problems; the amount of information considered by faculty to be necessary for identification of the presenting nursing problems; and their degree of illness. (3) Analysis of the characteristics of students' problem identification behavior revealed that accuracy does not increase systematically at progressive grade levels, and that there are significant differences among students at each grade level in terms of the amount of necessary information they omit in gathering data for nursing assessment of assigned patients. (4) Analysis of patterns of preparation strategies of three grade levels of students revealed that there is a continuous decrease in time spent in non-nursing classes and in socializing as students progress through the program; that students who slept six hours or more the night before clinical experience were significantly more accurate than students who slept less than six hours; and that there is a negligible relationship between students' study time on

assessment day and the accuracy of their problem identification behavior ($r = 0.05$). (5) Analysis of student and faculty responses to the Role Satisfaction Questionnaires revealed that there are no significant differences among grade levels of students in the satisfaction of students with their role as participants in relation to either patient care or their total program; that there is a relationship between the role satisfaction of faculty at the patient care level and the mean role satisfaction of students in each clinical experience group ($r = 0.36$); that there is a weak positive relationship between student role satisfaction at the patient care level and the accuracy of students' problem identification behavior ($r = 0.12$); and that there are significant differences in students' role satisfaction at the course level in terms of the grade level of students. (6) The proportion of teacher behaviors designated as Eliciting decreases as grade level increases, and Emitted Student Behaviors appear in direct relationship to the proportion of Eliciting Teacher Behaviors.

Linear progression of faculty expectations of students' problem identification behavior was evident along four dimensions; there are also four dimensions along which linear regression was evident. There are seven dimensions along which student progress was irregular, i.e., mean scores of Juniors form either an inverted or everted peak when plotted against mean Sophomore and Senior scores.

Both students and faculty want students to have more opportunities for collaboration with members of the health team, and to have greater participation in decisions about the classroom portion of clinical courses.

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CHAPTER I

THE PROBLEM AND THE PLAN FOR STUDY

Need for the Study

Curriculum as a field of study is an environment-producing, not a knowledge-producing discipline.[1] The environment to be produced is one which facilitates the operation of effective decision-making processes and procedures within formal educational programs, an environment which involves and re-educates all those persons to be affected by the decisions made. This process of re-education, which Sharp considers to be synonymous with curriculum development,[2] affects the individual in three ways:

> The re-education process:
>
> 1. changes his cognitive structure.
> 2. affects the actions by which he controls his physical and social movements.

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[1] Dwayne Huebner, "Implications of Psychological Thought for the Curriculum," Influences in Curriculum Change (Washington, D.C.: ASCD, National Education Association, 1968), p. 28.

[2] George Sharp, Curriculum Development as Re-Education of the Teacher (New York: Teachers College, Columbia University, 1951), p. v.

3. modifies his valences and values.[3]

The extent to which the planning phase of curriculum development involves and re-educates those ultimately affected by curriculum decisions will strongly influence events in the implementation and evaluation phases of curriculum change. But the extent to which persons involved in curriculum development have been affected by their involvement can best be determined by comparing descriptions of selected behaviors which have been demonstrated before and after some period of involvement in curriculum development. In order to answer the following questions, one needs to know what behaviors should be described and what the form or nature of the descriptions should be.

In relation to both students and faculty:

1. what are some important characteristics of their cognition? (Cognition is used here to indicate the act or process of knowing, as well as the product of such a process.)[4]

2. by what actions do they control their physical and social movements?

3. what are their valences[5] and values?

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[3] Ibid., p. 16.

[4] The American College Dictionary (New York: Random House, 1963).

[5] 'Valence' is a way of characterizing man's tendency to be drawn to, or repelled by, some concrete or abstract phenomenon. Mager seems to incorporate the idea of 'valence' in his discussion of "approach and avoidance responses", as a basis for evaluating attitudes. Robert A. Mager, Developing Attitude Toward Learning (Palo Alto: Fearon Publishers, 1968), pp. 21-30.

Only when there are answers to the questions posed above is it possible to determine the relationship of observed characteristics of cognition to observed patterns of controlling actions and observed patterns of approach and avoidance responses. Only when there is a workable methodology for investigating the questions posed above can tentative answers to those questions be found. There has been scant attention given to methodological issues by curriculum researchers who have patterned their investigations after psychological research methodology, which in turn has been drawn from statistical analyses growing out of agronomy and biology.[6]

General systems theory is being recommended as an antidote for the constriction of thought and focus in curriculum research which have resulted from emulation of the psychologist-agronomist-biologist.[7] "Complex systems . . . are made up of a large number of parts which interact in non-simple ways."[8] Systems analysis as the methodology of general systems theory analytically decomposes "complex systems into hierarchical subsystems. Each subsystem has integrity

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[6]Richard E. Schutz, "Methodological Issues in Curriculum Research," Review of Educational Research, 39: 359-360 (June 1969).

[7]Ibid., p. 361.

[8]Herbert A. Simon, "The Architecture of Complexity," Proceedings of the American Philosophical Society (Philadelphia: The Society, 1962), p. 106.

per se but also is an interdependent component of the system."[9] Beauchamp has suggested that the subsystems which comprise the complex curriculum system include curriculum development, instructional strategies, subject matter, curriculum implementation and curriculum evaluation.[10]

The only visible output of any curriculum development system is A CURRICULUM, which is a set of statements about expected student outcomes which answers the question of what shall be taught in a formal education program.[11] This set of statements about expected student outcomes, which is the output of the existing curriculum development system, becomes a major input to the instructional strategies system. It is the instructional strategies system which must answer the question of how to achieve the expected student outcomes.[12] Decisions reached within the instructional strategies system about the methods to be used in teaching the proposed curriculum must be based upon consideration of both the intended behaviors of students and the intended behaviors of teachers.

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[9]Schutz, op. cit., p. 361.

[10]George A. Beauchamp, Curriculum Theory, 2nd ed. (Wilmette, Illinois: The Kagg Press, 1968).

[11]Mauritz Johnson, Jr., "Definitions and Models in Curriculum Theory," Educational Theory, 17:127-140 (April 1967).

[12]Beauchamp, op. cit., p. 82.

Instruction may be conceived of as the actual behaviors of teachers while they are interacting with, in the presence of, or preparing to meet with students (instructional strategies): THE CURRICULUM should serve as the criterion for evaluation of the appropriateness of instructional strategies.[13] Student performance may be conceived of as the actual behaviors of students from which the quality of their learning is inferred (actual student outcomes). The activities in which students engage prior to demonstrating the actual outcomes of their learning may be conceived of as preparation strategies. The selection and modification of appropriate instructional strategies require consideration of both the actual student outcomes and the patterns of antecedent activity of students which appear to influence or be related to the quality of actual student outcomes. The instructional objectives may serve as the criteria for evaluation of both the quality of learning outcomes and the effectiveness of preparation strategies.[14]

It has been presumed that clarification of educational objectives improves discrimination in the selection of learning experiences designed to help students achieve the objectives. However, until 1960 there had been no reported studies designed to establish an actual relationship

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[13]Johnson, op. cit., pp. 136-139.

[14]Ralph W. Tyler, Basic Principles of Curriculum and Instruction (Chicago: The University of Chicago Press, 1950), pp. 69-71.

between clarification of educational objectives and improved discrimination in the selection of classroom learning opportunities for students.[15] Substantial evidence regarding this relationship has been gathered in the last nine years. Popham (1969) cites five investigations which support the contention that learning experiences can be carefully designed to provide the learner with opportunities to practice behaviors relevant to the desired terminal behaviors only when the desired terminal behaviors have been operationally defined.[16]

Since 1960 significant progress has been made, particularly in K-12 education, in the precise definition of curricular objectives and in the analysis of the ends/means relationships.[17] Progress toward clarification and specification of the curricular objectives of undergraduate education has been limited. This may be due in part to the growing diversity of vocational interests being served by undergraduate education. Despite the accelerated rate of change in many segments of contemporary society, there continues to be an apparently widening gap between the professed and achieved goals of undergraduate education. The facility

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[15] John I. Goodlad, "Curriculum: The State of the Field," Review of Educational Research, 39:372 (June 1969).

[16] W. James Popham, "Curricular Materials," Review of Educational Research, 39:323-324 (June 1969).

[17] Goodlad, op. cit., p. 374.

and speed with which existing goals can be modified may well be related to the clarity and specificity of existing goals. Undergraduate programs for the pre-service preparation of health professionals must continuously modify professed goals if they are to remain responsive to the changing needs of the society they serve. If the gap between what society requires and what health professionals are able to provide is to be narrowed, provision must be made for the type of feedback into curriculum development systems which will help to characterize the nature and extent of the gap between professed and achieved goals.

All accredited baccalaureate nursing programs support the conviction of the Council of Baccalaureate and Higher Degree Programs of the National League for Nursing that all graduates of basic baccalaureate nursing programs should be able to identify the nursing problems of individuals and groups, based upon systematic procedures for gathering, analyzing and interpreting information.[18] This process of gathering, analyzing and interpreting the information necessary for identifying nursing problems is being widely referred to in the nursing literature either as "nursing assessment" or as the planning phase of "nursing

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[18]Council of Baccalaureate and Higher Degree Programs, "Statement of Characteristics of Baccalaureate Education in Nursing," Memo to Members (New York: The League, 1968).

process".[19] There is growing support for the notion that the process and product of nursing assessment may be the sine qua non of professional nursing, and that the development of the cognitive functions involved in the process should be a central, or core, objective throughout the curriculum in baccalaureate programs in nursing. However, little progress has been made to date either in analyzing the process of nursing assessment or in characterizing the identified nursing problems which are a product of nursing assessment. Consequently, even less progress has been made in identifying factors which seem to influence the quality of problem identification behavior of students as they move through basic pre-service educational programs. The methodology has not been available to describe either the product and process of nursing assessment or the factors which influence the quality of nursing assessment.

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[19] Irene L. Beland, Clinical Nursing (New York: The Macmillan Co., 1965), pp. 22-30; K. R. Hammond, C. J. Hursch and F. Todd, "Analyzing the Components of Clinical Inference," Psychological Review, 71:438-456 (1964); D. E. Johnson, J. A. Wilcox and H. C. Moidel, "The Clinical Specialist as a Practitioner," American Journal of Nursing, 67:2298-2303 (November 1967); Faye R. McCain, "Systematic Investigation of Medical-Surgical Nursing Content," Journal of Nursing Education, 4:23-34 (April 1965); McCain and associates, Systematic Nursing Assessment (Ann Arbor: University of Michigan School of Nursing), unpublished, mimeographed, by personal communication; Dorothy M. Smith and associates, Preliminary Manual for the Use of the Nursing History Form (Gainesville, Florida: University of Florida College of Nursing, 1967), unpublished, mimeographed; and Helen J. Berggren and Dawn Zagornik, "Teaching Nursing Process to Beginning Students," Nursing Outlook, 16:32-35 (July 1968).

The expected student outcome, "to be able to identify the nursing problems of individuals and groups, based upon systematic procedures for gathering, analyzing and interpreting information" has at least two major components. The first component is the ability to assess the environment (internal and external) in which the patient or group finds himself/itself: the second component is the ability to assess and/or rate the nature, source and magnitude of the nursing problems presented by a patient or group who finds himself/itself within a particular environment. Means selected to assist students in progressing toward a minimum level of competence in the expected outcome must provide opportunities for the student to comprehend and practice behaviors which are relevant to the desired terminal behavior. There are at least three behaviors which are prerequisite to the ability to assess the environment in which a patient finds himself.

1. ability to recognize relevant information which is immediately available
2. ability to seek information which is not immediately available
3. ability to synthesize separate bits of information into related wholes based upon the common meanings assigned to clusters of information bits.

The ability to identify presenting nursing problems by type, source and magnitude requires the ability to induce from the particulars of assessment of the patient and his environment the nature, source and magnitude of the nursing problems presented by the patient.

The ability to discover and build upon the inter-relatedness of knowledge is an indispensable ingredient of the ability to identify and propose solutions for nursing problems. A major deterrent to the student's developing the ability to discover and build upon the inter-relatedness of knowledge is the extent to which things are put into compartments in designing curricula.[20] This compartmentalization tends to be aggravated by the fact that "the 'course' is the basic building block with which our baccalaureate programs are constructed. . . . [The single-term course] seriously complicates the problem of developing coherence and a sense of progression in the student's total program. It carries with it a potential for both overlapping and too distantly 'gapped' experiences".[21] Although structure in a major is mandatory, such order, sequence and progression as is required in structuring a major should be determined by the minimum number and type of experiences required "to allow the student to perceive that he is progressing toward an understanding of what experienced men have judged to be essential and/or significant" elements in his field and to make it clear to him how these elements relate to each

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[20]Judson Jerome, "The System Really Isn't Working," Life, 65:68 (November 1, 1968).

[21]Committee on Undergraduate Education, Improving Undergraduate Education: Michigan State University (East Lansing: Michigan State University Publications, 1967), pp. 78-79.

other.[22] Methods for comparing course offerings in terms of common elements of processes used and concepts introduced and expanded have not been widely adopted to obtain feedback useful to curriculum improvement.

Undergraduate nursing education should produce a nurse who has grasped what is basic and essential to all nursing, yet who has had the opportunity to apply such principles in a variety of specialized areas. A major obstacle to the development of nursing curricula which emphasizes "basic and essential" elements is the fact that nurses who are responsible for curriculum development in the professional major are themselves specialists. Only when curriculum development proceeds within an environment which involves and re-educates all those specialists affected by curriculum decisions, is it possible to construct a curriculum which emphasizes basic and essential elements. However, fundamental to producing the appropriate environment is the need to know the nature and extent of agreement among faculty about: (1) the knowledge, skills and attitudes to be expected of students; and (2) the experiences faculty select to achieve their instructional goals.

In designing curriculum for the nursing major, faculty soon realize that the problems of selecting what is basic and what is specialized, and of striking the proper

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[22] Ibid., p. 76.

balance between basic and specialized experiences, become more acute as knowledge in the biological, medical and social sciences deemed relevant to nursing expand exponentially. Students in basic baccalaureate programs are being prepared to practice as generalists in nursing. The extent to which baccalaureate graduates will be able to function effectively in relatively unfamiliar settings will be largely contingent upon the extent to which faculty develop courses which emphasize "the common aspects of nursing regardless of setting, rather than the differences related to a particular setting".[23] A single course may contribute additional knowledge, without affecting the student's ability to use that knowledge, while "the more significant outcomes involving critical thinking, judgment, and the synthesis of ideas in dealing with complicated problems may not easily be evaluated for a single course, especially with the limited time usually assigned to such evaluation".[24] If long-term objectives are to be formulated and evaluated in any meaningful way, there must be "faculty agreement and the formulation of procedures which transcend particular courses and perhaps even extend over the entire span of years involved in the program".[25] Any method which purports to

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[23]Dorothy W. Smith, Perspectives in Clinical Teaching (New York: Springer Publishing Co., 1968), p. 18.

[24]Paul L. Dressel, "Evaluation of Instruction," Journal of Farm Economics, 49:307 (February 1967).

[25]Ibid., p. 308.

characterize faculty expectations of students' problem identification behavior must examine manifestations of student performance which are relevant to problem identification at each grade level within the program.

The segment of American society which presently receives the largest proportion of available nursing service from registered nurses is that which includes adults who are hospitalized for physical illness. Over 65 per cent of all active registered nurses are still employed in general hospitals in which the majority of patients are over sixteen years of age and hospitalized for the diagnosis and/or treatment of physical illness.[26] Also, in the majority of educational programs the largest proportion of a basic nursing student's clinical practice time is still devoted to the study and care of the physically ill hospitalized adult. Therefore, the patient whose identified nursing problems can be considered to be most representative of the problem identification component of the competence of both practitioners and students, at the present time, are those patients who are adults, physically ill and hospitalized under the care of a physician. For the sake of economy of effort, one might well begin with those courses in which the study and care of physically ill hospitalized adults are central objectives as

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[26]American Nurses Association, Facts About Nursing (New York: The Association, 1967).

a means of testing any method for characterizing the problem identification behavior of nursing students.

One of the necessary measures of the competence of the nurse, both student and practitioner, is the proportion of "correct" judgments made about the nursing problems presented by patients.[27] But before this measure of competence can be applied to the performance of nurses, there will ultimately have to be a widely accepted method for characterizing and recording nurses' judgments about the nursing problems presented by patients, some systematic classification scheme, or typology, of nursing problems. There are presently no published reports of any effort to develop such a comprehensive problem profile to characterize the presenting nursing problems of physically ill hospitalized adults.

Although the strategies used by practitioners in arriving at their judgments may be less important than the correctness of the judgments, per se, both the process and the product of this form of decision-making are of prime concern in the pre-service educational preparation of the nurse.

Summary

There is a need to develop a multi-faceted method which will help:

1. to describe 'where we are' in relation to:

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[27] Johnson, Wilcox and Moidel, op. cit., p. 2299.

a. existing faculty expectations of students in identifying the nursing problems presented by assigned patients.

b. student achievement of problem identification objectives.

c. patterns of classroom instruction intended to promote achievement of problem identification objectives.

d. patterns of preparation freely selected and used by students.

e. valences, or approach and avoidance responses, of students and faculty to opportunities for participation in, or control over, decisions and conditions which affect them as members of an academic community dedicated to the educational preparation of professional nurses.

2. to determine the existing relationship of student achievement of problem identification objectives to factors c, d and e.

Development of a method which will describe 'where we are' in the areas cited above is a necessary pre-requisite to predicting 'where we are going' in the development of a curriculum designed to produce nurses who are able accurately and efficiently to identify the presenting nursing problems of their patients.

The Problem

All faculty who teach any clinical course in basic baccalaureate nursing programs agree upon the generalization that one of the primary purposes for which experiences are selected is to help the student to develop the ability to identify the nursing problems presented by the type of patient with which the particular course deals. Despite

widespread acceptance of the goal that students be able to identify the presenting nursing problems of individuals and groups of all ages, in any setting, at any point on the illness-wellness continuum, there is considerably less agreement as to what this means in terms of observable behaviors of students or in terms of the factors which might be manipulated to facilitate development of the desired problem identification behavior. Achievement of this and all other course and program objectives is generally accepted as being operationally defined by the graduation of the student from the educational program.

A professional curriculum, which is a set of statements about the expected student outcomes, is a form of predicting the direction in which both the educational program and the profession for which it prepares practitioners are moving. "It is hard to predict where we are going when we don't know where we are."[28] Development of a method which would allow examination of the process and product of the decision-making which is expected of students in relation to the nursing problems presented by their assigned patients would be a step toward better understanding 'where we are' in developing the problem identification behavior of nursing students.

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[28]Dael Wolfle, "Measuring Social Change," Science, 164:1121 (June 6, 1969).

In order to provide feedback which will be useful in curriculum development, any method of operationalizing the problem identification behavior of nursing students must characterize that problem identification behavior in terms which are both comprehensible and acceptable to faculty who teach all courses which are expected to contribute to the development of students' problem identification behavior. This study proposes and tests one method for characterizing the problem identification behavior of students by describing their performance in terms of:

1. the amount and appropriateness of information gathered about patients;
2. the sources from which information about patients is gathered;
3. the meaning assigned to information gathered; and
4. the judgments made as to the presenting nursing problems which exist.

It is necessary not only to be able to evaluate and improve the accuracy of students' judgments as to the nature of patients' presenting nursing problems, but also to be able to evaluate and improve the efficiency of the processes used to arrive at accurate judgments. If a student's efforts to gather and interpret information about a patient as a basis for identifying the nature and extent of his presenting nursing problems were to be characterized in terms of the four categories of information elaborated above, the task of evaluating and--where appropriate--improving both the

accuracy and efficiency of the student would be greatly facilitated.

Operationalizing an outcome expected of students (defining ends) is the first imperative to be met by those involved in curriculum development. The second imperative is to identify and describe some factors which seem to be related to achieving the desired outcomes (describing means). Four factors which may be related to the level of accuracy and efficiency of problem identification achieved by nursing students are

1. the patterns of preparation for clinical experience which are used by students;
2. the patterns of instruction which are used by teachers in the classroom portion of a course;
3. the degree of satisfaction of students with their perceived roles as participants in curriculum decision-making; and
4. the degree of satisfaction of clinical faculty with their perceived roles as participants in curriculum decision-making.

This study tests the effectiveness of four instruments in describing the four factors elaborated above, as they are exhibited by students and faculty in one accredited basic baccalaureate nursing program.

In the nursing program selected for the study, a typically large portion (about 51%) of the student's course and clinical experience time is devoted to studying about, and caring for, individual adults hospitalized for the diagnosis and/or treatment of physical illness. The pertinent course and clinical experiences occur at all three

grade levels of the nursing major, i.e., during the Sophomore, Junior and Senior years. Therefore, the problem identification behavior of Sophomore, Junior and Senior students is described and compared. Also, the four factors which may be related to the quality of students' problem identification behavior are described and compared for students and faculty at the Sophomore, Junior and Senior grade levels.

All descriptions and comparisons are intended to serve primarily as evidence of the capability of the proposed methodology to detect the presence and relative importance of the variables being studied.

Objectives of the Study

This investigation is a descriptive field study to test one multifaceted method for describing, classifying and comparing the presenting nursing problems of physically ill hospitalized adults as identified by three grade levels of students in one baccalaureate nursing program, and for determining the relationship of the problem identification behavior of students to Student Preparation Strategies, Instructional Strategies, Student Role Satisfaction and Faculty Role Satisfaction.

The objectives of this study are

A. to evaluate the effectiveness of the proposed multifaceted method as a means:

1. to describe and classify the patient data and presenting nursing problems dealt with by students in their clinical experience with physically ill hospitalized adults in the nursing major, to obtain an expression of faculty expectations of students' problem identification behavior.

2. to compare the patient data and presenting nursing problems of physically ill hospitalized adults who are selected for the clinical experience of nursing students in the Sophomore, Junior and Senior years of the nursing major, to determine whether there is progression of faculty expectations of students' problem identification behavior.

3. to describe the degree of success (accuracy) achieved by Sophomore, Junior and Senior students in identifying the nursing problems presented by their assigned patients, to obtain an expression of the extent to which faculty expectations are appropriate to the demonstrated abilities of students.

4. to determine the relationship between the accuracy and efficiency of students' problem identification behavior.

5. to describe the patterns of activities in which students engage during the twenty-four hour period preceding their demonstration of problem identification behavior in relation to patients selected for that particular week of clinical experience (Student Preparation Strategies).

6. to determine the relationship of the accuracy of students' problem identification behavior to the time spent by students in selected activities during the twenty-four hour period preceding demonstration of their problem identification behavior.

7. to describe the patterns of instruction which characterize the teaching behavior of individual faculty in the classroom portion of clinical courses during an uninterrupted sequence of classes preceding the clinical assignments in which students demonstrate problem identification behavior (Instructional Strategies).

8. to determine the relationship of the accuracy of students' problem identification behavior to the Instructional Strategies used by the faculty member with whom each student has clinical experience.

9. to describe the satisfaction of clinical faculty with their perceived participation in, or control over, decisions and conditions which affect them (Faculty Role Satisfaction).

10. to describe the satisfaction of students with their perceived participation in, or control over, decisions and conditions which affect them (Student Role Satisfaction).

11. to determine the relationship of the accuracy of students' problem identification behavior to Student Role Satisfaction.

12. to determine whether the satisfaction expressed by clinical faculty with their participation in decision-making bears any relation to the satisfaction with participation in decision-making expressed by students in each instructor's clinical experience group

B. to provide feedback into the curriculum development system of the program studied, by presenting to faculty and students the findings about students' problem identification behavior and factors related to it.

Definition of Terms

Patient: any person sixteen years of age or older who is hospitalized by a physician for diagnosis and/or treatment of physical illness.

Information Bit: a fact or cluster of facts which illuminates some aspect of human functioning.

Examples

1. Measures of blood pressure, pulse and respiration = a unit of information which illuminates the pulmonary-cardiovascular status of a patient.

2. "My father disowned me, and my mother is an invalid in a nursing home--so I have to take care of myself." = a unit of information which illuminates the perceptions and family status of a single 18-year-old female.

Nursing Assessment: an orderly and precise collection of information about the status of the various functional abilities of a patient.[29]

Presenting Nursing Problem

1. an existing or potential impairment of a patient's abilities to perform, or control, the following activities which contribute to health.

   a. breathe adequately
   b. drink
   c. eat

   Eliminate body wastes via:

   d. urinary tract;
   e. gastrointestinal tract;
   f. skin.
   g. move and maintain lying, sitting, walking posture
   h. sleep and rest
   i. dress and undress
   j. maintain body temperature by modifying the environment
   k. keep body clean and groomed:
      1) integumentum
      2) hair
      3) nails
      4) mucosa
      5) oral hygiene including teeth
   l. avoid dangers in the environment
   m. avoid injuring others
   n. communicate to express emotions, needs, questions, ideas, opinions
   o. learn, discover, satisfy curiosity
   p. use available health facilities
   q. work with a sense of accomplishment
   r. play and/or recreate
   s. worship according to professed faith
   t. monitor, or apply medical therapy to, automatically regulated functions of the body.[30]

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[29] McCain and Associates, op. cit., pp. 1 and 5.

[30] Based upon 14 categories of "activities contributing to health" elaborated by Virginia Henderson, The Nature of Nursing: A Definition and Its Implications for Practice, Research and Education (New York: The Macmillan Co., 1966), pp. 16-17.

2. descriptions of the "functional disabilities that, in the best judgment of the professional nurse, can profit by specifically defined nursing activities".[31]

Major Problem: the need-for-help which results from an existing or potential total deficit in the capacity, knowledge or will (or any combination of these), which is necessary to perform any of those activities which contribute to health which are elaborated above.

Minor Problem: the need-for-help which results from an existing or potential partial deficit in the capacity, knowledge or will (or any combination of these), which is necessary to perform any of those activities which contribute to health elaborated above.

Degrees of Illness:

Critical Condition: designation given an individual in whom one or more of the automatically regulated vital life-support systems are in imminent danger of failure.

Serious Condition: designation given an individual in whom one or more of the automatically regulated vital life-support systems are responding to stressors adequately to maintain life, but inadequately to prevent further injury, or to repair existing injury, or to restore normal function.

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[31] McCain et al., loc. cit.

Convalescent Condition: designation given an individual in whom response of automatically regulated vital life-support systems is adequate to insure survival, and to promote repair of injured tissue; that period when the patient is gaining strength and learning to cope with resulting levels of self-help ability.

Assessment Day: that day which marks the beginning of each week of clinical experience; the day on which each student receives a patient assignment for that week and does a nursing assessment on the assigned patient as a basis for describing the patient's presenting nursing problems and planning the indicated nursing activities to be done the following day.

Focal Questions and Hypotheses

A. About information gathered as a basis for identification of patients' presenting nursing problems

1. How much information is required for accurate identification of the presenting nursing problems of patients selected for clinical experience of three grade levels of nursing students?

2. What are the sources from which information is obtained?

3. What proportion of information is obtained from each source at each grade level?

4. What meaning is assigned to the information obtained? That is, what aspects of human functioning are illuminated, or explained, by the information?

E.g., Does a piece of information explain the function of:

a. a man's enzymes?
b. his circulatory system?
c. his intelligence?
d. his emotions?
e. his family as a social unit?
f. the community from which he came to the hospital and/or to which he will return?

5. Hypothesis:

H1: Patients selected by faculty for the clinical experience of three grade levels of students all require the same amount of information as a basis for accurate identification of the presenting nursing problems.
Sophomore = Junior = Senior

B. About the nursing problems presented by assigned patients

6. How many nursing problems are presented by patients selected for clinical experience of three grade levels of nursing students?

7. Which activities of living are the patients unable to perform, or control, without assistance? (See list of activities elaborated in "Definition of Terms: Presenting Nursing Problem," page 22.

8. What proportion of the presenting nursing problems at each grade level are due to impaired performance of each type of activity?

9. What are the sources of deficit apparently responsible for the impaired performance of each type of activity?

E.g., In a patient whose presenting nursing problem is failure to take appropriate amounts of food and fluids by mouth, is this due to:

a. defective capacity (e.g., fractured jaw)?
b. inadequate knowledge (e.g., ignorance of food and fluid modifications necessitated by newly diagnosed diabetes mellitus)?
c. inadequate will (e.g., a severely burned patient in the convalescent stage who is able to eat and drink, and who understands the importance of nutrition to his recovery, but who has stopped trying because of despondency about his disfigurement)?

10. Hypotheses:

H2: Patients selected by faculty for the clinical experience of three grade levels of students all present the same total number of nursing problems.
Sophomore = Junior = Senior

H3: Patients selected by faculty for three grade levels of students present the same proportion of major and minor nursing problems, at each grade level.
Sophomore = Junior = Senior

H4: The distribution of patients according to degree of illness is the same for all patients selected by faculty for each grade level of students.
Sophomore = Junior = Senior

C. About the quality of problem identification behavior of three grade levels of nursing students

11. How accurate are students in identifying the nursing problems presented by their assigned patients?

12. How efficient are students in identifying the nursing problems presented by their assigned patients?

13. Hypothesis:

H5: There is no relationship between the accuracy and efficiency of students' problem identification behavior.
Accuracy:Efficiency = 0

D. About the patterns of activities in which students engage during a twenty-four hour period prior to their demonstration of problem identification behavior in relation to one patient selected for clinical experience (Preparation Strategies on assessment day)

14. On assessment day, how much time do students at each grade level spend in:

a. pre-conference (discussion preceding patient contact)?
b. post-conference (discussion following patient contact)?
c. contact with their assigned patient(s)?
d. library study?
e. non-library study?

15. How much sleep do students at each grade level have on assessment day?

16. How much time do students at each grade level spend on social or recreational activities on assessment day?

17. Hypotheses:

    H6: There is no relationship between the time spent by students in all forms of studying and the accuracy of their problem identification behavior.
        Studying:Accuracy = 0

    H7: There is no relationship between the amount of sleep students have on assessment day and the accuracy of their problem identification behavior.
        Sleep:Accuracy = 0

E. About students' satisfaction with perceived participation in, or control over, decisions and conditions which affect them (Student Role Satisfaction)

18. With which aspects of the clinical experience or patient care portion of their current clinical nursing course are students most/least satisfied?

19. With which aspects of the formal classroom or theory portion of their current clinical nursing course are students most/least satisfied?

20. With which aspects of their participation in planning for the total program are students most/least satisfied?

21. Hypotheses:

    H9: There is no relationship between student role satisfaction at the patient care level (RSI_{sl}) and the accuracy of students' problem identification behavior.
        RSI_{sl}:Accuracy = 0

    H10: There is no relationship between grade level of students and student role satisfaction at the patient care, course and program levels.
        Sophomore = Junior = Senior

F. About faculty satisfaction with perceived participation in, or control over, decisions and conditions which affect them (Faculty Role Satisfaction)

22. With which aspects of the clinical experience, or patient care, portion of the clinical nursing course they teach are faculty most/least satisfied?

23. With which aspects of the formal classroom, or theory, portion of the clinical nursing course they teach are faculty most/least satisfied?

24. With which aspects of their participation in planning for the total program are faculty most/least satisfied?

25. Hypothesis:

H8: There is no relationship between student role satisfaction at the patient care level (RSI_{sl}) and faculty role satisfaction at the patient care level (RSI_{fl}).

$$RSI_{sl}:RSI_{fl} = 0$$

Assumptions

1. The cognitive functions involved in problem identification behavior of students can be inferred from an examination of the information gathered by them and from an analysis of their interpretation of that information.

2. Nurses employed by an accredited baccalaureate nursing program to teach clinical nursing courses possess the clinical judgment necessary to identify accurately the nursing problems presented by patients.

3. Clinical nursing faculty, in a community whose health agencies have a diversity of patients available from which to choose, manifest their convictions about the

knowledge and skills students should acquire by the patients they select for the clinical experience of students.

4. Students and faculty members will be candid in their opinions as recorded on written questionnaires, provided their responses are anonymous and not to be viewed by persons responsible for evaluating them in any way.

Methodology

One accredited basic baccalaureate nursing program was selected in which students and faculty at the Sophomore, Junior and Senior years were involved during the same term in caring for physically ill hospitalized adults as part of the clinical courses being offered during that term. Information about patients selected for students by faculty at each grade level was obtained by content analysis of the written nursing care plans submitted by each student on her assigned patient. Measures of the accuracy and efficiency of students' problem identification behavior were obtained from the judgments made by each clinical faculty member about the information gathered and problems identified by each student on the written nursing care plan.

All students were asked to indicate how they spent their time, and in what specific activities they engaged, during the twenty-four hours of assessment day. This information was obtained by questionnaire.

Measures of students' satisfaction with their perceived participation in decisions and activities related to their curriculum were obtained by analyzing students' responses to a questionnaire. The role satisfaction questionnaire included items directed to activities at the patient care, course and program levels; each item asked the student to indicate whether or not she DID or SHOULD HAVE participated. The student was judged to be satisfied when there was no discrepancy between the two responses to each item.

Measures of faculty's satisfaction with their perceived participation in decisions and activities related to the curriculum were obtained by analyzing faculty's responses to a parallel form of the student role satisfaction questionnaire.

The Focal Questions (pages 24-28) are answered by presenting findings as frequencies and proportions for instructor-groups of students, for grade levels of students and faculty and for the total population of students and faculty.

Hypotheses (see pages 25-28 for specification of hypotheses) are tested as follows:

- One-Way Analysis of Variance: Hypotheses 2, 10
- Test of Homogeneity of Regression: Hypothesis 5
- Pearson Product Moment Correlation: Hypotheses 6, 8, 9
- Chi Square test of proportions: Hypotheses 1, 3, 4, 7.

Scope and Limitations

Scope

1. The aspect of this study which may be generalizeable to other educational programs is the use of the methodology to operationalize existing statements of expected student outcomes and to describe four types of factors which may be related to students' achievement of expected outcomes.

2. The population selected for this study consists of all the students and clinical faculty in one accredited baccalaureate nursing program who were involved during one eleven-week term in caring for adults hospitalized for diagnosis and treatment of physical illness. This population cut across all three grade levels of the nursing major: Sophomore, Junior and Senior years. Scores on the dependent variable consist of measures of the accuracy and efficiency demonstrated by students in identifying patients' presenting nursing problems. All measures were taken within the same eleven-week period on students at all three grade levels.

3. Scores on four independent variables consist of measures of

a. time spent by students on selected activities in preparation for clinical experience (Preparation Strategies);

b. teaching behaviors exhibited by faculty in classroom instruction (Instructional Strategies);

c. satisfaction of students with their perceived participation in decision-making at the patient care, course and program levels (Student Role Satisfaction); and

d. satisfaction of faculty with their perceived participation in decision-making at the patient care, course and program levels (Faculty Role Satisfaction).

4. Analysis of the data aims at determining whether the instruments used are sufficiently sensitive to determine relationships between the accuracy of students' problem identification behavior and Preparation Strategies; Instructional Strategies; Student Role Satisfaction; and Faculty Role Satisfaction.

5. Written nursing care plans are subjected to content analysis in an attempt to describe faculty expectations of students in terms of the characteristics of patients selected for students' clinical experience, at each of three grade levels in the nursing major. Descriptions are further examined in an attempt to identify some dimension(s) which serve as the basis for progressive levels of faculty expectations of students in caring for physically ill hospitalized adults.

Limitations

1. Although the methodology may be generalizeable, statements about the problem identification behavior of students caring for hospitalized adults will not be generalizeable beyond the one baccalaureate nursing program studied, because of the uniqueness of content and sequence of courses; qualifications of clinical faculty; and patient-specific nursing problems which characterize each baccalaureate program.

2. There are four possibilities for the nursing problems which a patient presents, in terms of congruence of patient and nurse perceptions of these problems:

NURSE PERCEPTION OF PROBLEM	PATIENT PERCEPTION OF PROBLEM: Problem Perceived (+)	PATIENT PERCEPTION OF PROBLEM: Problem Not Perceived (-)
Problem Not Perceived (-)	(1) - +	(2) - -
Problem Perceived (+)	(3) + +	(4) + -

By using the instructor's judgments as the criterion measure for nursing problems presented by patients, only the contents of cells 3 and 4 are known, and these cannot be differentiated.

3. Results of the content analysis of nursing care plans can only be considered as suggestive of a means for describing faculty expectations of students' problem identification behavior, since the categories used have not yet been subjected to rigorous testing to identify the consistency with which judges would allocate items to each proposed category of meaning of information and of type and source of presenting nursing problems.

4. Results of the observations of classroom instructional strategies used by faculty can only be considered as suggestive of the teaching behavior to which students are

exposed at each grade level in the program studied, since the teacher activity categories have not yet been subjected to rigorous testing to identify the consistency with which judges would allocate observed behaviors to each proposed category.

5. Results of the role satisfaction questionnaires can only be considered as suggestive of the degree of satisfaction experienced by students and faculty with their perceived roles as participants in decision-making, since the items have not been subjected to rigorous testing to identify the extent to which they are a representative sample of the opportunities for participation which exist at the patient care, course and program levels in the nursing curriculum.

Significance of the Study

Curriculum development for the nursing major in baccalaureate programs must prepare graduates who are able, as a minimum competency, to identify the nursing problems presented by patients entrusted to their care. Prescriptions for nursing measures to be taken, and the evaluation of their effectiveness, depend upon the satisfactory accomplishment of the initial step of correct identification of the presenting nursing problems. This study may help to improve this first step.

Data provided by the content analysis of nursing care plans will make available to faculty in the program studied some description of the type of information and nursing problems dealt with by students at three grade levels within the nursing major. The descriptions may provide a basis for a clearer understanding of the existing progression of experiences selected for students in clinical practice, and may serve as a guide to re-evaluating course pre-requisites for entering the nursing major, as well as course pre-requisites for enrolling in the several clinical courses required within the nursing major.

Any pre-service educational program preparing practitioners for the helping professions is attempting to influence the accuracy and efficiency of the problem identification behavior of its students. The methods used in this study to operationalize the objective of developing accurate and efficient problem identification behavior may be useful for faculty in other professional majors.

CHAPTER II

REVIEW OF RELATED LITERATURE

The Role and Goals of Universities

Prior to the 1930's, the individual was the main source of innovation in the American social system. Since the 1930's, centralization of the American political system, accompanied by the transformation of the economic system from a product to a service economy, have resulted in universities and research centers becoming the main sources of innovations. Universities have become the "gatekeepers" of American society.[1] Anderson believes that universities are not qualified to serve as the "gatekeepers" of society, and that they will not be prepared to do so until there is a reorganization of the structures and procedures for curriculum decision-making which will allow more prompt and appropriate responses to changing social conditions.[2]

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[1]Report of the American Academy of Arts and Sciences, "Toward the Year 2000: Work in Progress," Daedalus, Summer 1967.

[2]Vernon E. Anderson, "University Leadership in Social Planning," Educational Leadership, 25:115-117 (November 1967).

> Most men most of the time do not want the institutions in which they themselves have a vested interest to change. Professors [are] often cited as an interesting example of this tendency, because they clearly favor innovation in other parts of the society but steadfastly refuse to make universities into flexible, adaptive, self-renewing institutions.[3]

Solution to many of the problems facing American universities today is contingent upon the prompt adoption of processes and procedures for decision-making which will make the universities into "flexible, adaptive, self-renewing institutions".

Kerr has identified the urgent need to improve undergraduate instruction as one of the most pressing problems faced by the modern American university, but he acknowledges that this will require the solution of many sub-problems:

1. adequate recognition for teaching skill as well as research performance of faculty;
2. a curriculum that serves the needs of the student as well as the research interests of the faculty;
3. preparation of the generalist and specialist in an age of specialization looking for better generalists;
4. treatment of the individual student as a unique human being in the mass student body; and
5. establishment of two-way communication between faculty and students.[4]

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[3]John W. Gardner, "Uncritical Lovers, Unloving Critics," Journal of Educational Research, 62:396-399 (May-June 1969), p. 398.

[4]Clark Kerr, The Uses of the University (New York: Harper & Row, Publishers, 1963), pp. 118-119.

Dressel contends that the major obstacles to improvement of undergraduate education exist within the institutions themselves and result from the over-compartmentalization of functions and responsibility.[5] Among the practices he cites which block progress toward curriculum improvement in undergraduate education are three of particular relevance to this study.

1. "Educational objectives are discussed at length, but educational experiences are planned according to departmental organizations and faculty interests, and have little relevance to stated objectives."

2. "The practical is differentiated from the theoretical without any apparent realization that good practice is based on theory and that no theory is significant unless it has some practical implications."

3. Attempts at curriculum reform too often begin with such dichotomous distinctions as the liberal-vocational components, which evoke endless discussion and argument, and result in compromises which preserve rather than resolve the distinctions.[6]

As a first step to circumvent obstacles to curriculum improvement, Dressel suggests defining the objectives of an educational program as competencies to be acquired by students; this approach has several advantages.

It avoids philosophical disagreements which impede progress.

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[5]Paul L. Dressel, College and University Curriculum (Berkeley, California: McCutchan Publishing Corp., 1968), p. 228.

[6]Ibid., pp. 228-229.

> It indicates what experiences are necessary to provide practice in what the student must be able to do.[7]

Dressel suggests that among the most important goals of the university is the obligation to help students in any undergraduate educational program to acquire the following seven competencies.

1. The recipient of the baccalaureate degree should be qualified for some type of work. He should be aware of what it is and have some confidence in his ability to perform adequately.

2. The student should know how to acquire knowledge and how to use it.

3. The student should have a high level of mastery of the skills of communication.

4. The student should be aware of his own values and value commitments and he should be aware that other individuals and cultures hold contrasting values which must be understood and, to some extent, accepted in interaction with them.

5. The graduate should be able to cooperate and collaborate with others in study, analysis, and formulation of solutions to problems, and in action on them.

6. The college graduate should have an awareness, concern, and sense of responsibility for contemporary events, issues, and problems.

7. The college graduate should see his total college experience as coherent, cumulative, and unified by the development of broad competencies and by the realization that these competencies are relevant to his

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[7] Ibid., p. 209.

> further development as an individual and to the fulfillment of his obligations as a responsible citizen in a democratic society.[8]

Curriculum in Higher Education

Scope of Curriculum

A curriculum is an educational program organized formally or informally which may be specified in terms of what the teacher will do, what the student will be exposed to, and what the student is expected to achieve.[9] The characteristics of an educational program, and therefore of a curriculum, include purposes; content; environments; methods, and changes they are intended to bring about; messages to be conveyed; relationships to be demonstrated; concepts to be symbolized; and understandings and skills to be acquired.[10] A curriculum as a set of statements about expected student outcomes is the tangible product of a curriculum development system. A curriculum development system must include strategies for:

1. deciding on what to teach in the educational program (What knowledge is of most worth? For what society? For what individual in that society?);

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[8] Ibid., pp. 210-212.

[9] Robert E. Stake, "Toward a Technology for Evaluation of Educational Programs," Perspectives of Curriculum Evaluation. AERA Monograph Series on Curriculum. Evaluation, No. 1 (Chicago: Rand McNally & Co., 1967), pp. 1-12.

[10] Ibid.

2. deciding how to teach, based on consideration of the teachers and students within the educational program;

3. selecting subject matter; and

4. curriculum implementation, which consists of the processes necessary to:
   a. use the curriculum as the point of departure for teaching; and
   b. predict behavioral outcomes.[11]

Decisions about what and how to teach can only be answered by deciding what will serve best as a basis for further learning. When fundamentals have been decided upon, provision must be made for repeatedly emphasizing, adding to, and actively using these fundamentals throughout the program.[12]

Because of the variability of patterns of learning among individual students, "a curriculum must contain many tracks leading to the same general goal".[13] When the stipulated goal is the acquisition of a given body of knowledge, there is even great variation in the meaning of that goal to those who have agreed upon it.

> Knowledge is what man perceives; consequently, knowledge does not merely accumulate but is recast again and again within fresh theoretical

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[11] George A. Beauchamp, Curriculum Theory, 2nd ed. (Wilmette, Illinois: The Kagg Press, 1968), pp. 80-84.

[12] Elliott Dunlap Smith, "Materials on General Education, Professional Education and Teaching," Annie W. Goodrich Lecture, Division of Nursing Education, Teachers College, Columbia University, 1952. (Unpublished.)

[13] Jerome S. Bruner, Toward A Theory of Instruction (Cambridge, Massachusetts: The Belknap Press of Harvard University, 1966), p. 71.

> structures. Facts become facts only within the perspective of the viewer. The uniqueness of each individual is responsible for the infinite variability in the perspectives of learners.[14]

Spokesmen for liberal education acknowledge that there has always been more specific knowledge than single men could handle and that large groups have never had much of it in common and never will.[15] Acquisition of knowledge, per se, is not a legitimate goal of undergraduate education.

> Unless knowledge is in order, the more knowledge we have, the more confused we will be. What we need today is not simply knowledge, but wisdom. We need, not facts piled on facts, but the meaning of the whole. If we abstract facts from meaning, the abstraction will blow up in our faces.[16]

Curriculum Objectives Differentiated

There are two schools of thought about the extent to which expected outcomes of a curriculum should be specified. Mager represents the position of those who advocate spelling out in detail exactly the terminal behaviors to be demonstrated by students upon completion of a unit of instruction.[17] Advocates of specifying terminal behaviors support

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[14]John I. Goodlad, "How Do We Learn?" Saturday Review, June 21, 1969, pp. 74-75, 85-86, p. 74.

[15]Victor L. Butterfield, "Counter-Attack in Liberal Learning," Liberal Education, 52:5-20 (March 1966), p. 12.

[16]Rt. Rev. Richard S. Emrich, "Sex Education," The Detroit News, January 22, 1967, p. 14-B.

[17]Robert F. Mager, Preparing Instructional Objectives (Palo Alto, California: Fearon Publishers, 1962).

their position with the research of Thorndike and his followers, who concluded that little general effect results from teaching; that in good teaching, one aims at a particular and specific result.[18] Wallen and Travers base their research on teaching methods upon the conviction that expected student outcomes must be expressed as specific terminal behaviors.

> Evidence that curriculum actually produces central psychological process changes can only come from student responses. While it is often desirable to think of educational objectives as being concerned with changes in central processes such as perception, the operational definition of these internal conditions requires that they be defined in terms of both the antecedent conditions that produce them and the consequent conditions, namely, the behaviors through which they are manifested. The specification of a teaching method requires that the objectives, or internal conditions, to be achieved through the method be adequately tied to both the antecedent and consequent conditions.[19]

In an attempt to apply the terminal behaviors approach to curriculum development, many educational programs have made fragmentary efforts to select content on the basis of competencies expected within small and isolated blocks of instruction.[20]

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[18]Percival M. Symonds, What Education Has To Learn From Psychology, 3rd ed. (New York: Teachers College Press, Columbia University, 1960), p. 13.

[19]Norman E. Wallen and Robert W. Travers, "Analysis and Investigation of Teaching Methods," in Handbook of Research on Teaching, ed. by N. L. Gage (Chicago: Rand McNally & Co., 1963), Ch. 10, p. 486.

[20]J. E. Walsh, "Expected Competencies as a Basis for Selecting Psychiatric Nursing Content," Nursing Outlook, 15:58-62 (July 1967).

Opponents of the specific terminal behaviors approach to curriculum contend that setting definite goals in advance of an effort is not always possible or desirable, and that specific objectives should emerge from the encounter.[21] The Vice-President of the Educational Testing Service is one of those who refutes the notion that there can or should be some finely specified finished end-product which results from the educational process, and he states the position of those who advocate that specific curriculum objectives should emerge.

> The output of the educational process is never a "finished product" whose characteristics can be specified in advance; it is, hopefully, an individual who is sufficiently aware of his incompleteness to make him want to keep on growing and learning and trying to solve the riddle of his own existence in a world whose characteristics neither he nor anybody else can fully understand or predict.[22]

The Eight-Year Study, which demonstrated that it was not necessary to follow a prescribed curriculum pattern or standardized teaching methods to prepare high school students for advanced study, would seem to support the advocates

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[21] A. I. Richards, "The Secret of 'Feedforward'," Saturday Review, February 3, 1968, pp. 14-17; and Gail Inlow, The Emergent in Curriculum (New York: John Wiley & Sons, Inc., 1966).

[22] Henry Dyer, "Education for the 1970's," Theory Into Practice, 7:133 (October 1968).

of emergent curriculum objectives.[23] The Eight-Year Study also demonstrated that it was possible to formulate and evaluate objectives related to attitudes and values. Although subsequent changes in the American political climate made this an unpopular and even hazardous undertaking, attention is again being directed to the affective domain of educational objectives.[24]

It is imperative to consider the values held by both teachers and students in designing curriculum and instruction, because values serve as motivating factors in one's development throughout life.[25] Academicians like to think that students are motivated to learn for learning's sake, but evidence does not support this contention.[26]

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[23]Eugene R. Smith, "Results of the Eight-Year Study," Progressive Education. 22:30-44 (October 1944); and Wilford M. Aikin, "Some Implications of the Eight-Year Study for All High Schools and Colleges," North Central Association Quarterly. 17:274-280 (January 1943).

[24]David R. Krathwohl, Benjamin S. Bloom and Bertram B. Masia, Taxonomy of Educational Objectives: Handbook II: Affective Domain (New York: David McKay Co., Inc., 1964); Georg Forlano, "Peer Acceptance in Core and Noncore Classes," Journal of Educational Research, 57:431-433 (April 1964); D. F. Butler and Richard W. Boyce, "Teacher-Centered vs. Student-Centered Methods of Instruction in Bio-Social Core Classes," Science Education, 51:310-312 (April, 1967); and Irwin J. Lehmann, "Changes in Critical Thinking, Attitudes, and Values from Freshman to Senior Years," Journal of Educational Psychology, 54:305-315 (December 1963).

[25]Charlotte Buhler, Values in Psychotherapy (Glencoe, Illinois: The Free Press, 1962).

[26]Duane Acker, "Excellence in a Professional School," Improving College and University Teaching, 14:12-14 (Winter 1966).

Brookover's research findings support four hypotheses about human learning.

1. People learn to behave in ways that each considers appropriate to himself.

2. Appropriateness of behavior is defined by each person through the internalization of the expectations which others whom he considers important hold for him.

3. Functional limits of one's ability to learn are determined by one's self-conception or self-image as acquired in social interaction.

4. The individual learns what he believes others who are important to him expect him to learn in a given situation.[27]

Students are faced with a need to accommodate to change when there is a marked discrepancy between the ideal image they have of themselves in the student role and the real role which faculty require of them. A graphic illustration of the discrepancy between faculty and student values was reported by Gunter from a study of the ideal image of nursing expressed by Sophomore students. The students' ideal image of nursing included the motivation to help others, but it emphasized the need to be virtually certain that their actions would have the desired results and that no serious consequences would arise from mistakes. These perceptions were in conflict with the faculty's ideal image of the nursing student as a person who demonstrates a desire for independent action, is willing to experiment,

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[27]Wilbur B. Brookover and David Gottlieb, A Sociology of Education, 2nd ed. (New York: American Book Co., 1964), pp. 11-69.

raise questions and assume responsibility without dependence on a higher authority.[28] Mager believes that one reason we don't succeed more often than we do in the area of human interaction is that we try to influence others by providing consequences that are positive to us but not to them.[29]

Each individual's capacity to learn and grow is the result of a delicate balance between his need to protect sameness and continuity and his need to accommodate to change.[30] This balance is maintained by processes of adaptation which have as their goal:

1. the continuity of the individual; identity in time;
2. control of conflict; and
3. maintenance of complementarity of role relationships.[31]

Curriculum Objectives Harmonized: Cognitive and Affective Domains

The tendency to dichotomize cognitive and affective objectives of education is being discredited from many sources. Based on research in the Department of Child Study

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[28]Laurie M. Gunter, "The Developing Nursing Student: Attitudes Toward Nursing as a Career," Nursing Research, 18: 131-136 (March-April, 1969).

[29]Robert F. Mager, Developing Attitude Toward Learning (Palo Alto, California: Fearon Publishers, 1968), p. 47.

[30]Abraham H. Maslow, Toward a Psychology of Being (New York: D. Van Nostrand Co., Inc., 1962).

[31]Nathan W. Ackerman, The Psychodynamics of Family Life (New York: Basic Books, Inc., 1958).

at Tufts University, Edwards makes the following claim for the unitary development of the child.

> The child who lacks ego development neither cares nor dares to learn. Hopefully children can learn both to use their minds and to become more fully human. Social and intellectual growth are not mutually exclusive.[32]

The inseparability of the cognitive and affective domains of educational objectives is due to the integrating functions of man's nervous system.

> We cannot understand human functioning without clear appreciation of how emotions and physiology are inextricably interrelated, and how the nature of an individual's personality development influences his body structure and can even determine what constitutes stress for him and creates strain on his physiological apparatus.[33]

Learning anything requires motivation, and motivation lies largely in the brain's emotional system, particularly in the hypothalamus which is the control center for visceral activity. Thus the speed with which an individual's autonomic nervous system becomes conditioned may well be a window on how well motivated he is to learn and how easily he accepts the conditioning of society.[34]

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[32]Nathan W. Ackerman, The Psychodynamics of Family Life (New York: Basic Books, Inc., 1958).

[33]Theodore Lidz, The Person: His Development Throughout the Life Cycle (New York: Basic Books, Inc., 1968), p. 523.

[34]Patricia McBroom, "Gap Between Sciences Narrows to Fine Line," Science News, Vol. 90, No. 22 (26 November 1966), p. 446.

Unity of cognitive and affective objectives is well illustrated by the goals of programs to prepare health professionals; the best of these programs assume that good scientific training and logical thought processes are not incompatible with "a warm heart" or social concern.[35] However, there continues to be a deep-seated reluctance on the part of curriculum planners to operationalize and evaluate affective objectives.

> The hesitation in the use of affective measures for grading purposes comes from . . . deep philosophical and cultural values. Achievement, competence, productivity, etc., are regarded as public matters. . . . In contrast, one's beliefs, attitudes, values, and personality characteristics are more likely to be regarded as private matters, except in the most extreme instances. . . . Each man's interests, values, beliefs, and personality may not be scrutinized unless he voluntarily gives permission to have them revealed. This public-private status of cognitive vs. affective behaviors is deeply rooted in the Judaeo-Christian religion and is a value highly cherished in the democratic traditions of the Western world. . . .
> Gradually, education has come to mean an almost solely cognitive examination of issues. Indoctrination has come to mean the teaching of affective as well as cognitive behavior.[36]

The dichotomy between cognitive and affective behavior is neither as simple nor as real as their rather glib separation suggests.

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[35]Thomas B. Turner, Fundamentals of Medical Education (Springfield, Illinois: Charles C. Thomas Publishers, 1963).

[36]Krathwohl et al., op. cit., pp. 17-18.

Curriculum for Professional Preparation in Higher Education

Justification

Pre-service preparation for practice in institutions of higher education is often cited as one of the criteria of a profession. This is a defensible criterion only when supported by elaboration of the objectives to be achieved by professional education.

> The objective of professional education lies in the synthesis of knowledge and its skillful use. . . . Accretion is not freely pursued, but is related to the goals, the scope and the mandate that has been given to it . . . to practice and to address itself to a given set of conditions that are identified by society as problems.[37]

It is paradoxical that one of the strongest forces which has favored the standardization of educational preparation for the helping professions and has helped to move professional preparation into higher education has been the depersonalization of urbanization and industrialization. In an urbanized and industrialized society, there is a pressing need

> to attain higher levels of expertise, to make more predictable and interchangeable the human parts of the vastly more complex, interdependent economic system and to provide warranties of competence where geographic mobility and urbanization have made men strangers to one another.[38]

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[37] Hans O. Mauksch, "Building for Strength or Lessening Tension," Teacher-Practitioner: Collaborators for the Improvement of Nursing Care (New York: The National League for Nursing, 1965), pp. 14-15.

[38] Corinne L. Gilb, Hidden Hierarchies: The Professions and Government (New York: Harper & Row, Publishers, 1966), p. 17.

Practice, Theory and Balance

Curriculum in professional education must strike some balance between the universal (or theoretical) and the particular (or practical).[39] Much speculating has been done by educators in baccalaureate nursing programs as to what constitutes the proper balance between the theoretical and the practical elements of the curriculum.[40] Recommendations for type, amount and sequence of learning experiences relative to the theoretical element of the nursing curriculum have rested on the shakey bases of tradition, intuition and the use of other professions such as medicine as prototypes. Certainly nursing today is light-years away from its seventh century European origins, when nursing served as a penance for sins and a solace for unhappy lives.[41] But a historical perspective on the theoretical bases of nursing practice is lacking. The first nursing textbook was not written until

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[39]Kenneth S. Lynn, The Professions in America (Boston: Houghton Miflin Co., 1965), p. 6.

[40]Eleanor C. Lambertsen, "Changes in Practice Require Changes in Education," American Journal of Nursing, 66:1784-87 (August 1966); Audrey Logsdon, "Preparing for Unexpected Responsibilities," Nursing Clinics of North America, 3:143-152 (March, 1968); Dorothy E. Johnson, "Competence in Practice: Technical and Professional," Nursing Outlook, 14: 30-33 (October 1966); and Anne Kibrick, "Why Collegiate Programs for Nurses?" New England Journal of Medicine, 278: 765-772 (1968).

[41]Lena D. Dietz, History and Modern Nursing (Philadelphia: F. A. Davis Co., 1963), p. 25.

1885; demonstration as a method of instruction to teach nursing procedures was instituted only in 1895; the first nurse in the world to be a university professor was appointed by Teachers College, Columbia University, in 1907; and the first university-based school of nursing was established at the University of Minnesota in 1919, just fifty years ago.[42] The first serious and comprehensive attempt to identify the knowledge base of professional nursing practice was made in 1965 by Beland, whose textbook on clinical nursing emphasizes the cognitive, or intellectual, component essential to professional competence.[43]

Lacking empirical evidence about the behavior of those served by nurses and how that behavior is modified by nursing intervention, nursing educators have had no alternative but to rely on tradition, intuition and other professions as prototypes in developing curriculum. However, correlational studies which use multivariate design may prove to be one of the most valuable sources of information to guide curriculum decisions. A few such studies have been undertaken in undergraduate nursing programs, one at the

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[42]Mary M. Roberts, American Nursing: History and Interpretation (New York: The Macmillan Co., 1961), pp. 57-65.

[43]Irene L. Beland, Clinical Nursing (New York: The Macmillan Co., 1965).

University of Washington and another at the University of California-San Francisco Medical Center.[44]

Medicine has long been used as the prototype for emerging professions and, to a lesser degree, for curriculum planning for professional education.[45] One of the shifts in emphasis currently being proposed for medical practice is also being recommended for other professions such as nursing, teaching and social work.

> The physician must now assume the role of team leader, having the competence to marshall the appropriate expertise and resources beyond his individual skill. This ability to use technical assistance to work cooperatively in a team should be the essence of professionalism.[46]

Acceptance of the team leader role as the essence of professionalism has profound implications for curriculum planning for professional education.[47]

> Basic principles . . . should compose the curriculum, with emphasis placed on problem solving and the use of human and technological resources.[48]

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[44] Edna M. Brandt, B. Hastie, and D. Schumann, "Comparison of On-the-Job Performance of Graduates with School of Nursing Objectives," Nursing Research, 16:50-60 (Winter 1967); and F. J. McDonald and Mary T. Harms, "A Theoretical Model for an Experimental Curriculum," Nursing Outlook, 14:48-51 (August 1966).

[45] Vern L. Bullough, The Development of Medicine as a Profession (New York: Hafner Publishing Co., Inc., 1966).

[46] L. T. Coggeshall, Planning for Medical Progress Through Education (Evanston, Illinois: Association of American Medical Colleges, 1965).

[47] Ibid.

[48] Ibid., p. 7.

Curriculum as Re-Education of Teachers

The first order of business in curriculum development is to decide on the purposes of the program for which a curriculum is to be constructed. The second item on the agenda is to assess the capability of the institution to implement those purposes. Alam contends that "if we advocate the development of a rational man, a critical thinker, a knowledgeable man, a person who understands himself, a man who feels good about himself", then we cannot implement these purposes unless our institution values and encourages the behaviors which must be practiced to develop such a man.[49]

Critics of traditional curriculum in medical and nursing education concur that it is the educational environment, i.e., the values and attitudes of faculty, which must receive the greatest and most immediate attention before any major curriculum changes can be forthcoming.[50] This

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[49]Dale V. Alam, "'X' Institutions with 'Y' Purposes," Educational Leadership. 26:674-676 (April 1969).

[50]Oliver Cope, "The Future of Medical Education," Harper's Magazine, October 1967, pp. 98-106; Lester Evans, The Crisis in Medical Education (Ann Arbor: University of Michigan Press, 1964); Western Council on Higher Education for Nursing, One Approach to the Identification of Essential Content in Baccalaureate Programs in Nursing (Boulder, Colorado: WICHE, 1967); Martha E. Rogers, Educational Revolution in Nursing (New York: The Macmillan Co., 1961); Loretta E. Heidgerken, "Do Colleges Perpetuate Nursing Education's Ills?" Catholic Educational Review, 63:524-531 (November 1965); and George Sharp, Curriculum as Re-Education of the Teacher (New York: Teachers College Press, Columbia University, 1951).

concurrence among critics of traditional curriculum supports Sharp's contention that curriculum development is basically re-education of teachers.[51] Leadership in curriculum development must be directed toward improving morale by maintaining "reasonable levels of agreement among expectations, needs, and goals".[52] Man's common response to efforts to change his expectations or his actions is rejection, manifested by resistance and hostility.[53] When faced with a conflict between acting and knowing, man engages in "minimaxing", which is minimizing the maximum possible loss one can possibly have as a result of a decision, thereby avoiding the consequence of lowest value.[54] Therefore, one of the first tasks of curriculum leadership is to help the group operationalize its low and high priority values by creating situations in which existing perceptions can be analyzed, clarified and extended.[55] Accomplishment of this task requires a long term process of re-education, since

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[51] Ibid.

[52] Association for Supervision and Curriculum Development, Leadership for Improving Instruction (Washington, D.C.: NEA, 1960).

[53] Gerhard C. Eichholz, "Why Do Teachers Reject Change?" Theory Into Practice, 2:264-268 (December 1963).

[54] Morgenstern, cited in Jerome S. Bruner et al., Contemporary Approaches to Cognition (Cambridge, Massachusetts: Harvard University Press, 1957), p. 155.

[55] John Ginther, "Let's Challenge Technology," Educational Leadership, May 1968, pp. 716-721.

many of the existing perceptions will clearly be identifiable as "human hang-ups" which prevent group members from acting in the best interests of their own growth and development and the growth and development of their students.

> Human hang-ups not only make people miserable; they contaminate the work.[56]

The need to free people from the attitudes and fears which enslave them in patterns of behavior which preclude the development of flexibility and adaptability to change is recognized by all helping professions. Unfortunately, "it is harder to turn slaves into free men than to turn free men into slaves".[57] Efforts to change a social system in ways designed to increase the freedom of those within the system often encounter violence, and violence in a social system is a sure sign of its incapacity to express formally certain irrepresible needs.[58] Living systems first respond to continuously increasing stress by a lag in response, then by an over-compensatory response (violence) and finally by catastrophic collapse of the system.[59] Successful leadership in

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[56]John Poppy, "New Era in Industry: It's OK to Cry in the Office," Look, 32:64-76 (July 9, 1968).

[57]Gardner, loc. cit.

[58]Arthur Miller, "The Battle of Chicago: From the Delegates' Side," The New York Times Magazine, September 15, 1968, p. 29.

[59]Daniel E. Griffiths, "The Nature and Meaning of Theory," Behavioral Science and Education Administration (Chicago: The University of Chicago Press, 1964), pp. 117-118.

any social system must help the group avoid collapse of the system. The two characteristics of a healthy group which show a significant positive correlation with leadership behavior are cohesion of the group and satisfaction derived from group membership.[60]

The quality of interpersonal relationships among those participating in curriculum development is probably the most important single determinant of the quality and quantity of the group's output. Understanding, tolerating and responding therapeutically to a wide range of defensive and aggressive behavior exhibited by patients is commonplace for a nurse practitioner, but when that same nurse encounters comparable behavior in peers she often responds reflexly in ways that foster deterioration of group morale. Cuthbert's discussion of emotional reflexes in the nurse-patient interaction has great relevance to faculty interaction in curriculum development meetings.

> When we begin to feel angry or uneasy or dissatisfied, it is time to look at ourselves, for these are the times when we are likely to act reflexly. Reflexes are protective and useful, but they lose both qualities when they block our perception of reality.
> When a physical reflex runs counter to reality, we are usually aware of it immediately . . . [but] emotional reflexes have no such warning signal from outside, since they bounce off people who also have reflexes. The patient's response to his illness triggers my response

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[60]George Homans, cited in Educational Organization and Administration, 2nd ed., ed. by John and Reller Morphet (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967), p. 132.

> to complainers, which triggers his response to being rejected and, in a very few minutes, both of us are light-years away from what is really going on.[61]

Curriculum Development as Decision-Making

Decision-Making as Value Judgment

Griffiths has found in his research in administration that an understanding of the decision-making process in a particular enterprise is the key to its organizational structure.[62] The processes and procedures for continuous decision-making serve as the matrix of any curriculum development system. The resulting curriculum decisions cannot be evaluated exclusively by scientific means, because decision-making involves consideration of something more than factual propositions.

> Decisions are descriptive of a future state of affairs, and this description can be true or false in a strictly empirical sense; but they possess, in addition, an imperative quality--they select one future state of affairs in preference to another and direct behavior toward the chosen alternative. In short, they have an ethical as well as a factual content.
> . . .
> Ethical terms are not completely reducible to factual terms.

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[61] Betty L. Cuthbert, "Switch Off, Tune In, Turn On," American Journal of Nursing, 69:1206-11 (June 1969).

[62] Daniel E. Griffiths, Administrative Theory (New York: Appleton-Century-Crofts, Inc., 1959).

> Factual propositions cannot be derived from ethical ones by any process of reasoning, nor can ethical propositions be compared directly with the facts--since they assert "oughts" rather than facts. Hence there is no way in which the correctness of ethical propositions can be empirically or rationally tested.[63]

Simon, in discussing administrative behavior, defines decision as the process by which one of a number of alternative behaviors is selected to be carried out. The series of decisions which determine behavior over some period of time he calls a strategy.

> The task of decision involves three steps:
> 1. the listing of all the alternative strategies;
> 2. the determination of all the consequences that follow upon each of these strategies; and
> 3. the comparative evaluation of these sets of consequences.[64]

When the decision-making process is applied to curriculum questions, many persons must be involved, hopefully within systems of cooperative behavior. However, two necessary conditions for cooperation are a climate and procedures which facilitate communication.

> The members of [an] organization are expected to orient their behavior with respect to certain goals that are taken as "organization objectives". This leaves the problem of

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[63] Herbert A. Simon, Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization, 2nd ed. (New York: The Free Press, 1957), p. 46.

[64] Ibid., p. 67.

> coordinating their behavior--and of providing each one with knowledge of the behaviors of the others upon which he can base his own decisions. In cooperative systems, even though all participants are agreed on the objectives to be attained, they cannot be left to themselves in selecting the strategies that will lead to these objectives; for the selection of a correct strategy involves a knowledge of each as to the strategies selected by others.[65]

Several items on both Student and Faculty Role Satisfaction Questionnaires were designed to find out what each respondent knew, and wished to know, about the processes and products of curriculum decision-making in the program selected for this study.

Mutuality in decision-making has been proposed as an imperative for survival by biologists as well as social scientists and philosophers. Platt, in discussing his studies of the relation of an organism to its environments, traces the evolution of methods of problem solving by decision systems. The three methods of problem solving which have evolved are

1. problem solving by survival, which is the phylogenetic method;
2. problem solving by individual learning, which is the genetic method, in which survival involves chromosomes and DNA; and
3. problem solving by anticipation, which comes only with the development of symbolic manipulation so that one knows the laws which can be extrapolated into the future from abstract analysis. This is the method of science.[66]

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[65] Ibid., pp. 72-73.

[66] John Platt, "Organism, Environment and Intelligence as a System," Commission on Undergraduate Education in the Biological Sciences News, 5:10 (April 1969).

The third method of problem solving provides the possibility of enormous control over the environment.

> If we survive, it will be only by first setting up feedbacks within [the super system of the biosphere] which will keep us from destroying ourselves and our biosphere. The feedbacks will lead to higher degrees of cooperation and lower degrees of conflict and will require a kind of mutuality in our decision-making in which we treat other(s) not as subjects but as co-participants in the experiment.[67]

Approaches to Curriculum Decision-Making

System analysis has been suggested as a promising approach to curriculum development.

> System analysis is a point of view and a set of procedures which enable developers to examine carefully and systematically the way in which an attack on a social or educational problem might be made. It lays out a schedule of activities and emphasizes the areas in which problems may arise. In education it has a particular applicability because it places so much emphasis on the problems of implementation, evaluation, feedback, and revision.[68]

The schedule of activities which characterizes system analysis follows.

1. State the real NEED you are trying to satisfy.
2. Define the educational OBJECTIVES which will contribute to satisfying the real need.

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[67] Ibid.

[68] Launor F. Carter, "Significant Differences: The Systems Approach to Education--The Mystique and the Reality," Educational Researcher, (No. 4) 1969, pp. 6-7.

3. Define those real world limiting CONSTRAINTS which any proposed system must satisfy.

4. Generate many different ALTERNATIVE systems.

5. SELECT the best alternative(s) by careful analysis.

6. IMPLEMENT the selected alternative(s) for testing.

7. Perform a thorough EVALUATION of the experimental system.

8. Based on experimental and real world results, FEED BACK the required MODIFICATIONS and continue this cycle until the objectives have been attained.[69]

Evaluation as indispensable feedback to guide continuous curriculum development has long been recognized by leading educators.[70] However, less agreement has been reached about an accepted set of concepts or principles which define and guide curriculum development, particularly in higher education.

Dressel recommends that eight concepts be used as a framework within which to develop undergraduate curriculums.

1. Calendar

2. Liberal education

3. Vocational education

4. Breadth requirement

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[69] Ibid.

[70] Ralph W. Tyler, Basic Principles of Curriculum and Instruction (Chicago: The University of Chicago Press, 1950); and Fred T. Wilhelms, "Evaluation as Feedback," Evaluation as Feedback and Guide (Washington, D.C.: NEA, 1967), pp. 2-17.

5. Depth requirement
6. Continuity
7. Sequence
8. Integration[71]

Teaching and Learning as Curriculum Implementation

Teachers and Learners

Although there is validity in the premise that much of teaching consists of overt acts or observable behaviors, it is equally true that teaching is an intangible developing emotional situation.

> It takes two to teach, and from all we know of great teachers the spur from the class to the teacher is as needful an element as the knowledge it elicits.[72]

Taba has defined a teaching strategy as a consciously formulated plan designed to produce particular changes in students; this plan is translated into the conditions and activities of the learning process by coordinating the logical steps of the learning tasks and the psychological needs of the learners.[73] In recent years, much research has

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[71]Paul L. Dressel, "Curriculum Theory and Practice in Undergraduate Education," North Central Association Quarterly, 51:287-294 (Winter 1966).

[72]Jacques Barzun, Teacher in America (Boston: Little, Brown & Co., 1946), p. 43.

[73]Hilda Taba, "Teaching Strategies and Thought Processes," Teachers College Record, 65:524-534 (March 1964).

been done on instructional strategies using interaction analysis. Interaction analysis is a technic for describing and analyzing teacher-student verbal interaction which classifies all teacher statements as either minimizing or maximizing the freedom of students to respond.[74]

The system used in this study to describe the verbal behavior of teachers in the classroom was a modified form of interaction analysis. The dichotomy between minimum and maximum freedom of students to respond was represented by the categories of Eliciting and Didactic statements, or verbal behaviors.

Herman and his associates studied the relationship of teacher-centered and student-centered activities during twelve weeks of fifth-grade social studies classes on the achievement and interest of students, and they found no statistically significant differences in achievement or interest of students taught by the two methods. They suggest that the volume of material which implies that pupil-centered instruction produces greater achievement and interest than teacher-dominated modes requires careful

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[74]Edmund J. Amidon, "Interaction Analysis," Theory Into Practice, 7:159-167 (December 1968); Davis, Morse, Rogers and Tinsley, "Studying the Cognitive Emphases of Teachers' Classroom Questions," Educational Leadership, 26:711-719 (April 1969); and Bellack, Kliebard, Hyman and Smith, The Language of the Classroom (New York: Teachers College Press, 1966).

appraisal.[75] Only when a particular combination of students and teacher can be specified is it possible to know with any accuracy what outcomes to expect from various concepts or methods of teaching.[76] Therefore, this study included comparison of students by instructor groups.

Wehling and Charters report a study to identify the principal dimensions of teachers' belief systems regarding classroom teaching-learning processes, using factor analysis. Although eight dimensions survived several replications, the investigators were impressed with the high degree of instability in the factor structure of the domain they were exploring. No attempt was made to uncover relationships between teacher beliefs about the educative process and the actual behavior of teachers in the schools.[77] An attempt is made in this study to estimate the discrepancy between beliefs about the teaching-learning process and the actual behavior of both teachers and students. This estimation of discrepancy (made on the basis of responses on the Role

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[75]Herman, Potterfield, Dayton and Amershek, "The Relationship of Teacher-Centered Activities and Pupil-Centered Activities to Pupil Achievement and Interest in 18 Fifth-Grade Social Studies Classes," American Educational Research Journal, 6:227-239 (March 1969).

[76]Herbert A. Thelen, Classroom Grouping for Teachability (New York: John Wiley & Sons, Inc., 1967).

[77]Leslie J. Wehling and W. W. Charters, Jr., "Dimensions of Teacher Beliefs About the Teaching Process," American Educational Research Journal, 6:7-30 (January 1969).

Satisfaction Questionnaires) is based on the premise that discrepancies between perceptions of the real world (actual behaviors) and the ideal world (beliefs about what 'ought to be') may be more pertinent to outcomes of the teaching-learning process than beliefs, per se.

Skinner has defined operant behavior as responses which are not elicited or evoked by external stimuli, but which are simply emitted by a subject.[78] It is pre-requisite to operant training to know something about the motivational state of the individual and to provide a goal or incentive which will interact with the motivational state. In fact, the motivational state is so important that it affects the rate of extinction as well as the rate of acquisition of a habit.[79] In this study, an attempt was made to obtain an estimate of the "motivational state" of both faculty and students concerning their desire to participate in curriculum decision-making.

Although the reinforcing elements within the subtle instructor-student relationship do not easily fit the stimulus-response model, there is no question that the reinforcing ingredient is very much at work in the situation. "This is part of the paradox of learning--the learner receives both overt and covert cues in a learning situation

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[78]Wendell I. Smith and J. William Moore, Conditioning and Instrumental Learning (New York: McGraw-Hill Book Co., 1966), p. 15.

[79]Ibid., p. 79.

that have the potential to enhance or stultify learning."[80] Recent studies have investigated the effect that the teacher has on a student's learning, particularly the effect of the teacher's beliefs and expectations about the individual student's capabilities. Findings suggest that the teacher's expectations of the student's performance may serve as an educational self-fulfilling prophecy.[81] A major difficulty in identifying and/or modifying teachers' expectations of students' performance is the fact that these expectations are often "out-of-awareness", and are communicated to students via the "silent language" of modeling.[82]

Stress and Power in Teacher-Student Interactions

There is a tendency to assume that the student is the person experiencing the greatest stress in undergraduate education. However, the stresses to which faculty are exposed are also increasing in number and intensity. One

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[80] Barbara Brodie, "Reexamination of Reinforcement in the Learning Process," Journal of Nursing Education, 8:27-32 (April 1969), p. 32.

[81] R. Rosenthal and L. Jacobson, Pygmalion in the Classroom (New York: Holt, Rinehart and Winston, 1968); F. Riessman, The Culturally Deprived Child (New York: Harper & Row, 1962); and T. J. Johnson, R. Feigenbaum and M. Weiby, "Some Determinants and Consequences of the Teacher's Perception of Causation," Journal of Educational Psychology, 55:237-246 (1964).

[82] Edward T. Hall, The Silent Language (Greenwich, Connecticut: Fawcett Publications, Inc., 1959), pp. 63-91.

wonders how any nurse faculty member in a university program today can experience a high level of role satisfaction, in view of the spiralling expectations being assigned to that role. Nursing leaders are admonishing nurse faculty members for failing to be equally involved and competent in nursing practice, research, teaching of graduate and undergraduate students, and community service.[83] Anyone who attempts to fulfill all these expectations will inevitably experience psychological stress.

> Psychological stress refers to all processes, whether originating in the external environment or within the person, which impose a demand or requirement upon the organism, the resolution or handling of which requires work or activity of the mental apparatus before any other system is involved or activated.[84]

Health and optimal functioning for students, faculty, and patient, lies somewhere between sensory overload and sensory deprivation.

Student Questionnaire #1 (Preparation Strategies) was designed to estimate the degree of "input overload" students experience in relation to the responsibilities they must fulfill on assessment day.

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[83]Mary Kelly Mullane, "Nursing Faculty Roles and Functions in the Large University," Memo to Members: Council of Baccalaureate and Higher Degree Programs, February 1969, pp. 1-4.

[84]Samuel Silverman, Psychological Aspects of Physical Symptoms (New York: Appleton-Century-Crofts, 1968), p. 22.

Power conflict is a major source of psychological stress for both faculty and students. Whenever conditions in the teaching-learning situation do not permit the motivation of the students to be positively related to the learning activities, there is likely to be a power conflict, which diverts energy from learning and teaching into the struggle for power.

> Power is an issue in a relationship only when the person who is subject to the power resists doing what is desired by the person who has the power. Power is then brought to bear in order to enforce one person's will over another's. If power is a continuous issue, it is probable that either the curriculum or the quality of the teaching is inappropriate to the students.[85]

Tokens of control are often confounded with real power, a danger which is very real in relation to the upsurge of student demands for participation in those decisions which affect them. Privilege is often confounded with capacity; permissiveness with independence; and constraint with ill will.[86] A constructive concept of power is to think of it in terms of what it can produce, rather than in terms of whom it can subordinate.[87]

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[85] National Training Laboratories, Human Forces in Teaching and Learning (Washington, D.C.: NEA, 1961), p. 73.

[86] James Dickoff and Patricia James, "Power," American Journal of Nursing, 68:2128-32 (October 1968).

[87] Ibid., p. 2132.

> Whoever views himself as slave in some respect nearly always tries to play the master's role in other respects.[88]

Student Participation as Learning Experience

Increasingly, students are insisting on a voice in matters that affect them. How much responsibility they wish to assume varies with the type of institution, current administrative practices, students' perceptions of the problem and their level of maturity.[89] Faculty have not been very conspicuous in the movement to increase student participation in curriculum decision-making. In 1952, Shetland reported one of the first attempts at systematic involvement of nursing students as participants in the formulation of curriculum goals for nursing education.[90] The urgency of student demands to participate is alternately perplexing, aggravating and occasionally gratifying to faculty in professional education programs. Students in the health professions, through the recently organized Student Health Organization, have distinguished themselves among student activists by presenting very responsible and much-needed

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[88] Ibid.

[89] Eleanor M. Treece, "Students' Opinions Concerning Selection of Patients for Clinical Practice," Journal of Nursing Education, 8:17-21, 24-25 (April 1969).

[90] Margaret L. Shetland, "Identifying Curriculum Goals," Nursing Research, 1:43-44 (October 1952).

curriculum demands to their professional organizations.[91] Perhaps because of this, students are beginning to participate in curriculum decision-making in baccalaureate programs.[92] In the nursing program selected for this study, student representatives from all three grade levels participate in curriculum planning, as voting members of the Standing Curriculum Committee.

Problem Identification as a Central Objective of Basic Baccalaureate Nursing Programs

Professed and Pursued Objectives in Nursing Education

Sporadic reports of evaluating the legitimacy of selected objectives of nursing education programs have appeared in the nursing literature.[93] In 1952, Shields reported findings of a nation-wide opinion survey about the abilities which basic nursing programs should and could be expected to develop in students by the end of the program.

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[91] Nancy C. Kelly, "The Student Voice in Curriculum Planning--Threat or Promise?" Nursing Outlook, 17:59-61 (April 1969).

[92] Michael R. McGarvey and Stevens S. Sharfstein, "A Study in Medical Action--The Student Health Organizations," New England Journal of Medicine, 279:74-80.

[93] Louise C. Smith, "An Approach to Evaluating the Achievement of One Objective of an Educational Program in Nursing," Nursing Research, 5:115-120 (February 1957); and Charlotte R. Coe, "The Relative Importance of Selected Educational Objectives in Nursing," Nursing Research, 16: 141-145 (Spring 1967).

of the eight hundred and two basic professional schools of nursing which participated, only 69 per cent of respondents stated that the following quality should be developed.

> Identifies nursing problems and uses a logical step-by-step procedure toward their solution (analyzes problems, investigates possible solutions, weighs evidence without prejudice, bases conclusions on the most reliable findings).[94]

As recently as 1966, a survey of fifteen hundred nursing students and graduate nurses revealed that more than 99 per cent of respondents were judgmental rather than diagnostic in their classification of patients as "good" or "bad".[95]

Progress toward planning and implementing curriculums which can be predicted to develop in students a diagnostic or problem-solving approach to nursing is imperceptible.

Nature of Nursing as a Health Profession within the Jurisdiction of Medicine

Care and cure are legitimate but overlapping distinctions in medicine.

> Medical care is concerned largely with disability, discomfort, and dissatisfactions; medical cure is concerned largely with death and disease. When there is not cure, care is needed. . . .

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[94]Mary R. Shields, "A Project for Curriculum Improvement," Nursing Research, 1:4-31 (October 1952).

[95]Miriam Ritvo and Claire Fisk, "Role Conflict," American Journal of Nursing, 66:2248-51 (October 1966).

> In the long-haul, it is "medical cure" that really affects the health status of society; it is in the short haul that "medical care" makes its contributions.[96]

Although nursing has an undisputed responsibility to participate in cure by applying, and observing the effects of, medical therapy the primary obligation of nursing is to help the patient cope with all the stressors associated with illness and/or hospitalization which impinge on him in such a way that his ability to meet his own basic needs is impaired. Two major sources of stress to all patients are their specific disease(s) and the medical therapy instituted to diagnose and treat the disease(s). Engel's unified concept of health and disease states that

> an organism as a whole, or an organ system within it, is in a state of health when functioning effectively, fulfilling needs, successfully responding to the requirements or demands of the environment, whether internal or external, and pursuing its biological distiny, including growth and reproduction. [Disease] corresponds to failure or disturbances in the growth, development, functions and adjustments of the organism as a whole or any of its systems.[97]

Within the context of Engel's concept of health and disease, disease and its prevention and alleviation are certainly the concern of nursing.

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[96]Kerr L. White, "Primary Medical Care for Families--Organization and Evaluation," New England Journal of Nursing, 277:851 (October 19, 1967).

[97]George Engel, cited in "The Nurse's Active Role in Assessment," by Hamilton, Pratt and Green, Nursing Clinics of North America, 4:249-262 (June 1969).

"Enabling another to achieve control of function appropriately in time and space may well be a succinct description of nursing."[98] The goal of nursing is conservation of the whole individual, to help man to gain, maintain, or restore control of function. Levine has proposed four conservation principles of nursing.

1. Conservation of patient energy
2. Conservation of structural integrity
3. Conservation of personal integrity
4. Conservation of social integrity.[99]

In applying these conservation principles to the nursing care of patients, nursing intervenes at either of two points in the field of interacting forces within the health-disease continuum. Either intervention aims at preventing stressors from impinging on the patient, thus conserving his adaptive resources, or intervention aims at strengthening, supplementing or substituting for defense mechanisms which are inadequate to deal with unavoidable stressors. Location of nursing intervention in the health-disease continuum is illustrated in Figure 1, page 75.

Before one can attempt to intervene intelligently on behalf of another who needs help, one must first assess the nature and extent, and preferably also the source, of the existing difficulty. For the purposes of subjecting

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[98]Reva Rubin, "Body Image and Self-Esteem," Nursing Outlook, 16:23 (June 1968).

[99]Myra E. Levine, "The Four Conservation Principles of Nursing," Nursing Forum, Vol. 6, No. 1 (1967), 45-59.

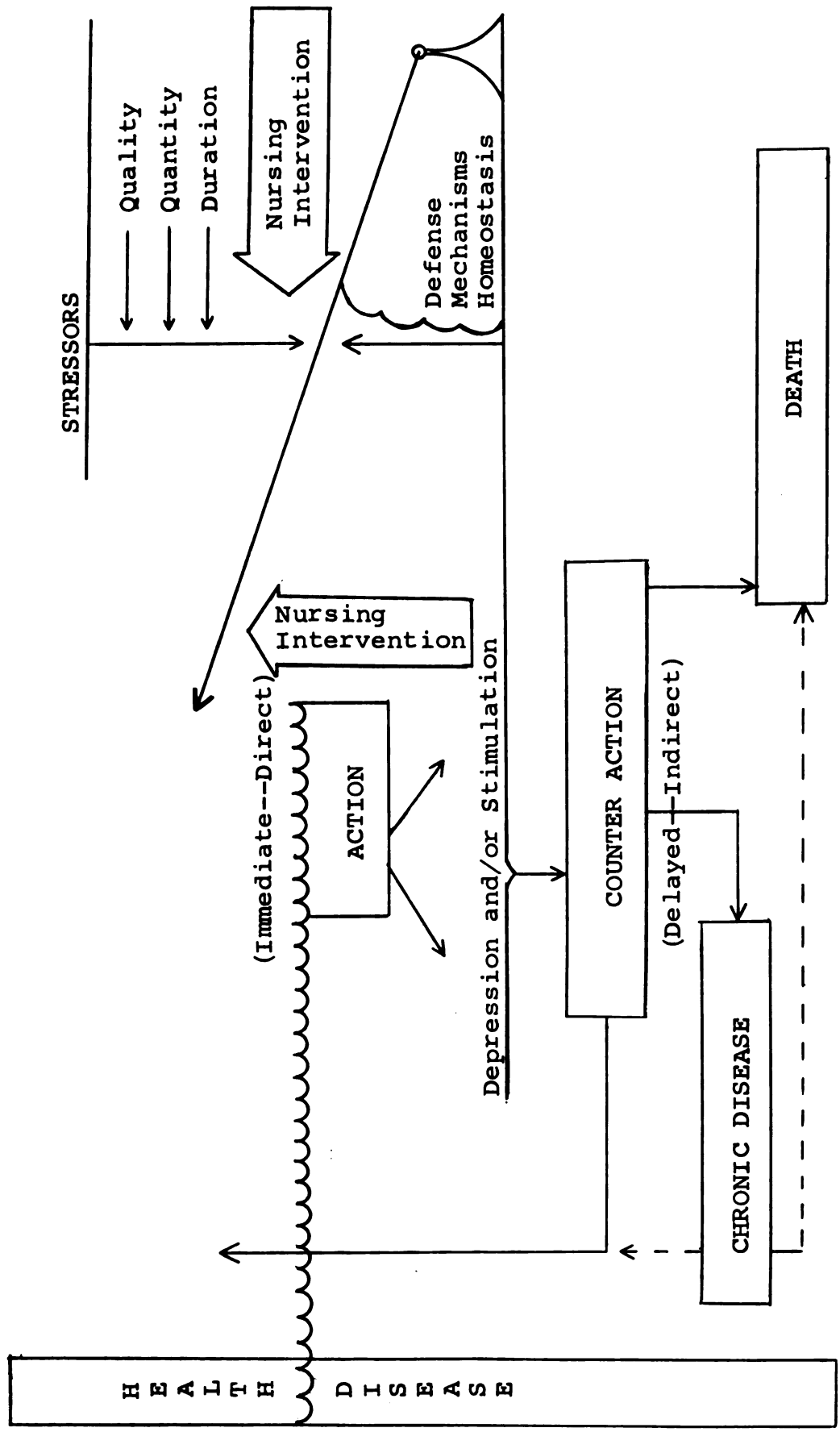

Figure 1. Nursing Intervention in the Field of Interacting Forces within the Health-Disease Continuum (based upon Howard C. Hopps, Principles of Pathology, 2nd ed. (New York: Appleton-Century Crofts, 1964), p. 5).

students' written nursing care plans to content analysis in this study, the investigator proposes capacity, knowledge and will as three major sources of self-help deficit which underlie the nursing problems presented by patients. Although these three sources of deficit are intimately interrelated and interacting due to the unity of neuroendocrine function of the cortical and subcortical mechanisms of behavior, they tend to exist in a hierarchy of complexity in terms of assessment and treatment.[100] Lack of capacity or strength which is due to abnormality or disease of the systems of the body is a self-evident cause of an individual's inability to perform activities of living unaided; also, defective capacity is readily assessed in most instances by direct observation and physical manipulation of the individual. Inadequate knowledge and will are much more subtle causes, or sources, of self-help deficit, and often are difficult to differentiate. However, sustained observation of, and interaction with, an individual usually will yield an assessment of his level of knowledge. However, teaching to raise level of knowledge is a far simpler treatment to apply than ministering to an inadequate will. Knowledge is sterile unless it is applied to our daily lives. Where health knowledge is adequate but health practice is poor, the source of self-help deficit is probably inadequate will. The magnitude of

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[100]Robert A. McCleary and Robert Y. Moore, Subcortical Mechanisms of Behavior: The Psychological Functions of the Brain (New York: Basic Books, Inc., 1965).

the problem of improving poor health practices which are due to inadequate will is suggested by Dowell's study of the relationship between health knowledge and health practice; he found, among the one hundred fifty adolescents and adults studied, a correlation coefficient of only 0.27 between health knowledge and health practice.[101] More information is certainly not the treatment of choice to improve such a situation.

Problem Identification as the Preparation Phase of Problem-Solving

Before one can solve problems by the application of appropriate and effective therapy, one must first correctly identify the problem. Johnson categorizes problem-solving activities as either preparation, production, or judgment activities. In the preparation phase, one is getting ready to produce solutions, and is engaged in identifying the problem. Possible solutions are turned out in the production phase. In the judgment phase, one evaluates or criticizes a solution.[102]

The three phases of the problem-solving process are all instances of causal thinking, which requires the

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[101] Linus J. Dowell, "The Relationship Between Knowledge and Practice," Journal of Educational Research, 62:201-205 (January 1969).

[102] Donald M. Johnson, Psychology: A Problem-Solving Approach (New York: Harper & Row, Publishers, 1961), p. 252.

substitution of verbal symbols for perceptions of reality.[103] The right words may not automatically produce the right actions, but they are an essential part of the process.[104] Those who do not use words and symbols easily will have difficulty with the causal thinking required for problem identification and problem-solving.[105] Recent innovations in medicine, such as a self-administered Inventory-by-Systems medical questionnaire for patients and a problem-oriented format for recording entries in the patient's record, are efforts to systematize the gathering, interpretation and evaluation of information and the use made of the information in prescribing medical therapy.[106] "It is the capacity to formulate and pursue a problem that distinguished a good clinician."[107]

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[103]Walter R. Hess, "Causality, Consciousness, and Cerebral Organization," Science, 158:1279-83 (December 8, 1967.

[104]Norman Cousins, "The Environment of Language," Saturday Review, April 8, 1967.

[105]Margaret Mead, "Changing Patterns of Trust and Responsibility," The Journal of Higher Education, 37:307-311 (June 1966).

[106]Morris R. Collen and Associates, "Reliability of a Self-Administered Medical Questionnaire," Archives of Internal Medicine, 123:664-681 (June 1969); and Lawrence L. Weed, Medical Records, Medical Education, and Patient Care (Cleveland: The Press of Case Western Reserve University, 1969).

[107]Lawrence W. Weed, "Medical Records That Guide and Teach," New England Journal of Medicine, 278:655 (March 21, 1968).

Within the last five years much attention has finally been directed to studying the processes used by both medical and nursing clinicians in gathering, organizing and interpreting information as a basis for identifying and treating clinical problems.[108]

Evaluation of Problem Identification Behavior

The process of problem sensing and problem identification has only recently been subjected to scientific investigation; the findings have not as yet found their way into educational practice. Getzels contends that the greatest effect of research on education has been an indirect one, resulting from transformations in the general paradigms and conceptions of the learner rather than from attempts to alter the elements of classroom practice directly. In support of his contention, emerging changes in the classroom are dealing not only with presented problems and problem-solving but also with discovered problems and problem finding. This shift in emphasis seems to be one consequence of

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[108] "Medicine Faces the Computer Revolution," Medical World News, 8:46-55 (July 14, 1967); Alvan R. Feinstein, Clinical Judgment (Baltimore: The Williams & Wilkins Co., 1967); William L. Morgan and George L. Engel, The Clinical Approach to the Patient (Philadelphia: W. B. Saunders Company, 1969); "Secrets of Problem-Solving: Thinking Processes of Master Physicians Studied by OMERAD," News and Comment, 5:1-2 (May-June, 1969); L. Mae McPhetridge, "Nursing History: One Means to Personalize Care," American Journal of Nursing, 68:68-75 (January 1968); and Dorothy M. Smith, "A Clinical Nursing Tool," American Journal of Nursing, 68:2384-88 (November 1968).

theoretical research directed toward the understanding of such phenomena as concept formation and the processes of discovery and inquiry.[109]

Faculty who use problem solving as a teaching process need to know the effect of their instruction on students' ability to use facts and principles as a basis for identifying and solving nursing problems. Simulated clinical nursing problems do a far better job of evaluating problem-solving skills than the conventional multiple choice test.[110] Rimoldi's Diagnostic Skills Test uses the number, type and sequence of questions asked by a subject in solving a problem as a means of appraising the thinking processes used in arriving at solutions.[111] Traditional achievement tests provide information only about the product, not the process, of problem-solving. Glaser's Tab Test resembles

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[109] J. W. Getzels, "Paradigm and Practice: On the Contributions of Research to Education," Educational Researcher, No. 5 (1969), p. 10; Robert M. Gagné, The Conditions of Learning (New York: Holt, Rinehart & Winston, Inc., 1965); Lee S. Shulman and Evan R. Keisler, eds., Learning by Discovery (Chicago: Rand McNally & Co., 1966); and H. H. Kendler and T. S. Kendler, "Vertical and Horizontal Processes in Problem-Solving," Psychological Review, 69:1-16 (1962).

[110] Reba de Tornyay, "Measuring Problem-Solving Skills by Means of the Simulated Clinical Nursing Problem Test," Journal of Nursing Education, 7:3-8, 34-35 (August 1968).

[111] H. J. A. Rimoldi, "A Technique for the Study of Problem-Solving," Educational and Psychological Measurement, 15:450-461 (1955).

the Diagnostic Skills Test of Rimoldi in that it provides information in response to choices made by the student.[112]

There has been an encouraging increase in studies of

1. the process by which nurses arrive at clinical inferences about the state of a patient;[113]

2. the factors which contribute to the nature of inferences drawn by nurses about patients;[114] and

3. professional standards for evaluating the decisions for action which derive from the nurse's clinical inferences.[115]

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[112]R. Glaser, D. E. Damrin and R. M. Gardner, "The Tab Item: A Technique for the Measurement of Proficiency in Diagnostic Problem-Solving Tasks," in Teaching Machines and Programmed Learning, edited by Lumsdaine and Glaser (Washington, D.C.: NEA, 1960), pp. 275-282.

[113]Kenneth R. Hammond, "Clinical Inference in Nursing: A Psychologist's Viewpoint," Nursing Research, 15:27-38 (Winter 1966); and Ann C. Hansen and Donald B. Thomas, "A Conceptualization of Decision-Making: Its Application to a Study of Role- and Situation-Related Differences in Priority Decisions," Nursing Research, 17:436-443 (September-October 1968).

[114]Lois J. Davitz and Sydney H. Pendleton, "Nurses' Inferences of Suffering," Nursing Research, 18:100-107 (January-February 1969); Ann C. Hansen and Donald B. Thomas, "Role Group Differences in Judging the Importance of Advising Medical Care," Nursing Research, 17:525-532; and Elaine D. Dyer, "Factors Affecting Nursing Performance," Utah Nurse, Vol. 18, No. 3 (Autumn 1967).

[115]Donald B. Thomas and Ann C. Hansen, "Multiple Discriminant Analysis of Public Health Nursing Decision Responses," Nursing Research, 18:145-153 (March-April, 1969); and Phyllis J. Verhonick and others, "I Came, I Saw, I Responded: Nursing Observation and Action Survey," Nursing Research, 17:38-44 (January-February, 1968).

Little has been done to analyze faculty expectations of students' problem-solving abilities as manifested by faculty evaluation of student performance with real patients, under 'field conditions'. This study attempts to make such an analysis, and to determine relationships between selected faculty and student characteristics and the quality of students' problem identification behavior. The written nursing care plans used in this study as a sample of students' problem identification behavior incorporate behaviors found in all six classes of educational objectives elaborated by Bloom and his associates, with special emphasis on analysis, synthesis, and evaluation.[116]

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[116]Benjamin S. Bloom (ed.), Taxonomy of Educational Objectives, Handbook I: Cognitive Domain (New York: David McKay Co., Inc., 1956), pp. 62-207.

CHAPTER III

METHODOLOGY

Selection of Population

The population selected for this study consists of all students and clinical faculty in one accredited baccalaureate nursing program who were involved during one eleven-week term in the care of adults hospitalized for diagnosis and/or treatment of physical illness. Involvement with this type of patient was the criterion for selection of study subjects because the identified nursing problems of this type of patient are representative of the competencies in clinical problem identification expected of students in the largest segment of most basic baccalaureate nursing programs. Adults hospitalized for physical illness are selected for students' clinical experience in over 50 per cent of the clinical nursing courses required in the program selected for this study:[1]

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[1] "'X' University: Description of Courses and Academic Programs," 63:205 (July 1968).

Credit requirements for the Degree = 200

Maximum credits in School of Nursing = 100

Total clinical nursing course credits = 90

Clinical experience with adults hospitalized for physical illness = 46

The numbers of subjects are as follows:

Grade Level	Students	Clinical Faculty
Sophomore	76	5
Junior	32	7
Senior	20	2
Total	128	14

There is no crossing over of either instructors with grade levels or of students with instructors within grade levels during the period of the study. Therefore, instructors are nested within grade levels, and students are nested within instructors and grade levels.

Faculty and students were provided with a written overview of the study, which included a summary of the participation being requested of them. The investigator discussed the objectives and methods of the study with students in each of three class groups to allow for questions. Students then indicated their willingness to participate by signing their names on a consent sheet. All Sophomore students consented; all but three Junior students consented; and all Senior students consented. Faculty indicated verbally their willingness to participate; all faculty consented.

Procedures for Data Collection

Problem Identification Behavior: the Dependent Variable

At the end of each week of clinical experience, students at all three grade levels submit, in writing, a "nursing care plan" which includes the information obtained about the assigned patient, the problems the patient presented, the nursing measures planned to assist the patient with the problems identified, and an evaluation of the effectiveness of the nursing measures applied in caring for the patient. The week selected to sample the problem identification behavior of students as exhibited in their written nursing care plans at all three grade levels was that week which fell as close as possible to the mid-point of each student's clinical experience for the term:

Sophomores each had three weeks of clinical experience. (Their sample was taken in the second week of each student's clinical experience.)

Juniors each had ten weeks of clinical experience. (Their sample was taken in the fifth week of each student's clinical experience.)

Seniors each had four weeks of clinical experience. (Their sample was taken in the second week of each student's clinical experience.)

The sample consisted of one nursing care plan submitted by each student to her/his clinical instructor. Each clinical instructor corrected the nursing care plans according to her usual procedure. Each corrected nursing care plan was then copied for later analysis. In addition to her usual procedure, each clinical instructor answered the following nine

questions about the assigned patient and the student's analysis of his presenting nursing problems.

Judgments of the clinical instructor about assigned patients which serve as criteria for evaluating the accuracy and efficiency of students' problem identification behavior:

1. How much information is necessary for accurate identification of the presenting nursing problems of the patients selected for clinical experience?

2. How many nursing problems are presented by the patients selected for clinical experience?

3. How many of the presenting nursing problems are major problems?

4. How many of the presenting nursing problems are minor problems?

Judgments of the clinical instructor about the accuracy and efficiency of students' problem identification behavior:

Accuracy:

5. How many of the total nursing problems presented by the patient did the student correctly identify?

6. How many of the major presenting nursing problems did the student correctly identify?

7. How many of the minor presenting nursing problems did the student correctly identify?

Efficiency:

8. How many unnecessary information bits did the student include?

9. How many problems did the student identify which, in your judgment, were not problems, or were not problems for nursing?

'Accuracy' is expressed as three scores:

one score for total problems correctly identified;

one score for major problems correctly identified;

one score for minor problems correctly identified.

Hypothesis #2 (page 26) presumes that the number of presenting nursing problems may be related to grade level of students for whom patients are selected. Therefore, in order to determine the relationship of selected independent variables to the accuracy of students at all three grade levels, 'accuracy' is expressed as the per cent of presenting nursing problems (total, major and minor) which are correctly identified by students:

$$\frac{\text{number of presenting nursing problems correctly identified by student}}{\text{number of presenting nursing problems actually presented by patient, in the judgment of the clinical instructor}} \times 100 = \text{per cent}$$

Efficiency is a concept which relates energy expended to work accomplished. The 'efficiency' score is a negative statement of that concept in view of the fact that it records non-productive energy expended by the student. To illustrate, a perfectly efficient student will have an 'efficiency' score of "0". The higher the score on efficiency, the more inefficient is the performance being evaluated. 'Efficiency' is expressed as one score:

number of unnecessary information bits included by student

+

number of non-existent problems identified by student

Faculty Expectations of Students' Problem Identification Behavior as Manifested by Recorded Characteristics of Patients Selected for Clinical Experience

Each corrected nursing care plan submitted by study subjects was subjected to content analysis. Results are used to suggest a means of describing, classifying and comparing information obtained about, and nursing problems presented by, patients selected for students at three grade levels.

Content analysis is a method of observation as well as a method of analysis. "Instead of observing people's behavior directly, or asking them to respond to scales, or interviewing them, the investigator takes the communications that people have produced and asks questions of the communications."[2] The content categories set up for recording the occurrences of category units on each nursing care plan are indicated by the following questions which are to be asked of the written nursing care plans.

A. About information obtained

1. How much information is obtained about this patient?
2. What are the sources from which information is obtained?
3. What proportion of information is obtained from each source
   a. by each student?
   b. by students at each grade level?

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[2]Fred N. Kerlinger, Foundations of Behavioral Research (New York: Holt, Rinehart and Winston, Inc., 1964), p. 544.

4. What aspects of human functioning are illuminated, or explained, by the information obtained? (Meaning)
Tentative categories developed for recording the meaning of information obtained are as follows:
   a. Microsystems, as subsystems of the Individual
      1) biochemical
      2) cellular
      3) organ
      4) traditional body systems
         a) pulmonary-cardio-vascular
         b) reticulo-endothelial
         c) nervous
            (1) central nervous and special senses
            (2) autonomic and neuro-endocrine
         d) motor: muscular and skeletal
         e) reproductive
         f) nutritional
            (1) ingestion
            (2) digestion, absorption, metabolism
            (3) excretion
               (a) colonic
               (b) renal
         g) skin and appendages (hair and nails)
         h) teeth and contents of oral cavity
   b. The Individual, as the pivotal system
      1) his perceptions
      2) his habits
      3) other
   c. The Proximal Supra-System, as the system which operates closest to, and has the greatest influence on, the Individual in relation to his well-being outside the hospital
      1) family
      2) other significant persons
      3) employment status
      4) housing
      5) other
   d. The Intermediate Supra-System, as the system which operates closest to, and has the greatest influence on, the Individual in relation to his well-being in the hospital
      1) institutional policies and practices of the hospital
      2) staff members and practices on the hospital unit where the Individual is receiving care
      3) other

3. The Distal Supra-System, as the system within which man's social institutions are developed, controlled and coordinated
   Characteristics of the community from which the Individual comes and/or to which he will return: e.g.,
   - the work community
   - the residential community
   - the religious community

B. About presenting nursing problems identified

5. Which activities of living are the patients unable to perform, or control, without assistance? (type of problem)
   See list of activities elaborated in Definition of Terms: Presenting Nursing Problem, page 22, for sub-categories.

6. What proportion of the presenting nursing problems are due to impaired performance of each type of activity
   a. for each patient?
   b. for patients at each grade level?

7. What sources of deficit appear to be responsible for the impaired performance of each type of activity?
   a. defective capacity?
   b. inadequate knowledge?
   c. inadequate will?

   The type of activity impaired and the apparent source of deficit responsible for the impairment will be recorded for each patient on the Patient's Problem Profile, which is presented in Appendix A.

C. About the degree of illness of selected patients:

8. Is each patient best described as being in critical, serious, or convalescent condition?

Preparation Strategies of Students: An Independent Variable

All students were asked to account for the ways in which they used their time on assessment day of the week selected to sample their problem identification behavior. The time span covered was from the hour the student awoke on assessment day until the hour the student awoke on the following day. This information was obtained by administering Student Questionnaire #1, which is a check-list instrument in which the student is asked to indicate the amount of time spent in each activity listed. Specific activities included were taken from a list of assessment day activities generated during the eleven-week term of the study by basic nursing students in another baccalaureate program in the same state as the study program.

Each student received Student Questionnaire #1 on assessment day of the week selected to sample her/his problem identification behavior. Instructions for completing and returning the questionnaire were given verbally to reinforce the written instructions of the form. Student Questionnaire #1 is presented in Appendix B.

Scores for Preparation Strategies are in terms of minutes spent in each activity on assessment day.

Instructional Strategies:
An Independent Variable

Faculty who teach clinical nursing courses participate in both the formal classroom instruction and clinical instruction of students. The ideal measure of Instructional Strategies for the purposes of this study would have been to take a measure of the teaching behaviors of each faculty member in the clinical setting during the week(s) of clinical experience which preceded that week which was selected for a sample of her students' problem identification behavior. The ideal procedure was not feasible. Therefore, the teaching behaviors of faculty were observed in the classroom, in an attempt to determine the relationship between faculty's classroom instructional strategies and the accuracy of students' problem identification behavior. Because of the differences in class and clinical schedules among the three grade levels, eight hours of class was the largest block of consecutive class hours which could be observed in all three courses prior to the week(s) selected to sample the problem identification behavior of students at each grade level. It was hoped that observations made during this period of eight consecutive class hours in each couse would yield a sample of the classroom teaching behavior of all faculty involved in the study.

Two broad categories of specific teacher behaviors were set up to indicate whether a recorded behavior had elicited active responses or participation from students.

Behaviors which elicited active responses or participation were counted as ELICITING behaviors. Behaviors which did not allow, or did not seem intended to stimulate, active student response or participation were counted as DIDACTIC behaviors. The criterion for classifying any given teacher behavior was the observable response of students to that behavior. Sub-categories of DIDACTIC and ELICITING behaviors were as follows:

DIDACTIC

- Elaborating on assignments
- Climate setting
- Subject or concept framework setting
- Giving facts
- Giving principles, concepts, generalizations
- Giving own opinions or interpretations

ELICITING

- Asking for facts
- Getting students' interpretation of the significance of facts
- Asking for synthesis, or tentative hypotheses
- Asking for application of previous learning to a new situation
- Asking for examples or illustrations
- Clarifying or summarizing a student's contribution
- Specifically requesting a generalization
- Giving examples or justifications in response to students' questions
- Asking for students' opinions, feelings, perceptions.

No attempt was made to record, analyze or evaluate the content which was presented in the classes observed.

The observation schedule was divided into five-minute intervals as a bookkeeping device to assist in later standardization of the duration of observations made at each grade level. There were unequal numbers of teachers at each

grade level; therefore, unequal amounts of time were required for classroom observations. When all observations were complete, the findings were summarized as mean frequencies of observed behaviors for a fifty-minute class period; no single observation was fifty-minutes in length.

Student Role Satisfaction:
An Independent Variable

All students were asked to indicate their perceptions of the real and ideal state of affairs regarding their participation in, or control over, decisions and conditions which affected them at the patient care level, the course level and the program level during the term. This information was requested from students during the week in which they were having final evaluations of their performance in clinical experience, in order to include consideration of their participation in evaluation activities. This information was obtained by administering Student Questionnaire #2, which is a check-list type of instrument. The format of the items is as follows:

Activities	(Real) DID you?	(Ideal) SHOULD you?
A. Activities at the Patient Care Level		
1. Did you select any of the patients for whom you have cared during your clinical experience this term?	Yes No	Yes No

Three Role Satisfaction Indices (RSI's) were determined for each student, one RSI for each level of participation. The RSI is expressed as a proportion which is arrived at as follows:

$$\frac{\text{number of 'no discrepancy' items}}{\text{total number of items to which student gave both "DID" and "SHOULD" responses}} \times 100 = \text{RSI}$$

Instructions for completing and returning the questionnaire were again given verbally, to re-inforce the written instructions on the form. Student Questionnaire #2 is presented in Appendix C.

Faculty Role Satisfaction:
An Independent Variable

All faculty were also asked to indicate their perceptions of the real and ideal state of affairs regarding their participation in, or control over, decisions and conditions which affected them at the patient care level, the course level and the program level during the term. This information was obtained by administering the Faculty Questionnaire (presented in Appendix D) at the same time as students at each grade level were given Student Questionnaire #2. The format of items is the same, and each faculty member also has three scores, one RSI determined for each level of participation. Items included for the patient care level are parallel to those to which students are asked to respond. Items at the course and program levels are similar in the type of activity to which students and faculty are

asked to respond, but the number and nature of specific activities vary because existing opportunities for faculty and students to participate in decisions at course and program levels vary.

Inter-Rater Reliability of Faculty within Grade Levels

One nursing care plan was randomly selected from those submitted by students at each grade level, and copies made and distributed to all faculty involved in teaching students at the appropriate grade level. Each faculty member answered the following questions about the same nursing care plan:

1. How many necessary information bits were omitted?
2. How many unnecessary information bits were included?
3. How many major problems did the patient present, in your judgment?
4. How many minor problems did the patient present, in your judgment?
5. How many major problems did the student correctly identify?
6. How many minor problems did the student correctly identify?
7. How many non-existent problems did the student identify?

Answers to these questions are presented as frequencies and proportions for comparison among faculty within grade levels. Also, the standard deviation and variance of faculty scores on each item within grade level is presented.

Plan for Analysis of Results

Focal Questions 1 through 4 and 6 through 9 are answered by the content analysis of written nursing care plans. The results of content analysis are reported in frequencies and percentages within each category. Mean frequencies and percentages within categories at each grade level are also presented.

Focal Questions 14 through 16, 18 through 20 and 22 through 24 are answered by analyzing responses to specific items on Student Questionnaires 1 and 2, and the Faculty Questionnaire. The findings are described in terms of frequencies, percentages and means.

Focal Questions 11 and 12 are answered by analyzing the numbers provided by faculty in answer to the seven questions stated above about each student's written nursing care plan, and by calculating an accuracy and efficiency score for each student.

Hypotheses are to be tested as follows:

One-Way Analysis of Variance: H1, H2, H10

H1: Patients selected by faculty for the clinical experience of three grade levels of students all require the same amount of information as a basis for accurate identification of the presenting nursing problems.

Senior Amt. of Info.	Junior Amt. of Info.	Sophomore Amt. of Info.

H2: Patients selected by faculty for the clinical experience of three grade levels of students all present the same total number of nursing problems.

Senior PNP's	Junior PNP's	Sophomore PNP's

H10: There is no relationship between grade level of students and student role satisfaction at the patient care, course and program levels.

RSI at Patient Care			RSI at Course			RSI at Program		
Sr's	Jr's	Sp's	Sr's	Jr's	Sp's	Sr's	Jr's	Sp's

Test of Homogeneity of Regression: H5

H5: There is no relationship between the accuracy and efficiency of students' problem identification behavior.

Senior		Junior		Sophomore	
Accuracy	Efficiency	Accuracy	Efficiency	Accuracy	Efficiency

Chi Square Test of Proportions: H3, H4, H7

H3: Patients selected by faculty for three grade levels of students present the same proportion of major and minor nursing problems at each grade level.

	Sophomore	Junior	Senior	Total
Minor				
Major				
Total				

H4: The distribution of patients according to degree of illness is the same for all patients selected by faculty for each grade level of students.

	Sophomore	Junior	Senior	Total
Convalescent				
Serious				
Critical				
Total				

H7: There is no relationship between the amount of sleep students have on assessment day and the accuracy of their problem identification behavior

	Sleep Time		
Accuracy	Less than 6 hours	6 or more hours	Total
High 1/3			
Medium 1/3			
Low 1/3			
Total			

Pearson Product Moment Correlation: H6, H8, H9

H6: There is no relationship between the time spent by students in all forms of studying and the accuracy of their problem identification behavior.

H8: There is no relationship between student role satisfaction at the patient care level (RSI_{sl}) and faculty role satisfaction at the patient care level (RSI_{fl}).

H9: There is no relationship between student role satisfaction at the patient care level (RSI_{sl}) and the accuracy of students' problem identification behavior.

No test for significance of correlations is necessary, since no inferences can be made to populations other than the one studied.

CHAPTER IV

THE FINDINGS

Comments on Methodology

Faculty Expectations of Students' Problem Identification Behavior

Answers from each clinical instructor to seven questions about the written nursing care plan of each of her students provided the raw data from which accuracy and efficiency scores for each student were calculated.

1. How many necessary information bits were omitted?
2. How many unnecessary information bits were included?
3. How many major nursing problems did the patient present, in your judgment?
4. How many major problems did the student correctly identify?
5. How many minor nursing problems did the patient present, in your judgment?
6. How many minor problems did the student correctly identify?
7. How many non-existent problems did the student identify?

Faculty comments concerning two aspects of the questions elaborated above are noteworthy.

About Questions 3 through 6:

1. Distinctions between major and minor nursing problems are not customarily made. Definitions proposed by the investigator for the distinction between major and minor nursing problems were of some assistance, but additional clarification was sought by all faculty prior to answering the seven questions. Two faculty felt that they could not make such a distinction in the nursing problems presented by four patients.

About Questions 2 and 7:

2. Although the student's attention is consistently directed to any omissions of information or problems on a written nursing care plan, faculty do not customarily note the superfluous information or problems. Answering the two questions concerning unnecessary information and irrelevant or non-existent problems required additional time and some re-orientation of thinking for several faculty members.

No special difficulties were reported by any faculty member in quantifying the answer to question #1; the proposed definition of "information bit" appeared to have provided a useable standard for quantifying information presented in the written nursing care plans of students at all grade levels.

One nursing care plan was randomly selected from those submitted by students at each grade level. These three randomly selected nursing care plans were the basis for estimating agreement among faculty at three grade levels, all faculty at each grade level responding to the same nursing care plan. In order to have used one-way analysis of variance to analyze comparability of faculty judgments within grade levels, it would have been necessary for all faculty to correct at least two nursing care plans randomly selected from each grade level. Requesting faculty to correct a second nursing care plan in addition to their regular responsibilities during the eleven-week term of the study would have imposed an unreasonable burden. Therefore, comparisons of faculty judgments about the one nursing care plan used as a basis for estimating inter-rater agreement at each grade level are presented in Table 1 (page 115) as means, standard deviations and variances.

Operationalizing Students' Problem Identification Behavior by Content Analysis of Written Nursing Care Plans

Sophomore and Senior students each used a different standardized form for recording all aspects of their nursing care plans. Junior students used whatever format seemed appropriate to the individual student. The variability in format of written nursing care plans slowed the process of content analysis, but none of the formats used prohibited

the categorization of information gathered and problems identified by students.

Amount of information considered necessary by the clinical instructor as a basis for identifying the nursing problems presented by an assigned patient.--The investigator counted the total number of information bits presented by the student, subtracted the number of bits which the instructor said were unnecessary, and added the number of bits which the instructor said were omitted.

Total Bits Presented by Student	-	Number of Unnecessary Bits	+	Number of Omitted Bits	=	Total Number of Information Bits Considered Necessary as a Basis for Identifying the Patient's Presenting Nursing Problems

No difficulties were encountered in carrying out this procedure.

Sources of information.--All information was obtained from one of the eight sources described in the outline of the coding system for sources and meanings of information on page 119. In many instances the source of information was specified by the student. When the source was not specified, information was attributed to the source from which it would initially be obtained. For example, the report of a laboratory test might ultimately be transcribed to the Kardex, but it would initially appear on a report

form in the patient's medical record; the prescription of a particular drug might ultimately be transcribed to a medication card, but it would initially appear in the physician's orders.

Meaning of information.--All information was assigned to one or more of the five system levels of meaning described in the outline of sources and meanings of information on page 119.

1. Microsystems: The primary allocation of information to this level of meaning was very clear cut. E.g.,

> carbon dioxide and electrolyte determinations of blood samples were allocated to "biochemical"; presence of an indwelling urinary catheter was allocated to "urinary system"; presence of a decubitus ulcer was allocated to "skin and appendages."

However, most of the information bits which illuminated the Microsystems level of human functioning required allocation to several subcategories within Microsystems. E.g.,

> abnormal findings of carbon dioxide and electrolyte determinations also illuminate pulmonary-cardiovascular function and nervous system function; presence of an indwelling urinary catheter also has implications for muscle tone of the urinary bladder and sphincters and for the reticuloendothelial system; presence of a decubitus ulcer also has implications for the nutritional and mobility state of the patient.

Bits of information relative to a patient's vision, hearing and pain were allocated first to the subcategory, "central nervous system and special senses," and then to an

appropriate subcategory of the next system level, The Individual.

2. The Individual, as the pivotal system: In addition to information which described or explained a patient's habits and perceptions, the following types of information were allocated to this category of meaning: sex, age, marital status, education, general physical stature, employment status.

3. Proximal Supra-System: In addition to encompassing persons such as family and friends who were judged to be significant to the patient, this category of meaning included information about such things as the physical environment within the home from which he came and/or to which he was to return.

4. Intermediate Supra-System: Information allocated to this category of meaning included such things as specific staff members mentioned by patients; hospital policies which allowed or restricted a patient's movements off of the patient care unit to which he was assigned; procedures within and between departments or units which facilitated or interfered with communication on behalf of the patient.

5. Distal Supra-System: Information allocated to this category of meaning included such things as the patient's specific church affiliation; his place of employment; the specific health insurance he carried; and the type of community in which he lived (rural, suburban, urban; rapidly growing, deteriorating; etc.).

The extent to which separate bits of information served to explain more than one specific function of the patient was expressed as the generalizability of information; generalizability is represented as a bits-to-meanings ratio. The generalizability of information gathered by three grade levels of students in this study is presented in Table 3 (page 121).

Number of nursing problems presented by patients.--Each clinical instructor had had direct contact with all patients for whom her students submitted written nursing care plans. The instructors made the judgments of how many major and minor nursing problems each patient presented. The investigator added these numbers to arrive at total presenting nursing problems (PNP's) for each patient. The procedure was simple and rapid.

Types of nursing problems in terms of activities of living which patients are unable to perform or control without assistance.--The number of deficits in self-help ability bear the same relationship to the number of PNP's as the number of meanings of information bears to number of bits of information; i.e., the total number of self-help deficits, or problem areas, exceeds the total number of PNP's as designated by instructors. For example, one patient needed assistance with care of skin, hair, nails, mouth and teeth (Problem Areas 11, 12, 13, 15) due to residual muscle weakness in upper extremities from "old poliomyelitis." These

four problem areas were subsumed under one major problem, "Patient is unable to perform his own personal hygiene due to bilateral weakness of arms."

The relationship of the total number of PNP's as designated by instructors to the total number of self-help deficits as designated in the content analysis of nursing care plans is as follows.

	Total PNP's	Total Deficits	PNP's:Deficits
Sophomores	352	439	1:1.2
Juniors	305	563	1:1.9
Seniors	224	334	1:1.5

Data recorded on all written nursing care plans were sufficiently detailed to permit designation of specific self-help deficits for all patients.

Sources of deficit responsible for impaired performance of each type of activity of living.--Deficits in self-help ability due to defective capacity were easily designated from the data recorded on the written nursing care plans. Designation of inadequate will as the source of deficits in self-help abilities was also well supported by recorded data, particularly for those patients in whom lack of will to live was a major nursing problem. However, designation of inadequate knowledge as the source of deficits in self-help abilities had to be inferred for most patients from available data.

Preparation Strategies: Student Questionnaire #1

Types of activities engaged in by students on assessment day were precategorized from a list generated by other students in a comparable program. Space was left in each category for students to describe their own activities, if theirs did not fit the existing categories. Time spent in each activity was processed in minutes. The only difficulty reported by students was uncertainty as to the particular twenty-four hour period in question; once this was clarified, completion of the questionnaire required an average of twenty-two minutes.

Student and Faculty Role Satisfaction

Parallel forms of a questionnaire were developed to determine the satisfaction of students and faculty with the opportunities available to them to participate in, or control, decisions and conditions which affected them. The index for each respondent, which resulted from dividing the number of total items with both "Did" and "Should" responses by the total number of "no discrepancy" responses, provided a clear measure of the satisfaction of respondents with those opportunities to which their attention was directed in the questionnaire. However, there is no way to judge from item analysis of the questionnaires what other opportunities or activities are judged by students and faculty to be important to their role satisfaction.

"Did" and "Should" headings to the response columns were not equally appropriate to all items. No explanations were requested from or provided by respondents who chose to omit items or sections of items; explanations of omissions might have proven valuable in refining items on both faculty and student forms of the questionnaire.

Instructional Strategies of Faculty

The purpose of classroom observations was to identify the amount and kind of student participation which was characteristic of the classroom portion of each clinical course. Since identification of a patient's nursing problems requires active seeking and synthesis of information on the part of the student, it seemed that the quality of a student's problem identification behavior with patients might be related to ways of behaving which were practised in the classroom.

The subcategories used to operationalize the two broad categories of Didactic and Eliciting behaviors of teachers were adapted from research which has been done on instructional strategies using interaction analysis (see Chapter II, pages 63-4). The only behaviors observed in the classroom which failed, during pre-testing of the observation schedule, to fit any of the subcategories were behaviors of students which spontaneously appeared, and which were not clearly related to any observable behavior

of the teacher. The category developed to account for these spontaneous student behaviors was called "Emitted Student Behaviors."

The presence of a non-participant observer in a classroom situation undoubtedly has some effect on the nature of teacher-student interaction. What the observer records may not represent typical behavior of either the teacher or students in that course. The response of students to the presence of this investigator in the classroom ranged from apparent indifference to expressed resentment; if faculty felt uncomfortable or resentful about the presence of the investigator they did not demonstrate this in the classroom. Because the nature and effect of intervening variables were not identified, the findings based upon data gathered by the classroom observation facet of the methodology of this study must be interpreted with caution.

Characteristics of the Program Studied

Overview of Design and Data Obtained

This investigation of the problem identification behavior of basic baccalaureate nursing students was conducted during Spring Term 1969. The population consisted of one hundred twenty-eight students and fourteen faculty who were involved during that term in caring for and studying about the nursing needs of physically ill hospitalized adults. The objectives of the three nursing courses among

which study subjects were distributed were consistent with the statement of the nature of nursing which was accepted by the faculty of the School of Nursing in June, 1969.

> Nursing, as an emerging profession, is a unique societal force committed to the promotion of human welfare. Dedicated to the improvement of health care through reflective thinking and critical inquiry, it is an intellectual discipline which utilizes the nursing process as its unifying principle. It is characterized by diversity of function but not by diversity of philosophic perspective and goals. By incorporating intra-professional and interdisciplinary collaboration with independent function, nursing constitutes an ongoing human endeavor by which the patient, family and community are assisted toward meeting their health goals. Nursing is a dynamic process, devoted to meeting the changing health needs of society and preserving the worth and dignity of man.*

When the faculty of the School of Nursing accepted the above statement, they further agreed that clinical experience should focus on the process of nursing assessment as the means for gathering and interpreting pertinent data about patients as a basis for planning, providing and evaluating nursing care.

The data presented to answer Focal Questions #1 through #13 operationalize, to some extent, the existing expectations of students in relation to information gathering and problem identification. Data presented to answer Focal Questions #14 through #25 provide some evidence about

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*A copy of the accepted statement of the Nature of Nursing was made available to the investigator by personal communication with the Co-Chairman of the Curriculum Committee.

the acceptability of purposes and methods to both students and faculty, and describe aspects of the total obligations assumed by students which need to be considered in planning their educational experiences in the nursing major.

Data were obtained from five sources: Student Questionnaire #1 (Preparation Strategies); Student Questionnaire #2 (Role Satisfaction); Faculty Questionnaire (Role Satisfaction); classroom observation of teacher behavior (Instructional Strategies); and content analysis of nursing care plans written by students and corrected by each student's clinical instructor. The proportion of returns from faculty on the questionnaire was 100 per cent, and on corrected nursing care plans was 75 per cent. See Appendix M for the distribution of returns by grade level of faculty. The proportion of returns from students on Questionnaire #1 was 73 per cent; and on written nursing care plans was 77 per cent. See Appendix N for the distribution of returns by grade level of students. There were four registered nurses in the Sophomore class. Their scores have been included in the data whenever the Sophomore "n" is greater than seventy-six, or the total "n" is greater than one hundred twenty-six. Classroom observation of the teaching behavior of ten of the fourteen faculty involved in the study covered a six-week time span, and represented the equivalent of thirty-two class periods of fifty-minute duration. Because it was not possible to sample the teaching behavior of all faculty involved in the study, there was no attempt made to

characterize the Instructional Strategy of individual faculty members. Rather, data gathered during the classroom observations were used to characterize the pattern of instruction which predominated in the classroom portion of each clinical course at each grade level. See Table 16 (page 152) for results of the classroom observation of teacher behaviors.

Inter-Rater Agreement Among Faculty at Each Grade Level

Table 1 (page 115) presents the mean, standard deviation and variance of nine judgments made by each faculty member about the written nursing care plan of one student from the same grade level as the faculty member.

There was very little disagreement among faculty at any grade level about what constituted unnecessary information and incorrectly identified problems. Senior faculty were in closest agreement as to the number of major and minor nursing problems their patient presented; Sophomore faculty also showed close agreement about the number of major and minor nursing problems their patient presented; and Junior faculty were in closer agreement about the number of minor problems presented than they were about the number of major problems presented by their patient.

The greatest area of disagreement among faculty at each grade level was the area which concerned the degree of accuracy which characterized the student's identification of presenting nursing problems. Among Sophomore faculty,

Table 1. Consistency of Judgments of Clinical Instructors at Each Grade Level about the Written Nursing Care Plan of One Student Used as a Basis for Estimating Inter-Rater Agreement

	NUMBER OF NURSING PROBLEMS PRESENTED BY PATIENT		ACCURACY OF STUDENT IN IDENTIFYING NURSING PROBLEMS				EFFICIENCY OF STUDENT IN GATHERING INFORMATION AND IDENTIFYING PRESENTING NURSING PROBLEMS		
Grade Level	Major	Minor	Major (Aa) (%)	Minor (Ab) (%)	Total Accuracy (An) (%)	INFORMATION OMITTED (Ia)	Unnecessary Information (Ib)	Non-Existent Problems (Eb)	Total Efficiency (En)
Sophomore (5)									
$\bar{X}$	1.0	6.0	75.0	65.8	65.8	4.8	1.0	0.8	1.8
s	1.0	1.5	50.0	19.7	19.4	2.5	1.4	1.5	2.9
s^2	1.0	2.7	2500.0	384.9	374.2	6.3	2.0	2.3	8.3
Junior (7)									
$\bar{X}$	9.8	2.5	70.7	72.7	68.0	28.1	0.7	1.0	1.7
s	3.6	2.9	22.9	31.2	18.6	15.6	1.1	1.8	2.0
s^2	12.9	8.3	527.1	971.1	347.0	243.5	1.6	3.3	4.2
Senior (2)									
$\bar{X}$	8.5	1.5	41.5	50.0	44.5	4.0	0	1.5	1.5
s	0.2	0.2	12.2	70.7	16.2	2.8	0	2.1	2.1
s^2	0.5	0.5	144.5	5000.0	264.5	8.0	0	4.5	4.5

CODE: ACCURACY Aa = Student's accuracy on major problems (%).
Ab = Student's accuracy on minor problems (%).
An = Student's total overall accuracy.
Ia = Number of information bits omitted.

EFFICIENCY Ib = Number of unnecessary information bits included.
Eb = Number of problems incorrectly identified (non-existent problems).
En = (Ib + Eb) = student's total efficiency score.

disagreement was greater about the student's accuracy on major problems; Junior and Senior faculty disagreed more about students' accuracy on minor problems.

Sophomore and Senior faculty showed little disagreement about the amount of information omitted by their respective students; Junior faculty showed considerable variability in their judgments as to how much necessary information their student omitted.

Focal Questions #1 through #5, About Information Gathered as a Basis for Identification of Patients' Presenting Nursing Problems

1. How much information is required for accurate identification of the presenting nursing problems of patients selected for clinical experience of three grade levels of nursing students?

2. What are the sources from which information is obtained?

3. What proportion of information is obtained from each source?

There were eight sources from which all information included on written nursing care plans was obtained. These sources and the coding system used to represent them in tables are presented in the outline on page 119. The majority of information bits obtained by Sophomore and Junior students comes from their interaction with the patient; Sophomores obtain 33 per cent and Juniors 23 per cent of all information from this source. Seniors obtain the majority of information bits from the medical record and physicians'

orders, each source contributing 34 per cent to the total information obtained. Both Sophomores and Seniors obtain a realtively small proportion of total information from direct sensing in contact with the patient; Sophomores derive only 10 per cent from this source, while Seniors obtain the smallest of all proportions from direct sensing--only 6 per cent. Nurses' notes seem to be of little use to students at all grade levels; the proportion of information obtained from this source does not exceed 1 per cent for students at any grade level. Interaction with persons other than the patient as a source of information is used on a very limited basis by all students. Sophomores make the greatest use of this source, obtaining 4 per cent of information from it, while Juniors and Seniors both obtain only 3 per cent of information from interacting with persons other than the patient. Table 2 (page 118) summarizes the amount and source of information considered by faculty to be necessary for accurate identification of the nursing problems presented by patients selected for clinical experience of three grade levels of nursing students.

4. What meaning is assigned to the information obtained? What aspects of human functioning are illuminated or explained by the information?

The five categories of meaning and the coding system used to represent them are presented in the outline on page 119. The overwhelming majority of meanings assigned to

Table 2. Amount, Source and Meaning of Information Considered by Faculty to be Necessary for Accurate Identification of the Nursing Problems Presented by Patients Selected for Clinical Experience of 3-Grade Levels of Nursing Students

Instructor-Group	Number of Patients	% of Total	Total Bits Necessary	$\bar{X}$ Bits Necessary	Per Cent of Information Obtained from Each Source*								Total Meanings	Per Cent of Meanings Which Illuminate Each System Level of Human Functioning*				
					1	2	3	4	5	6	7	8		1	2	3	4	5
Sophomore Grade Level																		
A (10)	5	50	75	15	21	41	7	25	20	8	3	0	95	57	34	2	7	0
B (9)	7	78	171	24	13	36	9	18	6	6	3	0	175	60	33	3	3	1
C (17)	17	100	350	21	6	31	5	12	13	4	<1	1	315	11	59	8	5	0
D (20)	0	0																
E (20)	18	90	317	18	9	32	2	19	18	3	<1	3	428	70	23	3	3	2
Total (76)	47	62	913	19	10	33	5	17	14	4	1	2	1013	64	29	3	3	<1
Junior Grade Level																		
F (3)	3	100	144	48	18	18	3	31	16	3	2	3	186	74	16	4	3	2
G (4)	4	100	271	67	14	15	4	15	9	6	2	6	303	75	15	4	7	2
H (4)	4	100	163	40	18	36	<1	7	18	0	0	6	225	63	24	9	<1	4
I (5)	5	100	219	44	12	29	<1	22	14	0	<1	3	258	64	29	5	<1	5
J (5)	5	100	216	43	13	16	<1	20	17	3	0	3	273	78	16	5	0	<1
K (5)	5	100	234	46	<1	16	<1	23	18	0	<1	5	249	66	18	10	<1	5
L (6)	6	100	232	38	18	34	1	15	7	3	<1	1	343	59	26	9	6	1
Total (32)	32	100	1479	46	13	23	1	19	14	3	<1	4	1837	68	20	7	2	3
Senior Grade Level																		
M (10)	10	100	296	30	<1	8	<1	32	36	<1	0	<1	559	90	7	3	0	<1
N (10)	10	100	267	27	8	9	8	37	31	<1	0	0	508	86	7	3	1	2
Total (20)	20	100	563	28	6	9	7	34	34	3	0	<1	1067	88	8	3	<1	1

*Any difference between a horizontal total and 100% represents that percentage of items on the written nursing care plans from which source and meaning of information could not be inferred.

CODING SYSTEM FOR SOURCES AND MEANING OF INFORMATION:

SOURCES	Code	Description
	1	Direct Sensing in contact with patient
	2	Interaction with patient
	3	Kardex
	4	Medical Record
	5	Physicians' Orders
	6	Interaction with persons other than patient
	7	Nurses' notes
	8	Written authority, e.g., textbooks

MEANING	Code	Description
	1	Microsystems, as subsystems of the individual: biochemical, cellular, organ, pulmonary-cardiovascular, reticuloendothelial, central nervous system and special senses, autonomic nervous system and endocrine system, reproductive and endocrine system, musculoskeletal system, gastrointestinal system including ingestion, urinary system, skin and appendages, teeth.
	2	The Individual, as the pivotal system: perceptions, habits, other characteristics of the individual as an integrated person.
	3	The Proximal Supra-System, as the system which operates closest to, and has the greatest influence on, the Individual in relation to his well-being outside the hospital: family, other significant persons, home conditions.
	4	The Intermediate Supra-System, as the system which operates closest to, and has the greatest influence on, the Individual in relation to his well-being in the hospital: institutional policies and practices, staff and procedures on the unit, other.
	5	The Distal Supra-System, as the system within which man's social institutions are developed, controlled and coordinated: characteristics of the community from which the Individual comes and/or to which he will return, e.g., the work, residential or religious community.

information obtained by students at all three grade levels is in the category of the Microsystems, i.e., the traditional body systems, as subsystems of The Individual. Sixty-four per cent of all meanings assigned to information obtained by Sophomores relates to Microsystems, 68 per cent of all meanings assigned to information obtained by Juniors relates to Microsystems; and 88 per cent of all meanings assigned to information obtained by Seniors relates to Microsystems.

As indicated in Table 2 (page 118), a single bit of information may have more than one assigned meaning. One reason that the proportions of assigned meaning are so high in the Microsystems category is that a single bit of information concerning the physical well-being or status of a patient sheds light on many different body systems; for example, if one has a single bit of information concerning a patient's diagnosis of "stab wound of the chest," one expects some degree of disruption of the cardio-pulmonary-vascular systems, of the continuity of the integumentum, of the reticuloendothelial system and of the neuromuscular system, as a minimum of meanings assigned to this one bit of information. The extent to which one bit of information can be used to lead the student to multiple meanings of the functional state of the patient is referred to in this study as the generalizability of information.

Table 3 (page 121) supports the notion that there is greater generalizability of the information gathered by students as they progress from Sophomore to Junior to Senior

Table 3. Number of Information Bits Necessary for Accurate Identification of Presenting Nursing Problems of Patients Assigned to 3-Grade Levels of Students, the Number of Meanings of Necessary Information Bits and the Generalizability of Information Expressed as a Bits:Meanings Ratio

GRADE LEVEL	Number of Patients	Total Bits Necessary	$\bar{X}$ No. of Bits	Total Meanings	$\bar{X}$ No. of Meanings	Bits: Meanings Ratio
Sophomore	47	913	19	1013	22	1:1.1
Junior	32	1479	46	1837	57	1:1.2
Senior	20	563	28	1067	53	1:1.9

years in the nursing major. Expressing the generalizability of information as a bits-to-meanings ratio, this ratio increases from 1:1.1 in the Sophomore year to 1:1.2 in the Junior year to 1:1.9 in the Senior year.

5. Hypothesis:

H1 (H_o): Patients selected by faculty for clinical experience of three grade levels of students all require the same amount of information as a basis for accurate identification of their presenting nursing problems.
Sophomore = Juniors = Seniors

Table 4 (page 123) presents the distribution of patients by grade level of students to whom they are assigned and by amount of information considered necessary by faculty for accurate identification of their presenting nursing problems. The Chi-square test of homogeneity demonstrated significant differences among patients selected for the three grade levels of students in terms of the amount of information necessary for accurate problem identification. The null hypothesis is rejected.

However, amount of information required for accurate problem identification does not increase in direct relationship to grade level. As shown in Table 3 (page 121), Sophomores gather an average of nineteen bits of information, Juniors gather an average of forty-six bits of information and Seniors gather only twenty-eight bits of information on the average as a basis for identification of the presenting nursing problems of assigned patients. A small hiatus in

Table 4. Distribution of Patients Selected for Clinical Experience of 3-Grade Levels of Nursing Students According to the Amount of Information Considered Necessary by Faculty as a Basis for Accurate Identification of the Nursing Problems Presented by Patients

NUMBER OF NECESSARY INFORMATION BITS	Grade Level			TOTALS
	Sophomore	Junior	Senior	
High (50-70)	0	9	0	9
Medium (29-49)	7	22	8	37
Low (8-28)	40	1	12	53
TOTALS	47	32	20	99

Degrees of freedom = 4 χ^2 = 57.20 p = < .001

the Junior year is again apparent in relation to the number of meanings assigned to the information gathered; the Juniors are expected to obtain the greatest number of information bits to which the greatest number of meanings are assigned.

Focal Questions #6 through #10, About the Nursing Problems Presented by Assigned Patients

6. How many nursing problems are presented by patients selected for clinical experience of three grade levels of nursing students?

As shown in Table 5 (page 125), patients assigned to Sophomores presented a total of 352 problems, and averaged 6.9 problems per patient; patients assigned to Juniors presented a total of 305 problems, and averaged 9.5 problems per patient; patients assigned to Seniors presented a total of 224 problems and averaged 11.2 problems per patient.

H2 (H_O): Patients selected for the clinical experience of three grade levels of students all present the same total number of nursing problems.
Sophomores = Juniors = Seniors

Table 5 presents the variability of patients assigned to three grade levels of students in terms of the total PNP's they presented. One-way analysis of variance demonstrated significant differences among patients selected for students at each grade level in terms of the number of nursing problems presented by patients. The null hypothesis is rejected.

Table 5. Analysis of Variance of the Total Number of Nursing Problems Presented (PNP's) by Patients Who Were Selected by Faculty for Clinical Experience of 3-Grade Levels of Nursing Students

Grade Level of Students for Whom Patients Were Selected	NUMBER OF PATIENTS	TOTAL NUMBER PNP's	MEAN PNP's	STANDARD DEVIATION	VARIANCE
Sophomore (77)	51	352	6.90	2.50	6.29
Junior (32)	32	305	9.53	4.68	21.93
Senior (20)	20	224	11.20	5.03	25.33
TOTAL (129)	103	881	8.55	4.18	17.50

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Statistic
Between Grade Levels	309.78	2	154.89	10.50*

*p = < .001

H3 (H_o): Patients selected by faculty for three grade levels of students present the same proportion of major and minor problems at each grade level.
Sophomore = Juniors = Seniors

Table 6 (page 127) shows the distribution of major and minor nursing problems at each grade level. The Chi-square test of homogeneity demonstrated significant differences among patients selected for students at each grade level in terms of the proportion of PNP's which are major and minor. The null hypothesis is rejected.

7. Which activities of living are the patients unable to perform, or control, without assistance?

8. What proportion of patients have impaired performance of each type of activity?

The coding system used in content analysis of written nursing care plans for classifying presenting nursing problems of patients according to deficits in self-help ability to perform selected activities of living is presented in the outline on page 128. Only one problem area failed to be represented by some patient at each grade level. The missing problem area was found among patients selected for Seniors; the problem area was #23, "the ability to worship according to professed faith." The types of nursing problems presented by patients selected for clinical experience of three grade levels of nursing students are presented in Table 7 (page 129), according to the distribution of patients whose deficits in self-help ability occurred in each problem area.

Table 6. Distribution of Major and Minor Nursing Problems Presented by Patients Selected for Clinical Experience of 3-Grade Levels of Nursing Students

PNP's	Grade Level			TOTALS
	Sophomore	Junior	Senior	
Major	41	203	154	398
Minor	273	56	67	396
TOTALS	314	259	221	794

Degrees of freedom = 2 $\chi^2 = 288.90$ $p = < .001$

CODING SYSTEM USED IN CONTENT ANALYSIS OF WRITTEN NURSING CARE PLANS FOR CLASSIFYING PRESENTING NURSING PROBLEMS OF PATIENTS ACCORDING TO DEFICITS IN SELF-HELP ABILITY TO PERFORM SELECTED ACTIVITIES OF LIVING

Number of Problem Area	Activity of Living Normally within Self-Help Ability
1	Breathe adequately.
2	Drink.
3	Eat.
	Eliminate body wastes via:
4	urinary tract;
5	gastrointestinal tract;
6	skin.
7	Move and maintain lying, sitting, walking posture.
8	Sleep and rest.
9	Dress and undress.
10	Maintain body temperature by modifying the environment.
	Hygienic care of:
11	integumentum;
12	hair;
13	nails;
14	mucosa;
15	oral cavity including teeth.
16	Avoid dangers in the environment.
17	Avoid injuring others.
18	Communicate to express: emotions, needs, questions, ideas, opinions.
19	Learn, discover, satisfy curiosity.
20	Use available health facilities.
21	Work with sense of accomplishment.
22	Play and/or recreate.
23	Worship according to professed faith.
24	Monitor, or apply medical therapy to, automatically regulated functions.

Table 7. Types of Nursing Problems Presented by Patients Selected for Clinical Experience of 3-Grade Levels of Nursing Students According to the Distribution of Deficits in Self-Help Which Occur in Each Problem Area

Instructor-Group	Number of Patients	TOTAL DEFICITS	PROBLEM AREAS: Activities of Living Normally within Self-Help Ability (Distribution as Per Cent of Total Deficits Which Occur in Each Area)																						
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Sophomore	47	439	2	7	5	3	6	<1	8	3	3	2	8	5	5	5	7	8	<1	7	<1	1	<1	2	<1	9
Junior	32	563	2	5	5	5	5	1	5	3	4	5	6	5	5	5	5	5	3	6	3	5	4	3	<1	6
Senior	20	334	4	6	6	6	6	2	6	4	5	5	6	5	5	5	5	6	1	6	2	1	<1	<1	0	6

Eight per cent of patients cared for by Sophomores had deficits in the ability to move and maintain lying, sitting or walking posture (#7); to provide hygienic care of the integumentum (#11); and to avoid dangers in the environment (#16). Nine per cent of patients cared for by Sophomores had deficits in the ability to monitor, or apply medical therapy to, automatically regulated functions of the body (#24).

The most common nursing problems encountered by Junior students were deficits in the ability to provide hygienic care of the integumentum (#11, in 6 per cent of patients); deficits in the ability to communicate (#18, in 6 per cent of patients); and deficits in the ability to monitor, or apply medical therapy to, automatically regulated functions of the body (#24, in 6 per cent of patients).

The highest proportion of patients selected for Seniors whose problems were common was 6 per cent, and this per cent obtained in nine problem areas: #2, 3, 4, 5, 7, 11, 16, 18 and 24.

Inspection of Table 7 reveals that it is difficult to make any distinction among patients selected for progressive levels of nursing students by examination of patients according to type of nursing problems presented. There is a very similar and fairly even distribution of patients across problem areas and across grade levels.

9. What are the sources of deficit apparently responsible for the impaired performance of each type of activity?

If one considers the sources of deficit in self-help ability as being either lack of capacity, or of knowledge, or of will, and then one characterizes patients selected for three grade levels of nursing students according to the number of impairments which are due to each of the three sources of deficit, one can readily distinguish differences between the typical patient selected for the Sophomore, Junior and Senior student. Table 8 (page 132) presents the patients assigned to three grade levels of students according to the mean deficit scores of patients, using source of deficit rather than type of problem as the identifying characteristic. There is little distinction among patients selected for students at progressive levels in relation to the number of specific nursing problems which are due to lack of knowledge or will; the average patient selected for students at any grade level may have from one to four specific nursing problems due to these two deficits. However, the number of problems due to deficits in capacity seem to distinguish patients deemed appropriate for students at each grade level. Sophomores care for patients whose average number of deficits in capacity is eight; Seniors and Juniors care for patients whose average number of deficits in capacity is twenty.

Table 8. Mean Source of Deficit Scores of Patients Assigned to 3-Grade Levels of Students, and the Distribution of all Patients According to Degree of Illness

Instructor-Group	Total	Number of Patients	% of Total	$\bar{X}$ SCORE PER PATIENT FOR THE NUMBER OF DEFICITS ACCORDING TO SOURCE OF DEFICIT IN SELF-HELP ABILITY			DISTRIBUTION OF PATIENTS ACCORDING TO DEGREE OF ILLNESS (as %)		
				Capacity	Knowledge	Will	Critical	Serious	Convalescent
				Sophomore Grade Level					
A	(10)	5	50	7	1	0	0	0	100
B	(9)	7	78	8	3	<1	0	0	100
C	(17)	17	100	8	2	2	0	6	94
D	(20)	0	0						
E	(20)	18	90	8	4	1	0	6	94
Total	(76)	47	62	8	3	1	0	4	96
				Junior Grade Level					
F	(3)	3	100	16	3	2	0	67	33
G	(4)	4	100	28	2	1	0	50	50
H	(4)	4	100	20	4	3	0	50	50
I	(5)	5	100	18	2	3	0	20	80
J	(5)	5	100	20	2	2	40	40	20
K	(5)	5	100	16	3	3	40	20	40
L	(6)	6	100	22	13	9	0	50	50
Total	(32)	32	100	20	4	4	13	41	46
				Senior Grade Level					
M	(10)	10	100	21	6	4	40	40	20
N	(10)	10	100	20	9	7	30	40	30
Total	(20)	20	100	20	7	6	35	40	25
TOTAL	(128)	99	77	14	4	1	11	23	66

There appears to be only a weak association between the number of specific problems due to deficit in capacity which are dealt with by nursing students and the degree of illness of patients. As indicated in Table 8, none of the patients cared for by Sophomores was critically ill; only 13 per cent of the patients cared for by Juniors were critically ill; and 35 per cent of patients cared for by Seniors were critically ill. Yet patients with the largest mean number of problems due to deficits in capacity were those selected for Junior and Senior students, with an average of twenty capacity deficits per patient.

H4 (H_o): The distribution of patients according to degree of illness is the same for all patients selected by faculty for each grade level of students.

Sophomore = Junior = Senior

Table 9 (page 134) shows the frequency distribution of patients selected for three grade levels of students according to degree of illness of the patients. The Chi-square test of homogeneity demonstrated significant differences among patients assigned to students at each grade level in terms of degree of illness. The null hypothesis is rejected.

Table 9. Distribution of Patients Selected for Clinical Experience of 3-Grade Levels of Nursing Students According to Degree of Illness

DEGREE OF ILLNESS	Grade Level			TOTALS
	Sophomore	Junior	Senior	
Critical	0	4	7	11
Serious	2	13	8	23
Convalescent	45	15	5	65
TOTALS	47	32	20	99

Degrees of freedom = 4 $\chi^2 = 137.44$ $p = < .001$

Focal Questions #11 through #13, About the Quality of Problem Identification Behavior of Students

11. How accurate are students in identifying the nursing problems presented by their assigned patients?

The average Sophomore correctly identifies 67 per cent of PNP's; the average Junior correctly identifies 80 per cent of PNP's; and the average Senior correctly identifies only 46 per cent of PNP's.

12. How efficient are students in identifying the nursing problems presented by their assigned patients?

Scores on efficiency were actually numerical expressions of inefficiency, since it was the number of unproductive or nonessential items that were counted. There were many "0" scores on this variable, and the highest score assigned was 15. Therefore, comparisons of grade levels of students in terms of averages on the efficiency score would be meaningless.

In the early stages of data collection, faculty reported that they customarily gave more attention to omissions from a nursing care plan than to unnecessary inclusions. However, consideration of necessary work not done is also an element of the concept of efficiency. Therefore, the information bits omitted by students were analyzed to determine whether they varied with grade level;

results of this analysis are presented in Table 10 (page 137). There are significant differences among students at each grade level in terms of the amount of necessary information they omit in gathering data for nursing assessment of assigned patients. Attention is again drawn to the hiatus in mean number of information bits omitted at the Junior grade level.

H5 (H_o): There is no relationship between the accuracy and efficiency of students' problem identification behavior.
Accuracy:Efficiency = 0

A test for homogeneity of regression was done to test Hypothesis #5, using Efficiency as a covariate, and Accuracy as the dependent variable; grade level was the independent variable. The pooled estimate of within-groups correlation = 0.04, which failed to reach the 0.05 level of probability (p = 0.065). The null hypothesis is accepted; in this population of students, there is no significant relationship between accuracy and efficiency of problem identification behavior. However, the effect in this population of grade level on the relationship of students' accuracy and efficiency is significant.

Sum of Squares	d.f.	Mean Square	F
9738.85	2	4869.50	14.24*

*p = 0.001.

Table 10. Analysis of Variance of the Number of Information Bits Omitted by 3-Grade Levels of Students in Gathering Data for Nursing Assessment of Assigned Patients

Grade Level of Students Gathering Patient Data	NUMBER OF PATIENTS	TOTAL INFORMATION BITS OMITTED	MEAN BITS OMITTED	STANDARD DEVIATION	VARIANCE
Sophomore (77)	51	251	4.92	3.99	15.95
Junior (32)	32	335	10.47	10.85	117.74
Senior (20)	20	69	3.45	2.06	4.26
TOTAL (129)	103	655	6.36	7.24	52.39

Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Statistic
Between Grade Levels	815.10	2	407.55	9.00*

*p = < .001

Focal Questions #14 through #17, About the Patterns of Activities in Which Students Engage on Assessment Day (Preparation Strategies)

Table 11 (page 139) presents the average number of minutes spent on assessment day by each instructor-group and grade level of students in pre-conference; post-conference; patient contact; and library study. The final column presents the average time, in hours and minutes, spent in non-library study. Linear progression throughout the program is apparent only in two areas: post-conference and patient contact. Post-conference time decreases while patient contact time, for the purposes of data collection, increases.

Junior students spend more time on assessment day in both library and non-library study than either Sophomore or Senior students, while both Seniors and Sophomores spend more time in pre-conference than Juniors do.

Analysis of library time reported by all students revealed that many students did not use the library at all on assessment day. Because this finding is obscured by averages, it is presented in Table 12 (page 140) as frequencies and proportions of students who reported either some use or no use of the library on assessment day. Sixty-six per cent of all students who responded to Student Questionnaire #1 reported no use of the library on assessment day.

Table 11. Time Spent by 3-Grade Levels of Students on Assessment Day in Activities Related to Identifying Patients' Nursing Problems and Developing a Plan of Nursing Care

Instructor-Group	Total	Number	% of Total	Pre-Conference (minutes)	Post-Conference (minutes)	Patient Contact (minutes)	STUDY: Library (mins.)	STUDY: Non-Lib. (hrs. & mins.)
				Sophomore Grade Level				
A	(10)	6	60	60	16	15	0	2'45"
B	(9)	8	89	84	64	21	8	2'54"
C	(17)	16	94	66	38	31	38	1'58"
D	(20)	18	90	56	21	32	60	2' 5"
E	(20)	17	85	82	33	25	15	2' 8"
Total	(76)	65	85	70	34	25	22	2'24"
				Junior Grade Level				
F	(3)	3	100	18	5	27	0	3'45"
G	(4)	4	100	28	4	28	30	5'30"
H	(4)	4	100	60	0	24	53	2'30"
I	(5)	4	80	21	2	35	24	4'20"
J	(5)	5	100	33	4	26	51	2'24"
K	(5)	5	100	25	30	30	102	4'27"
L	(6)	5	83	22	24	34	12	4'21"
Total	(32)	30	94	30	10	29	39	3'32"
				Senior Grade Level				
M	(10)	10	100	46	5	57	6	3' 6"
N	(10)	10	100	37	13	62	12	2' 5"
Total	(20)	20	100	42	9	60	9	2'36"

Table 12. Use of the Library on Assessment Day as Reported by 3-Grade Levels of Students

		TIME IN LIBRARY			
		None		Some	
GRADE LEVEL	Total	N	%	N	%
Sophomore	(65)	46	71	19	29
Junior	(30)	18	60	12	40
Senior	(30)	18	90	2	10
TOTAL	(125)	82	66	33	34

The importance of the time a student spends in studying on assessment day is perhaps best determined by its relationship to the accuracy of problem identification behavior. Hypothesis #6 was posed to test that relationship.

H6 (H_o): There is no relationship between the time spent by students in all forms of studying on assessment day and the accuracy of their problem identification behavior.
Studying:Accuracy = 0

The Pearson product moment correlation was used to determine the relationship between the study time and accuracy of students. The correlation is negligible in this population ($r = 0.05$). The null hypothesis is accepted. See Appendix I for simple correlations between these and other pairs of selected characteristics of students' Preparation Strategies, Role Satisfaction and problem identification behavior.

15. How much time do students sleep on assessment day?

Students reported sleeping anywhere from fifteen minutes to twelve hours on assessment day. Only 40 per cent (38 of 94 respondents) reported sleeping less than six hours. This characteristic of students' Preparation Strategies is important if it has a relationship to the quality of their performance. Hypothesis #7 was posed to test that relationship.

H7 (H_o): There is no relationship between the amount of time students have slept on assessment day and the accuracy of their problem identification behavior.
Sleep:Accuracy = 0

Table 13 (page 143) presents the distribution of students according to the amount of time they slept on assessment day and the accuracy of their problem identification behavior. The Chi-square test of homogeneity demonstrated significant differences among students in accuracy in terms of whether they had slept at least six hours on assessment day. The null hypothesis is rejected.

16. How much time do students at each grade level spend in various self-selected activities on assessment day?

Table 14 (page 144) presents the average time spent by students at each grade level in attending non-nursing classes, traveling to college-related commitments, becoming informed about current events and socializing. There is a continuous decrease in time spent attending non-nursing classes, traveling to commitments and socializing as students progress through the program. Juniors spend less time becoming informed about current events than either Sophomores or Seniors, while Seniors spend the most time on current events.

Table 13. Distribution of Students According to Amount of Sleep on Assessment Day and Accuracy of Problem Identification Behavior

ACCURACY	SLEEP		TOTALS
	Less than 6 hours	6 hours or more	
High (75-100%)	12	32	44
Medium (40-74%)	24	20	44
Low (0-39%)	2	4	6
TOTALS	38	56	94

Degrees of freedom = 2 $\chi^2 = 6.95$ $p = < .05$

Table 14. Average Time Spent on Assessment Day by 3-Grade Levels of Nursing Students in Attending Non-Nursing Classes, Traveling to Commitments, Listening to or Reading the News, Studying and Socializing

Instructor-Group	Total	Number	% of Total	CLASS	TRAVEL	NEWS	STUDY	SOCIAL
			Sophomore Grade Level					
A	(10)	6	60	3'54"	1'33"	41"	5'31"	2'35"
B	(9)	8	89	2'29"	1'37"	32"	5'26"	2'51"
C	(17)	16	94	2'53"	1'41"	27"	5'39"	2'28"
D	(20)	18	90	3'57"	1'24"	52"	5'19"	2'51"
E	(20)	17	85	3'47"	1'11"	38"	5'55"	3'37"
Total	(76)	65	85	3'27"	1'27"	39"	5'35"	2'58"
			Junior Grade Level					
F	(3)	3	100	3'	1'30"	12"	5'45"	2'15"
G	(4)	4	100	3'15"	1'11"	35"	8'	1'49"
H	(4)	4	100	3'15"	1'34"	15"	5'41"	4'49"
I	(5)	4	80	2'	1' 4"	16"	7'	1'48"
J	(6)	5	100	2'36"	1'12"	27"	5'12"	2'18"
K	(5)	5	100	2'12"	1'21"	17"	8' 9"	1'24"
L	(6)	5	83	3' 9"	1' 9"	17"	6'39"	2'36"
Total	(32)	30	94	2'45"	1'16"	20"	6'38"	2'24"
			Senior Grade Level					
M	(10)	10	100	51"	54"	51"	6'28"	1'44"
N	(10)	10	100	1'50"	51"	45"	5'18"	3' 3"
Total	(20)	20	100	1'21"	52"	48"	5'53"	2'23"

Focal Questions #18 through #25, About the Satisfaction of Students and Faculty with Participation in, or Control over, Decisions and Conditions Which Affect Them

The Role Satisfaction Questionnaires submitted to students and faculty are presented in Appendix C (Student form) and Appendix D (Faculty form). Responses of students and faculty to parallel forms of the questionnaire which was designed to provide an estimate of the role satisfaction of students and faculty with perceived participation in, or control over, decisions and conditions which affect them, are presented in detail in the item analyses in Appendix E (Student Responses) and Appendix F (Faculty Responses). Except for Senior students, the highest index of satisfaction for both students and faculty is experienced at the patient care level; except for Sophomore faculty, the lowest index of satisfaction for both students and faculty is experienced at the course level. The Satisfaction Indices of all faculty and the mean Satisfaction Indices of each instructor-group of students is presented in Appendix K. Hypothesis #8 was posed to determine whether there was a relationship between the role satisfaction of a faculty member and the mean role satisfaction of students in her clinical experience group, in relation to their participation in decision-making related to patient care.

H8 (H_o): There is no relationship between the role satisfaction of a faculty member at the patient care level and the mean role satisfaction of students in her clinical experience group.

$$RSI_{fl}:RSI_{sl} = 0$$

This hypothesis was tested by calculating a Pearson product moment correlation coefficient. Within the population selected for this study, r = 0.36. The null hypothesis is rejected.

Responses of faculty and students to all but one item on which they exhibited a real-ideal discrepancy revealed dissatisfaction in the direction of wanting opportunities not presently available; i.e., the opportunity or activity referred to in the item had not been available but they felt that it should have been. This quality of dissatisfaction might be described as "growth-oriented dissatisfaction"; had the respondents indicated that a preponderance of their real-ideal discrepancies arose from not wanting to participate in opportunities or activities in which they had in fact participated, the quality of their dissatisfaction might have been described as "status quo-oriented dissatisfaction." The only item on which a majority of both students and faculty exhibited "status quo-oriented dissatisfaction" was item #23, which referred to the use of examinations primarily as post facto performance evaluations. Seventy-two per cent of student respondents indicated that examinations were used primarily as post facto performance evaluations, and 52 per cent believed they should not be;

75 per cent of faculty respondents indicated that examinations were used primarily as post facto performance evaluations, and 83 per cent believed they should not be.

Opportunities for participation which both students and faculty would like to see increased at the patient care level include:

1. collaboration with the social worker, dietician, public health nurse and physiotherapist;
2. sharing information with the team leader, licensed practical nurse and hospital aide; and
3. sharing of responsibility with the licensed practical nurse and the hospital aide.

Over 60 per cent of both student and faculty respondents agreed that students do, and should, develop nursing care plans in which some of the goals of care cannot be achieved within the existing framework of clinical experience (see Item #8).

Over 75 per cent of both student and faculty respondents felt that the number of hours available for patient contact did prevent students from carrying out the care plans developed for assigned patients; 62 per cent of students felt this should not be so, while only 42 per cent of the faculty felt it should not be so.

Only half of the faculty respondents had actively participated in the formulation of the objectives for the course in which they were currently teaching; all respondents felt they should participate.

The area of greatest dissatisfaction for both students and faculty related to the participation of students in decision-making at the course level (see Items #19a through #21). The proportion of both student and faculty respondents in favor of increased student participation ranged from 50 per cent to 91 per cent. The items dealt with student participation in determining unit objectives; selecting teaching-learning methods; selecting content; and selecting activities on which they would be evaluated. Two items dealt with the use of quizzes and examinations as pre-tests, with results being used as a guide to selecting subsequent learning experiences for students.

At the program level, only 28 per cent of faculty respondents felt that they understood the objectives of other courses in the nursing major; 85 per cent felt they should. Only 21 per cent of student respondents were able to take any free electives during the term in which this study was conducted; 82 per cent felt they should have been able to take a free elective.

One of the strong beliefs of most nursing faculty is that the beginning student is more satisfied and more highly motivated than at any other time in the nursing program, and that the high level of satisfaction is reflected in the quality of her performance. Hypotheses #9 and #10 were posed to test these assumptions.

H10 (H_o): There is no relationship between grade level of students and student role satisfaction at the patient care, course and program levels.
Sophomore = Junior = Senior

Table 15 (page 150) presents the results of the one-way analysis of variance which was used to test Hypothesis #10. The null hypothesis is accepted for role satisfaction at the patient care and program level, but it is rejected for student role satisfaction at the course level. There are significant differences in students' role satisfaction at the course level in terms of their grade level.

H9 (H_o): There is no relationship between student role satisfaction at the patient care level and the accuracy of students' problem identification behavior.
RSI_{sl}:Accuracy = 0

This hypothesis was tested by calculating a Pearson product moment correlation; r = 0.12. See Appendix I for the summary of simple correlations which includes this finding. In this population, there is a weak positive relationship between student role satisfaction at the patient care level and the accuracy of students' problem identification behavior. See Appendix L for the mean accuracy and patient care level Satisfaction Indices of students, according to instructor-groups and grade levels.

Table 15. Analysis of Variance of the Role Satisfaction of 3-Grade Levels of Students with Their Participation in Decisions Concerning Patient Care (RSI_{s1}), Their Current Clinical Nursing Course (RSI_{s2}) and the Entire Nursing Program (RSI_{s3})

Grade Level	Number of Respondents	Patient Care (RSI_{s1})			Course (RSI_{s2})			Program (RSI_{s3})		
		MEAN RSI_{s1}	STANDARD DEVIATION	VARIANCE	MEAN RSI_{s2}	STANDARD DEVIATION	VARIANCE	MEAN RSI_{s3}	STANDARD DEVIATION	VARIANCE
Sophomore (77)	59	78.90	13.60	185.96	50.10	27.28	744.18	78.80	16.66	277.65
Junior (32)	22	75.64	14.09	198.53	68.50	26.49	701.72	76.23	16.82	282.72
Senior (20)	15	75.07	10.98	120.56	39.13	21.17	448.17	80.27	14.21	201.92
TOTAL (129)	96	77.55	13.32	177.62	52.60	27.69	766.74	78.44	16.23	263.41

Source of Variance	Sum of Squares	d.f.	Mean Square	F Statistic	Sum of Squares	d.f.	Mean Square	F Statistic	Sum of Squares	d.f.	Mean Square	F Statistic
Between Grade Levels	280.23	2	140.16	0.79 (not sig.)	8650.34	2	4325.17	6.27*	165.27	2	82.63	0.31 (not sig.)

*p = < .05

Instructional Strategies

Findings which derived from the classroom observations of teacher and student behaviors may be related to the level of satisfaction expressed by students with their participation in decision-making at the course level. Table 16 (page 152) summarizes the instructional strategies and student behaviors of three grade levels of faculty and students which were recorded during the classroom observations. The proportion of teacher behaviors which were designed to elicit responses from students decreased as grade level increased; 53 per cent of Sophomore faculty behaviors were eliciting, while only 31 per cent of Senior faculty behaviors were eliciting. Emissions from students are behaviors which appear as a consequence of some inner need to act or to know, rather than as a consequence of a teacher-controlled stimulus. For example, emitted student behaviors included questions posed by students which were not clearly in response to the content or focus of the class at a given moment; illustrations from a student's experience which she offered without first being asked to do so; or a student's request for discusssion of an issue not previously mentioned by teacher or classmates. As shown in the last column of Table 16, the mean number of emitted student behaviors during an average fifty-minute class period decreases as grade level increases; the sharpest decline occurs from Sophomore to Junior grade level, with a drop in emissions from twelve to six during a fifty-minute class

Table 16. Summary of Instructional Strategies and Student Behaviors of 3-Grade Levels of Faculty and Students Recorded During Classroom Observations

GRADE LEVEL	Total Faculty	Number of Faculty Observed	Per Cent of Faculty Observed	Total Minutes of Observation	No. of 50-Minute Periods	Total Teacher Behaviors Recorded	TEACHER BEHAVIORS: DIDACTIC: $\bar{X}$ No. of Teacher Behaviors/ 50-Minute Period	DIDACTIC: Per Cent of Total Teacher Behaviors (%)	ELICITING: $\bar{X}$ No. of Teacher Behaviors/ 50-Minute Period	ELICITING: Per Cent of Total Teacher Behaviors (%)	EMITTED STUDENT BEHAVIORS: Total	EMITTED STUDENT BEHAVIORS: $\bar{X}$ for 50-Minute Period
Sophomore	5	4	80	450"	9	700	36	47	41	53	104	12
Junior	7	5	71	915"	18	1771	51	52	47	48	103	6
Senior	2	2	100	260"	5	413	57	69	26	31	15	3

Categories Used for Recording Teacher Behaviors During Classroom Observations:

DIDACTIC:
- Elaborating on assignments
- Climate setting
- Subject- or Concept-framework setting
- Giving facts
- Giving principles, concepts, generalizations
- Giving own opinions or interpretations

ELICITING:
- Asking for facts
- Getting students' interpretation of the significance of facts
- Asking for synthesis, or tentative hypotheses
- Asking for application of previous learning to a new situation
- Asking for examples or illustrations
- Clarifying or summarizing a student's contribution
- Specifically requesting a generalization
- Giving examples or justifications in response to a student's question
- Asking for students' opinions, perceptions, feelings

period equivalent. The decline from Junior to Senior grade level is only half as great, from six to three emissions per class period equivalent.

Table 17 suggests the possibility of a relationship between the frequency of emitted student behaviors in the classroom and the accuracy of students' problem identification behavior, particularly at the Senior grade level.

Table 17. Frequency of Emitted Student Behaviors in the Classroom and the Average Accuracy of Problem Identification Behavior of 3-Grade Levels of Nursing Students

GRADE LEVEL	Average Number of Emitted Student Behaviors for a 50-Minute Period in the Classroom	Average Accuracy of Problem Identification
Sophomore	12	67
Junior	6	80
Senior	3	46

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

One hundred thirty-two students and fourteen faculty in one accredited basic baccalaureate nursing program participated in testing a multifacted methodology designed to

1. operationalize faculty expectations of students' problem identification behavior in terms of characteristics of physically ill hospitalized adults selected for the clinical experience of three grade levels of students; and
2. identify factors which appear to be related to the quality of problem identification behavior demonstrated by three grade levels of students.

Facets of the Methodology

Faculty expectations of students' problem identification behavior.--Seven questions were posed to each faculty member about the amount of information necessary to identify the number of nursing problems which she felt each patient presented, and about the success of each student in gathering the necessary information and identifying the presenting

nursing problems. The answers of faculty to those seven questions served as the criterion measures for scores of all students on accuracy and efficiency of problem identification behavior.

Operationalizing Students' Problem Identification Behavior.--Patients were characterized in terms of the type and source of the nursing problems they presented; the amount, source and meaning of information necessary to identify their presenting nursing problems; and their degree of illness. The characterization of patients was based on a combination of

1. answers of faculty to the seven questions; and
2. content analysis of written nursing care plans performed by the investigator.

Preparation strategies.--Descriptions of strategies used by students on assessment day to prepare for the next day's clinical experience were based upon a questionnaire in which students accounted for the entire twenty-four hours of assessment day, indicating the specific activities in which they engaged and how much time they spent in each activity.

Student and faculty role satisfaction.--Role Satisfaction Indices of students and faculty were derived from responses to items on parallel forms of a questionnaire in which respondents indicated whether they had had certain opportunities or experiences, and whether they felt they should have such opportunities or experiences.

Instructional strategies.--Interaction between students and teachers in the classroom portion of each of three clinical courses was observed and analyzed in terms of the amount and kind of active student participation which was stimulated by teacher behaviors. Teacher behaviors which elicited active responses or participation from students were counted as Eliciting behaviors; teacher behaviors which did not allow, or did not seem intended to stimulate, active student responses or participation were counted as Didactic behaviors. Active student participation which was not clearly related to any observable teacher behavior was classified as Emitted Student Behavior.

Characteristics of the Population Studied

Variability of faculty judgments.--Analysis of the answers of faculty at each grade level to the seven questions about one patient and the success of one student in identifying that patient's nursing problems revealed that faculty differ by grade level in the areas of greatest variability in judgments. Five faculty who answered questions about a Sophomore student-patient pair demonstrated the greatest variability in their judgments about how many of the patient's major PNP's the student accurately identified. Seven faculty who answered questions about a Junior student-patient pair demonstrated the greatest variability in their judgments about how many major and minor nursing problems the patient presented, and how much necessary

information the student had omitted. Two faculty who answered questions about a Senior student-patient pair demonstrated the greatest variability in their judgments about how many of the patient's minor PNP's the student accurately identified and how many problems identified by the student were non-existent or not the concern of nursing.

Characteristics of patients selected for clinical experience of three grade levels of nursing students.--There are significant differences among patients selected for Sophomores, Juniors and Seniors in terms of

1. the number of nursing problems they present;
2. the distribution or incidence of major and minor nursing problems;
3. the amount of information considered by faculty to be necessary for identification of the PNP's; and
4. the degree of illness of assigned patients.

Patients selected for Sophomore students present the fewest nursing problems, 88 per cent of which are minor; the smallest amount of information is necessary to identify the PNP's ($\bar{X}$ = 19 bits); and 96 per cent of all patients are convalescent.

Patients selected for Junior students present the middle range of total PNP's, 67 per cent of which are major; the largest amount of information is necessary to identify the PNP's ($\bar{X}$ = 46 bits); and serious and convalescent patients are almost equally represented (serious = 41 per cent, convalescent = 46 per cent).

Patients selected for Senior students present the most nursing problems, 48 per cent of which are major; the middle range of information is necessary to identify the PNP's ($\bar{X}$ = 28 bits); and critical and serious patients are almost equally represented (critical = 35 per cent, serious = 40 per cent).

The greatest proportion of information necessary for identification of PNP's of patients assigned to Sophomore and Junior students was obtained from interaction with the patient; the greatest proportion of information necessary for identifying the PNP's of patients assigned to Senior students was obtained from the physicians' orders and the patient's medical record. The majority of meanings attached to all information gathered about all patients illuminates the Microsystems level of human functioning, i.e., the biological subsystems of the individual; the proportion of meanings which illuminated the Microsystems increased in direct relation to grade level of students (Sophomore = 64 per cent, Junior = 68 per cent, Senior = 88 per cent).

It is difficult to distinguish differences among patients selected for three grade levels of students by examining the incidence of the types of activities of living with which patients need assistance; the distribution of self-help deficits is fairly even across twenty-four problem areas at all three grade levels. At each grade level, the problem area in which the proportion of self-help deficits is equal to or greater than the proportion in any other

problem area is #24, the ability to monitor, or apply medical therapy to, automatically regulated functions.

Patients selected for students at each grade level can be readily distinguished by the mean number of self-help deficits which are due to lack of capacity; Sophomores care for patients whose mean number of deficits in capacity is eight; Juniors and Seniors care for patients whose mean number is twenty. There is little distinction among patients in relation to the number of specific self-help deficits which are due to lack of knowledge or will; the average patient selected for students at any grade level may have from one to four specific nursing problems due to these two deficits.

Characteristics of students' problem identification behavior.--There are significant differences among students at each grade level in terms of the amount of necessary information they omit in gathering data for nursing assessment of assigned patients. Seniors omit the smallest amount of necessary information ($\bar{X} = 3.5$); Sophomores omit the middle range ($\bar{X} = 4.9$); and Juniors omit the largest amount ($\bar{X} = 10.5$).

Accuracy does not increase systematically at progressive grade levels. Juniors are the most accurate, identifying 80 per cent of PNP's; Sophomores exhibit the middle range of accuracy, identifying 67 per cent of PNP's; and Seniors are the least accurate, identifying only 46

per cent of PNP's. There is no relationship between accuracy and efficiency of students' problem identification behavior.

Preparation strategies.--As grade level increases, students spend less time on assessment day in post-conference and more in contact with the patient for the purpose of data collection. Juniors spend more time on assessment day in both library and non-library study than either Sophomores or Seniors, while both Seniors and Sophomores spend more time in pre-conference than Juniors do. Only 34 per cent of all student respondents reported having used the library on assessment day. The relationship between students' study time and the accuracy of their problem identification behavior is negligible ($r = 0.05$).

There are significant differences among students in accuracy of their problem identification in terms of whether they had slept at least six hours on assessment day; students who had slept at least six hours were significantly more accurate than students who had slept less than six hours.

There is a continuous decrease in time spent in non-nursing classes and in socializing as students progress through the program. Juniors spend less time on current events than either Sophomores or Seniors, while Seniors spend the most time on current events.

Role satisfaction of students and faculty.--There are no significant differences among grade levels of students in the satisfaction of students with their role as participants in relation to either patient care or the total program. There is a relationship between the role satisfaction of faculty at the patient care level and the mean role satisfaction of students in each clinical experience group ($r = 0.36$). There is a weak positive relationship between student role satisfaction at the patient care level and the accuracy of students' problem identification behavior ($r = 0.12$).

There are significant differences in students' role satisfaction at the course level in terms of the grade level of students; Juniors are the most satisfied with their participation at the course level ($\bar{X}\ RSI_{s2} = 68.5$); Sophomores report the middle range of satisfaction ($\bar{X}\ RSI_{s2} = 50.1$); and Seniors are the least satisfied ($\bar{X}\ RSI_{s2} = 39.1$).

Instructional strategies.--The proportion of teacher behaviors designed to elicit active response or participation from students decreases as grade level increases. Emitted student behaviors appear in direct relationship to the proportion of eliciting teacher behaviors; i.e., the mean number of emitted student behaviors per class period decreases as grade level increases.

See Figure 2 (page 162) for a summary profile of the rankings on selected characteristics of students and their

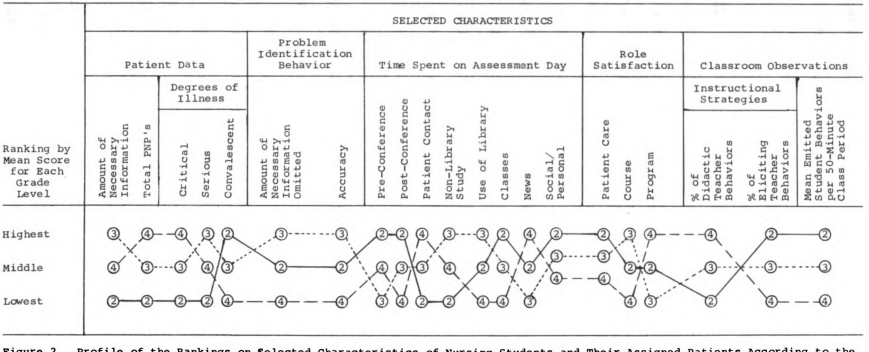

Figure 2. Profile of the Rankings on Selected Characteristics of Nursing Students and Their Assigned Patients According to the Mean Score for Each Grade Level on Each Characteristic.

CODE: ② ——— = Sophomore grade level; ③ ----- = Junior grade level; ④ — — = Senior grade level.

assigned patients according to the mean score for each grade level on each characteristic.

Conclusions

Methodology

1. Faculty exhibit considerable agreement in their judgments about the number of total PNP's of patients, and about the amount of information necessary to identify PNP's. The questions posed to obtain judgments of faculty about number of problems and amount of information necessary to identify problems can be considered reliable tools for this purpose. The fact that faculty do not customarily note superfluous information or problems, and do not customarily distinguish between major and minor nursing problems may be responsible for the increased variability in their scoring of these variables. The questions posed to obtain judgments of faculty about amount of superfluous information and problems and about the incidence of major and minor problems cannot be considered reliable tools for this purpose.

2. The procedures for identifying amount and sources of information, the number of PNP's, and the accuracy and efficiency of students' problem identification behavior are direct and require little or no inference. Procedures for identifying the meaning of information and the type and source of self-help deficits represented by PNP's are indirect, time consuming and require a great deal of inference.

3. The categories of types of activities engaged in by students on assessment day which were constructed for the Preparation Strategies questionnaire were adequate for classifying all specific activities elaborated by students (see Appendix D).

4. Procedures for calculating indices of student and faculty role satisfaction are direct, simple and require no inferences. Calculation can be performed accurately and efficiently by non-professional persons. Information which may have proven useful was lost by not obtaining from respondents some explanation as to why they omitted all or parts of items on the Role Satisfaction questionnaires.

5. The three categories of Didactic and Eliciting Teacher Behaviors and Emitted Student Behaviors which were constructed for the classroom observations of student-teacher interactions were adequate for classifying all behaviors observed in the classroom.

Population Studied

6. Progression of faculty expectations of students' problem identification behavior is evident along four dimensions. On each dimension, Sophomores and/or their assigned patients are at the low end and Seniors and/or their assigned patients are at the high end, with Juniors and/or their assigned patients somewhere between the extremes.

1) Time spent in direct contact with the patient on assessment day for the purpose of data collection

2) Generalizability of information gathered as a basis for identifying the PNP's of patients
3) Degree of illness of assigned patients (Sophomores = convalescent —— Seniors = critical)
4) Total number of nursing problems presented by assigned patients.

7. There are also four dimensions along which linear regression is evident. These may not actually constitute "progression of faculty expectations," but may be merely consequences of other factors operating in the teaching-learning situation. On each dimension, Sophomores are at the high end and Seniors at the low end of the dimension, with Juniors somewhere between the extremes.

1) Time spent by students on assessment day in post-conference
2) Time spent by students on assessment day in non-nursing classes
3) Time spent in socializing, or in personal and recreational activities
4) Mean number of emitted student behaviors per 50-minute class period.

8. There are seven dimensions along which student progress is irregular; i.e., the mean scores of Junior students and/or their assigned patients form either an inverted or everted peak when plotted against mean Sophomore and Senior scores.

1) Amount of information considered necessary as a basis for identifying PNP's
2) Amount of necessary information omitted by students
3) Accuracy of students in identifying PNP's
4) Time spent by students on assessment day in pre-conference
5) Time spent by students on assessment day in studying
6) Level of satisfaction with participation in the course
7) Level of satisfaction with participation in the program.

9. Both students and faculty want students to have more opportunities for collaboration with members of the health team, and for sharing information and responsibility with members of the nursing team.

10. Both students and faculty want students to have greater participation in decisions about the classroom portion of clinical courses.

11. Emitted Student Behaviors decrease as the proportion of Eliciting Teacher Behaviors decreases.

Recommendations

Methodology

1. Any attempt to use the seven questions to obtain an estimate of faculty expectations of students' problem identification behavior should be preceded by extensive exploration within the faculty of (1) the concept of efficiency of problem identification behavior; and (2) criteria for distinguishing between major and minor nursing problems.

2. If content analysis of written nursing care plans is to be used as a means of identifying characteristics of information gathered and problems identified by students, the format should be standardized to facilitate more efficient analysis. Students should be requested to specify (1) the source(s) of information and (2) the meaning they assign to each bit or cluster of bits as justification for their inferences about the type of help the patient needs from the nurse. Specification of meaning as justification for inferences about help needed by the patient is especially important in relation to his need for teaching, i.e., deficits which arise from inadequate knowledge.

3. Other approaches should be tried for applying systems analysis to the universe of phenomena dealt with by nurses. Is the Individual, as an integrated person, really the pivotal system for nursing? If so, how would panels of experts in nursing modify the components of subsystems and suprasystems as defined in this investigation? Would the

components vary according to such things as age of patient or setting of practice?

4. The Patient's Problem Profile (see Appendix A) should be tested and refined by nurses who would use it to guide the process and summarize the results of continuous nursing assessment of patients, as a basis for planning and evaluating nursing care.

1) Changes in the severity and/or source of self-help deficits might be demonstrable, and the progress of patients might prove to be amenable to concise, graphic representation.
2) Specific sub-types of self-help deficits might be identified which would ultimately serve as nursing diagnoses.
3) Source of deficits in self-help ability to perform or control specific activities of living might prove to be the major determinant in designing appropriate nursing intervention.

5. Use of student responses to a questionnaire as the basis for estimating preparation strategies of students on assessment day should include administration of that questionnaire under more controlled conditions than was possible in this investigation. E.g., all students might be given the questionnaire to complete during the first twenty minutes of clinical experience on the day immediately following assessment day; also, more than one sample of each

student's assessment day activities should be taken, and the patterns averaged.

6. The "Did" and "Should" headings to response columns on parallel forms of the Role Satisfaction questionnaire should be refined so that headings will be equally appropriate to all items (see Appendices C and D).

7. Perhaps if the observation and recording of student-teacher interactions in the classroom were done by a person who was an in-group student or faculty member, it would optimize the naturalness and validity of teacher-student interactions.

Population Studied

8. Immediate attention should be directed to understanding, and determining the acceptability of, the existing pattern of accuracy of students' problem identification behavior, particularly among Seniors. The average Junior is 80 per cent accurate; the average Sophomore is 67 per cent accurate; and the average Senior is only 46 per cent accurate.

9. Attention needs to be directed to identifying substantive content about which faculty are in substantial disagreement concerning:

1) information necessary for identifying patients' PNP's; and
2) what constitutes correct and complete identification of patients' PNP's.

10. Faculty might consider whether there are sources of information other than those specified by students which they feel are valuable. Skills required to obtain information from each source should be identified.

11. Faculty might consider whether the distribution of information obtained from each source at each grade level is consistent with their progressive expectations of students' problem identification behavior.

12. Faculty might consider whether the dimensions which reveal linear progression and regression as students move through the three grade levels of the nursing major are consistent with, or reflect, their professed expectations of areas in which students should be helped to modify behavior.

13. Students and faculty should examine together the reasons for, and acceptability of, the low level of library use by students at all grade levels on assessment day.

14. Questions arising from analysis of Student and Faculty Role Satisfaction questionnaires which need to be considered include the following.

1) How can students be provided with more opportunities to collaborate with health team members and to share information and responsibility with nursing team members?
2) How far can proposed nursing care goals exceed the limits on achieving those goals and still have the

student continue to view the proposed goals as feasible?

3) How can faculty participation in the formulation of course objectives be increased?
4) How can student participation in the planning and evaluation of the classroom portion of clinical courses be increased?

15. There should be systematic investigation of the relationship between emitted behaviors of individual students in the classroom and the quality of their information gathering and problem identification in nursing assessment.

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APPENDICES

APPENDIX A

PATIENT'S PROBLEM PROFILE

KEY to type of help needed:
1. MAINTENANCE help: patient can direct and/or participate in self-care; needs only assistance at his request to maintain function.
2. SUPPLEMENTAL help: partial self-help deficit; patient cannot direct or participate in portions of self-care.
3. SUBSTITUTION help: patient has total self-help deficit.

PROBLEM AREA: Activities of Living Normally within Self-Help Ability	SOURCE and SEVERITY of Self-Help Deficits									CLARIFICATION
	CAPACITY			KNOWLEDGE			WILL			
	1	2	3	1	2	3	1	2	3	
1. Breathe adequately										
2. Drink										
3. Eat										
Eliminate body wastes via: 4. Urinary tract										
5. Gastrointestinal tract										
6. Skin										
7. Move and maintain lying, sitting, walking posture										
8. Sleep and rest										
9. Dress and undress										
10. Maintain body temperature by modifying the environment										
11. Keep body clean, groomed: a. Integumentum										
b. Hair										
c. Nails										
d. Mucosa										
e. Oral hygiene including teeth										
12. Avoid dangers in the environment										
13. Avoid injuring others										
14. Communicate to express: emotions, needs, questions, ideas, opinions										
15. Learn, discover, satisfy curiosity										
16. Use available health facilities										
17. Work with sense of accomplishment										
18. Play and/or recreate										
19. Worship accord. to professed faith										
20. OTHER: Problems related to monitoring, or applying medical therapy to, automatically regulated functions.										

APPENDIX B

ACTIVITIES IN WHICH NURSING STUDENTS ENGAGED FOR THE TWENTY-FOUR HOUR PERIOD DURING WHICH CLINICAL EXPERIENCE BEGAN FOR ONE SELECTED WEEK OF SPRING TERM 1969

Directions:

Your name on the envelope is necessary for me to check the return of questionnaires. Please do not include your name on this form.

Please try to complete the questionnaire within 24 hours of the day encircled below in red, to facilitate your accurate recall of events.

Return the completed questionnaire to the envelope, seal the envelope, and either hand it to me in the next class, or place it in my mailbox in the School of Nursing, 354 Baker Hall.

Information provided by you on this questionnaire is to serve as the basis for some generalizations about the type of responsibilities and activities to which basic baccalaureate nursing students allocate their time. The day of particular concern is that day when you have your first contact with patient(s) assigned to you for clinical experience. The specific day and date which YOU are being asked to recall is circled below in red.

Your candidness will be much appreciated, and will in large part determine the validity of any generalizations which may result from compilation of all responses.

If there are any activities listed in which you did not engage on the specified day, put "0" in the time column which corresponds to that activity.

Specific Days and Dates

NE207

RN Group = Thurs., April 17
Group I = Tues., April 22
Group III = Thurs., April 24
Group II = Tues., April 29
Group IV = Thurs., May 1

NE303

All Students, All Sections = Tues., April 22

NE406

Group I = Wed., April 30
Group II = Mon., May 5

Please circle the name of the clinical instructor with whom you are working this week, i.e., the week which includes the day circled above in red:

NE207	NE303	NE406
Faculty listed by names	Faculty listed by names	Faculty listed by names

Please circle the appropriate entry under each of the next three characteristics: (all items refer to YOU, not to your patients)

Sex:	1 Female	Age:	1	18-20	4 27-30
	2 Male		2	21-23	5 31-35
			3	24-26	6 36 or over

Responsibility Status:

1. Single without family responsibilities
2. Single with family responsibilities
3. Married without family responsibilities except spouse
4. Married with family responsibilities in addition to spouse

Please circle your place of residence:

1. At home with parent(s) or relatives
2. Off-campus: live alone
3. Off-campus: live with spouse
4. Off-campus: share with others
5. On-campus: single room
6. On-campus: share with others
7. Other: Specify_____

On the day circled in red:

At what time did you awaken and start the day? _____

At what time did you go to bed? _____

How long did you sleep that night? _____

On the day circled in red, how much time did you spend:

	Activity	Amount of Time
1.	in morning grooming?	_____
2.	at breakfast?	_____
3.	at lunch?	_____
4.	at dinner?	_____
5.	in total travel time? (Include home-to-hospital, hospital-to-class, class-to-home; or home-to-class, class-to-hospital, hospital-to-home.)	_____
6.	in changing clothes, i.e., in and out of uniform?	_____
7.	in the agency where you are now having clinical experience?	_____
	a. in pre-conference?	_____
	b. in direct contact with patient(s)?	_____
	c. in reading written reports about patient(s)?	_____
	d. in using reference materials from ward or hospital library?	_____
	e. in post-conference?	_____
	f. in other activities? Specify:_____	_____
8.	in the library?	_____
9.	in studying, additional to library time?	_____
10.	in classes (for all courses not just nursing)?	_____
11.	in working for wages?	_____
12.	in meetings (e.g., church, sorority, frat., student govt., political party, etc.?	_____
13.	in doing housework (e.g., meal preparation, dishes, grocery shopping, cleaning house?	_____
14.	taking a nap?	_____
15.	in becoming informed about current events: reading newspaper, listening to radio or TV news?	_____

16. in any lengthy grooming activities (e.g., shampooing and/or setting hair, physical fitness exercises, personal laundry, etc.)? _____

17. in sports (e.g., swimming, tennis, bowling, basketball, etc.)?
Specify:_____ _____

18. in social activities (e.g., on a date; to the movies; visiting friends; on telephone; in restaurant, night club, or bar; writing letters; watching TV; playing cards; etc.)?
Specify:_____ _____

_____ _____

_____ _____

19. in other activities which were not listed, but which required significant amounts of your time on the day specified?
Specify:_____ _____

_____ _____

_____ _____

Many Thanks for your cooperation.

J. Passos

APPENDIX C

STUDENT QUESTIONNAIRE #2

Student ID_____

Directions:

Each of the following questions relates to activities in which you may or may not have engaged as a basic baccalaureate nursing student, at 3 levels of participation: (A) the patient care level; (B) the course level; and (C) the program level.

Unless otherwise specified, please answer each question within the context of your responsibilities during Spring Term 1969 ONLY.

Respond to each question by circling the "Yes" and "No" which immediately follows each item. After stipulating whether or not you DID engage in the specified activity, please indicate by circling the appropriate option in the second set of "Yes" and "No" responses, whether or not you believe you SHOULD have engaged in the specified activity. There is no right or wrong response to any of these items; the intent is to obtain an estimate of the degree of satisfaction you have experienced this term in performing those activities which you feel you should be performing as a nursing student in a basic baccalaureate program.

Please be sure to circle 2 CHOICES--one in each column--for EVERY QUESTION YOU ANSWER.

A. Activities at the Patient Care Level	DID YOU?	SHOULD YOU?	Please DO NOT WRITE In this space 0 - ++ -- +- -+
1. Did you select any of the patients for whom you have cared during your clinical experience this term?	Yes No	Yes No	
2. Were you provided during this term of clinical experience with the opportunity to become involved in some experiences in which you had expressed an interest, even if your interest was not entirely consistent with the immediate goals of your clinical experience?	Yes No	Yes No	
3. Were you expected to assume responsibility for your own learning in relation to the problems and therapy of the patients to whom you were assigned during this term of clinical experience?	Yes No	Yes No	
5. Did you have an opportunity to collaborate with the following health team members during this term of clinical experience?			
a. physician	Yes No	Yes No	
b. social worker	Yes No	Yes No	
c. dietician	Yes No	Yes No	
d. physiotherapist	Yes No	Yes No	
e. public health nurse	Yes No	Yes No	

SQ-2

	DID YOU?	SHOULD YOU?	Please DO NOT WRITE In this space
			0 -
			++ -- +- -+
6. Did you routinely share information about your assigned patients with the following members of the nursing team during this term of clinical experience?			
a. head nurse	Yes No	Yes No	
b. medications nurse	Yes No	Yes No	
c. team leader	Yes No	Yes No	
d. licensed practical nurse	Yes No	Yes No	
e. aide/orderly	Yes No	Yes No	
7. Did you routinely share responsibility for the care of your assigned patients with the following members of the nursing team during this term of clinical experience?			
a. head nurse	Yes No	Yes No	
b. medications nurse	Yes No	Yes No	
c. team leader	Yes No	Yes No	
d. licensed practical nurse	Yes No	Yes No	
e. aide/orderly	Yes No	Yes No	
8. Did you routinely develop nursing care plans in which some of the goals of care could not be achieved by you within the framework of clinical experience which exists during this term?	Yes No	Yes No	
9. Which of the following factors have been responsible for preventing you from satisfactorily carrying out the care plans you developed for your assigned patients during this term of clinical experience?			
a. methods of clinical instruction	Yes No	Yes No	
b. number of hours available for patient contact	Yes No	Yes No	
c. scheduling, or distribution, of available number of hours for patient contact	Yes No	Yes No	
d. restrictive agency policies or practices	Yes No	Yes No	
e. present level of your professional development	Yes No	Yes No	

SQ-3

	DID YOU?	SHOULD YOU?	Please DO NOT WRITE In this space 0: ++	--	- : +-	-+
10. In preparation for the first days of clinical experience, at the beginning of this term, did you and the other students in your clinical experience group arrive at a mutual understanding with the clinical instructor as to what each of you expected of the other, in relation to clinical experience?	Yes No	Yes No				
11. Did you receive continual appraisal of your progress in clinical performance during this term?	Yes No	Yes No				
12. Did you receive a final summary evaluation of your performance in clinical experience for this term?	Yes No	Yes No				
13. Did you agree with your clinical instructor's final summary evaluation of your clinical performance for this term?	Yes No	Yes No				
B. Activities at the Course Level						
19. In the classroom, or theory, portion of the clinical course in which you are enrolled during this term, did you have the opportunity to become involved in:						
a. determining objectives of any of the units of instruction?	Yes No	Yes No				
b. selecting teaching-learning method(s)?	Yes No	Yes No				
c. selecting content?	Yes No	Yes No				
d. selecting activities on which you would be evaluated?	Yes No	Yes No				
20. During this term, did you take any quizzes or examinations as pre tests, to determine your entrance behaviors at the beginning of any unit(s) of instruction?	Yes No	Yes No				
21. During this term, did you feel that the results of examinations you took were used as a guide to selecting subsequent learning experiences to help you meet the objectives of the course?	Yes No	Yes No				
22. During this term, did you feel that the examinations you took were used primarily as post-facto evaluations of your performance in the course?	Yes No	Yes No				

SC-4

	DID YOU?	SHOULD YOU?	Please DO NOT WRITE In this space: 0 ++	0 --	- +-	- -+
C. Activities at the Program Level						
23. Prior to and including this term, did you serve on any of the following committees?						
a. Student Advisory Committee to the Director of the School of Nursing	Yes No	Yes No				
b. Honors Committee	Yes No	Yes No				
c. Curriculum Committee	Yes No	Yes No				
d. Student Health and Welfare Committee	Yes No	Yes No				
23A. Prior to and including this term, did you have the opportunity to select students to represent you on any of the following committees?						
a. Student Advisory Committee to the Director of the School of Nursing	Yes No	Yes No				
b. Honors Committee	Yes No	Yes No				
c. Curriculum Committee	Yes No	Yes No				
d. Student Health and Welfare Committee	Yes No	Yes No				
23B. At the beginning of this term, did you feel that you understood the existing broad objectives of the nursing program?	Yes No	Yes No				
24. Did you feel that there was a deliberate attempt to articulate the objectives of your present clinical course with the existing broad objectives of the nursing program?	Yes No	Yes No				
26. During this term, did you feel that there was a deliberate attempt to articulate the teaching of your present clinical course with the objectives and content of your subsequent and/or prior courses (nursing and non-nursing)?	Yes No	Yes No				
27. During this term were you able to take any free electives (i.e., courses which were required neither for the nursing major nor for graduation from the university?	Yes No	Yes No				

SQ-5

Directions: The following questions are posed in a different format. Please provide the type of information requested in each item.

Please DO NOT WRITE In this space

HOURS

Please estimate the total number of hours you have spent so far this term in any meetings of those committees elaborated in item #23, or in any other group meeting activities which were related to the goals or content of your current clinical nursing course, or of the overall nursing program.

31. Total number of estimated hours spent in meetings related to the nursing curriculum . . . . . _____

32. Do you feel that the amount of time specified above has been justified by the results of group effort? Yes No

33. In relation to your total obligations as a student, do you feel that the amount of time specified above is:

(Please check ONLY ONE of the following.)

_____ a. excessive

_____ b. appropriate

_____ c. inadequate

Please check the type(s) of feedback you would like to have on the findings of this study of the problem identification behavior of a population sample of basic baccalaureate nursing students:

_____ a. none

_____ b. informal discussion with only those students currently enrolled with me in my course, and the investigator

_____ c. formal presentation by investigator to a combined meeting of all faculty and students

_____ d. informal discussion with all nursing students and the investigator

_____ e. final copy of the study available in the School of Nursing library

_____ f. other (Please specify):_____

_____

Please give the date on which you completed this questionnaire:

DATE_____

APPENDIX D

FACULTY QUESTIONNAIRE

Faculty ID_____

Directions:

Each of the following questions relates to activities in which you may or may not have engaged as a faculty member or as a clinical instructor, at 3 levels: (A) the patient care level; (B) the course level; and (C) the program level.

Unless otherwise specified, please answer each question within the context of your responsibilities during Spring Term 1969 ONLY.

Respond to each question by circling the "Yes" and "No" which immediately follows each item. After stipulating whether or not you DID engage in the specified activity, please indicate by circling the appropriate option in the second set of "Yes" and "No" responses, whether or not you believe you SHOULD have engaged in the specified activity. There is NO RIGHT OR WRONG RESPONSE to any of these items; the intent is to obtain an estimate of the degree of satisfaction you have experienced this term in performing those activities which you feel you should be performing as a nurse educator in a basic baccalaureate program.

Please be sure to circle 2 CHOICES--one in each column--for EVERY QUESTION YOU ANSWER.

A. Activities at the Patient Care Level	DID YOU?	SHOULD YOU?	Please DO NOT WRITE in this space. 0 - ++ -- +- -+
1. Have your routinely involved your students in the selection of the patients for whom they have cared during this term of clinical experience?	Yes No	Yes No	
2. Did you provide your students during this term of clinical experience with the opportunity to become involved in some experiences in which they had expressed an interest, even if their interests were not entirely consistent with your immediate goals for their clinical experience?	Yes No	Yes No	
3. Did you expect your students to assume responsibility for their own learning in relation to the problems and therapy of the patients to whom they were assigned during this term of clinical experience?	Yes No	Yes No	
4. Were you free to arrange for collaboration between your students and the following health team members during this term of clinical experience?			
a. physician	Yes No	Yes No	
b. social worker	Yes No	Yes No	
c. dietician	Yes No	Yes No	
d. physiotherapist	Yes No	Yes No	
e. public health nurse	Yes No	Yes No	

FQ-2

	DID YOU?	SHOULD YOU?	Please DO NOT WRITE in this space. 0 - ++ -- +- -+
5. Have all your students had an opportunity to collaborate with the following health team members during this term of clinical experience?			
a. physician	Yes No	Yes No	
b. social worker	Yes No	Yes No	
c. dietician	Yes No	Yes No	
d. physiotherapist	Yes No	Yes No	
e. public health nurse	Yes No	Yes No	
6. Have you routinely expected your students to share information about their assigned patients with the following members of the nursing team during this term of clinical experience?			
a. head nurse	Yes No	Yes No	
b. medications nurse	Yes No	Yes No	
c. team leader	Yes No	Yes No	
d. licensed practical nurse	Yes No	Yes No	
e. aide/orderly	Yes No	Yes No	
7. Have you routinely expected your students to share responsibility for the care of their assigned patients with the following members of the nursing team during this term of clinical experience?			
a. head nurse	Yes No	Yes No	
b. medications nurse	Yes No	Yes No	
c. team leader	Yes No	Yes No	
d. licensed practical nurse	Yes No	Yes No	
e. aide/orderly	Yes No	Yes No	
8. Have you routinely expected your students to develop nursing care plans in which some of the goals of care cannot be achieved by the student within the framework of clinical experience which exists during this term?	Yes No	Yes No	
9. Which of the following factors have been responsible for preventing students from satisfactorily carrying out the care plans they developed for their assigned patients during this term of clinical experience?			
a. methods of clinical instruction	Yes No	Yes No	
b. number of hours available for patient contact	Yes No	Yes No	
c. scheduling, or distribution, of available number of hours for patient contact	Yes No	Yes No	
d. restrictive agency policies or practices	Yes No	Yes No	
e. present level of student's professional development	Yes No	Yes No	

FQ-3

	DID YOU?	SHOULD YOU?	Please DO NOT WRITE in this space. 0 - ++ -- +- -+
10. In preparation for the first day of clinical experience, at the beginning of this term, did you and your students arrive at a mutual understanding of what each of you expected of the other, in relation to clinical experience?	Yes No	Yes No	
11. Did you provide your students with continual appraisal of their progress in clinical performance during this term?	Yes No	Yes No	
12. Did you provide your students with a final summary evaluation of their performance in clinical experience?	Yes No	Yes No	
13. Did you and all of your students agree on the final summary evaluations of their clinical performance?	Yes No	Yes No	
B. Activities at the Course Level			
14. Did you have complete control over the selection of the teaching method(s) you used in your classroom teaching during this term?	Yes No	Yes No	
15. Did you have complete control over the organization of content you presented in your classroom teaching during this term?	Yes No	Yes No	
16. Did you have complete control over the selection of content you presented in your classroom teaching during this term?	Yes No	Yes No	
17. Did you actively participate in the formulation of the objectives of your course for this term?	Yes No	Yes No	
18. Were you bound by the objectives formulated for your course in your classroom teaching during this term?	Yes No	Yes No	
19. In your classroom teaching, did you involve students in:			
a. determining objectives of your unit?	Yes No	Yes No	
b. selecting teaching-learning method(s)?	Yes No	Yes No	
c. selecting content?	Yes No	Yes No	
d. selecting activities on which they would be evaluated?	Yes No	Yes No	

FQ-4

	DID YOU?	SHOULD YOU?	Please DO NOT WRITE in this space. 0 - ++ -- +- -+
20. During this term, did you use quizzes or examinations as pre-tests, to determine the entrance behaviors of students at the beginning of your classroom teaching?	Yes No	Yes No	
21. During this term, did you use the results of examinations given during your classroom teaching as a guide to selecting subsequent learning experiences for students?	Yes No	Yes No	
22. During this term, did you use the examination(s) you gave to students primarily as post-facto performance evaluations?	Yes No	Yes No	
C. Activities at the Program Level			
23. Prior to and including this term, did you actively participate in formulating the existing objectives for the nursing program?	Yes No	Yes No	
24. Was there a deliberate attempt to articulate the objectives of your course with the existing objectives for the nursing programs?	Yes No	Yes No	
25. Do you feel that you understand the objectives of the other courses required in the nursing major?	Yes No	Yes No	
26. During this term, did you deliberately attempt to articulate your teaching with the objectives of prior and subsequent courses?	Yes No	Yes No	
27. During this term, were students who were enrolled in your clinical course able to take any free electives (i.e., courses which were required neither for the nursing major nor for graduation from the university)?	Yes No	Yes No	

FQ-5

Directions: The following questions are posed in a different format. Please provide the type of information requested in each item.

Please DO NOT WRITE in this space.

Please estimate the number of hours you have spent so far this term in the following meetings: HOURS

28. Departmental (meetings with all faculty who teach in your clinical course . . . . . _____

29. Inter-departmental (meetings with faculty who teach in other courses, nursing or non-nursing) . . . . . _____

30. Committees: e.g.,
    Standing Committees of the Faculty:
        Curriculum Committee
        Admissions & Promotions Committee
        Student Health & Welfare Committee
        Continuing Education Committee
    Any Ad Hoc Committees
    (Please specify only those which have had relevance to curriculum development.)

    _____ _____

    _____ _____

    _____ _____

31. Total number of estimated hours spent in meetings: _____

32. Do you feel that the amount of time specified above has been justified by the results of group effort? Yes No

33. In relation to your total obligations as a teacher do you feel that the amount of time specified above is:
    (Please check ONLY ONE of the following.)

    _____ a. excessive
    _____ b. appropriate
    _____ c. inadequate

Please check the type(s) of feedback you would like to have on the findings of this study of the problem identification behavior of basic baccalaureate nursing students:

_____ a. none
_____ b. informal discussion with only those faculty teaching in my course and the investigator
_____ c. informal discussion with all nursing faculty and the investigator
_____ d. formal presentation by investigator to a combined meeting of all faculty and students
_____ e. informal discussion with all nursing students
_____ f. final copy of the study available in the School of Nursing library
_____ g. other (Please specify):

Please give the date on which you completed this questionnaire:

DATE_____

APPENDIX E

ITEM ANALYSIS OF ACTIVITIES AT THE PATIENT CARE, COURSE AND PROGRAM LEVELS IN WHICH 3-GRADE LEVELS OF STUDENTS PARTICIPATED

Item	Sophomore N = 59								Junior N = 22								Senior N = 15								Total N = 96							
	Did				Should				Did				Should				Did				Should				Did				Should			
	Yes	%	no	%	yes	%	no	%	yes	%	no	%	yes	%	no	%	yes	%	no	%	yes	%	no	%	yes	%	no	%	yes	%	no	%
	n = 59		n = 59		n = 59		n = 59		n = 22		n = 22		n = 22		n = 22		n = 15		n = 15		n = 15		n = 15		n = 96		n = 96		n = 96		n = 96	
A. Patient Care Level																																
A 1	0	0	59	100	11	18	48	69	10	45	12	54	17	77	5	23	8	53	7	47	14	93	1	7	18	19	78	81	42	44	54	56
2	26	44	33	56	44	74	15	21	18	81	4	18	21	95	1	4	14	93	1	7	15	100	0	0	58	60	38	39	80	83	16	17
3	52	88	7	12	50	84	9	13	22	100	0	0	22	100	0	0	15	100	0	0	14	93	1	7	89	93	7	7	86	8[illegible]	10	10
5 a	9	15	50	84	34	57	24	35	21	95	2	9	22	100	0	0	15	100	0	0	15	100	0	0	45	47	52	54	72	75	24	25
b	0	0	59	100	18	30	39	56	7	31	15	68	19	86	3	14	3	20	12	80	13	86	1	7	10	10	86	89	50	52	43	45
c	1	2	58	98	28	47	31	45	11	50	11	50	20	91	2	10	8	53	7	47	14	93	0	0	20	21	76	79	62	64	33	34
d	23	38	36	61	36	61	23	33	14	63	8	36	20	91	2	10	10	67	5	33	14	93	1	7	47	48	49	51	70	73	26	27
e	1	2	58	98	17	28	42	61	4	18	18	81	19	86	3	14	1	7	14	93	12	80	2	13	6	6	90	94	48	50	47	49
6 a	53	89	6	10	57	96	2	3	16	73	6	27	21	95	1	4	15	100	0	0	15	100	0	0	84	87	12	12	93	97	3	3
b	30	51	29	49	39	66	20	33	16	73	6	27	20	91	2	10	14	93	1	7	15	100	0	0	60	62	36	37	74	77	22	23
c	31	52	27	46	44	74	15	21	21	95	1	4	22	100	0	0	12	80	0	0	13	86	0	0	64	67	28	29	79	82	15	16
d	8	13	51	86	30	51	28	40	14	63	8	36	20	91	2	10	13	86	2	13	15	100	0	0	35	36	61	63	65	68	30	31
e	2	3	57	96	21	35	38	55	14	63	8	36	20	91	2	10	14	93	1	7	15	100	0	0	30	31	66	69	56	58	40	42
7 a	41	69	18	30	42	71	17	25	11	50	11	50	18	81	4	18	14	93	1	7	14	93	1	7	66	69	30	31	74	77	22	23
b	35	59	24	40	37	62	22	32	10	45	12	54	13	59	9	41	13	86	2	13	14	93	1	7	58	60	38	39	64	67	32	33
c	25	42	32	54	35	59	22	32	18	81	4	18	19	86	3	14	12	80	2	13	14	93	0	0	55	57	38	39	68	71	25	26
d	16	27	42	71	27	46	31	45	7	31	15	68	14	63	8	36	13	86	2	13	13	86	2	13	36	37	59	61	54	56	41	43
e	16	27	42	71	28	47	30	43	9	41	13	59	16	73	6	27	12	80	3	20	12	80	3	20	37	38	58	60	56	58	39	41
8	37	62	22	37	37	62	21	30	18	81	4	18	15	68	7	31	9	60	6	40	10	67	5	33	64	67	32	33	62	64	33	34
9 a	11	18	48	81	6	10	50	72	2	9	19	86	1	4	20	91	2	13	13	86	1	7	12	80	15	16	80	83	8	8	82	85
b	50	84	9	15	21	35	34	57	18	81	4	18	5	23	15	68	11	73	4	27	2	13	11	73	79	82	17	18	28	29	60	62
c	35	59	24	40	13	22	44	74	17	77	5	23	5	23	15	68	7	47	8	53	1	7	12	80	59	61	37	38	19	20	71	74
d	5	8	54	91	6	10	50	84	9	41	13	59	2	9	18	81	10	67	5	33	1	7	11	73	24	25	72	75	9	9	79	82
e	43	72	16	27	37	62	20	34	15	68	7	31	9	41	11	50	7	47	8	53	4	27	9	60	65	68	31	32	50	52	40	42
10	52	88	7	12	56	95	3	5	18	81	4	18	22	100	0	0	2	47	8	53	15	100	0	0	77	80	19	20	93	97	3	3
11	42	71	17	28	54	91	5	8	19	86	3	14	22	100	0	0	4	27	11	73	15	100	0	0	65	68	31	32	91	95	5	5
12	51	86	5	8	53	89	1	2	22	100	0	0	22	100	0	0	15	100	0	0	15	100	0	0	88	92	5	5	90	94	1	1
13	43	72	5	8	45	76	3	5	19	86	3	14	18	81	4	18	14	93	1	7	10	67	5	33	76	79	9	9	73	76	12	12

APPENDIX E--Continued

Item	Sophomore N = 59								Junior N = 22								Senior N = 15								Total N = 96							
	Did				Should				Did				Should				Did				Should				Did				Should			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
	n = 59		n = 59		n = 59		n = 59		n = 22		n = 22		n = 22		n = 22		n = 15		n = 15		n = 15		n = 15		n = 96		n = 96		n = 96		n = 96	
B. Course Level																																
B 19 a	8	13	51	86	30	51	29	49	9	41	13	59	11	50	11	50	1	7	14	93	14	93	1	7	18	19	78	81	55	[illegible]	41	43
b	4	7	55	93	38	64	21	35	13	59	9	41	19	86	3	14	5	33	10	67	14	93	1	7	22	23	74	77	71	[illegible]	25	26
c	3	5	56	95	29	49	29	49	14	63	8	36	16	73	6	27	2	13	13	86	13	86	2	13	19	20	77	80	58	[illegible]	37	38
d	3	5	56	95	32	54	27	46	3	14	19	86	13	59	9	41	0	0	15	100	13	86	2	13	6	6	90	94	58	[illegible]	38	39
20	2	3	57	96	32	54	27	46	21	95	1	4	19	86	3	14	9	60	6	40	12	80	3	20	32	33	64	67	63	[illegible]	33	34
21	15	25	44	74	49	83	10	17	9	41	13	59	18	81	4	18	10	67	5	33	14	93	1	7	34	35	62	64	81	[illegible]	15	16
22	42	71	16	27	27	46	30	51	17	77	5	23	12	54	10	45	8	53	7	47	5	33	10	67	67	70	28	29	44	46	50	52
C. Program Level																																
C 23 a	2	3	56	95	25	42	31	52	2	9	20	91	12	54	8	36	0	0	15	100	5	33	10	67	4	4	91	95	42	44	49	51
b	5	8	52	88	12	20	43	72	2	9	20	91	7	31	13	59	0	0	15	100	0	0	15	100	7	7	87	91	19	20	71	74
c	2	3	56	95	27	46	30	51	3	14	19	86	16	73	4	18	1	7	14	93	6	40	9	60	6	6	89	93	49	51	43	45
d	2	3	55	93	15	25	40	67	3	14	19	86	9	41	11	50	0	0	15	100	1	7	14	93	5	5	89	93	25	26	65	68
23 A a	56	95	1	2	57	96	1	2	21	95	1	4	21	95	1	4	14	93	1	7	15	100	0	0	91	95	3	3	93	97	2	2
b	21	35	34	57	32	54	24	40	16	73	6	27	18	81	4	18	8	53	6	40	14	93	1	7	45	47	46	48	64	67	29	30
c	51	86	7	12	56	95	2	3	21	95	1	4	21	95	1	4	15	100	1	7	15	100	0	0	87	91	9	9	92	96	3	3
d	37	62	18	30	43	72	9	15	19	86	3	14	20	91	2	9	11	73	3	20	14	93	0	0	67	70	24	25	77	80	11	11
23 B	43	72	16	27	56	95	3	5	21	95	1	4	22	100	0	0	12	80	3	20	15	100	0	0	76	79	20	21	93	97	3	3
24	52	88	7	12	57	96	0	0	18	81	4	18	21	95	1	4	11	73	4	27	15	100	0	0	81	84	15	16	93	97	1	1
26	53	89	6	10	57	96	0	0	17	77	5	23	22	100	0	0	12	80	3	20	15	100	0	0	82	85	14	14	94	98	0	0
27	9	15	50	72	43	72	16	27	4	18	18	81	22	100	0	0	10	67	5	33	14	93	1	7	23	24	73	76	79	82	17	18

APPENDIX F

ITEM ANALYSIS OF ACTIVITIES AT THE PATIENT CARE, COURSE AND PROGRAM LEVELS IN WHICH 3-GRADE LEVELS OF FACULTY PARTICIPATED

Item	Sophomore N = 5				Junior N = 7				Senior N = 2				Total N = 14			
	Did		Should		Did		Should		Did		Should		Did		Should	
	Yes % n = 5	No % n = 5	Yes % n = 5	No % n = 5	Yes % n = 7	No % n = 7	Yes % n = 7	No % n = 7	Yes % n = 2	No % n = 2	Yes % n = 2	No % n = 2	Yes % n = 14	No % n = 14	Yes % n = 14	No % n = 14
A. Patient Care Level																
A 1	1 20	4 80	2 40	2 40	4 57	3 43	5 71	2 29	0 0	2 100	1 50	1 50	5 35	9 64	8 57	5 35
2	5 100	0 0	5 100	0 0	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	14 100	0 0	14 100	0 0
3	4 80	1 20	4 80	1 20	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	13 92	1 7	13 92	1 7
4 a	4 80	1 20	4 80	1 20	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	13 92	1 7	13 92	1 7
b	2 40	3 60	3 60	2 40	6 86	1 14	7 100	0 0	1 50	0 0	2 100	0 0	9 64	4 28	12 85	2 14
c	2 40	3 60	5 100	0 0	6 86	1 14	6 86	0 0	2 100	0 0	2 100	0 0	10 71	4 28	13 92	0 0
d	5 100	0 0	5 100	0 0	5 71	2 29	7 100	0 0	2 100	0 0	2 100	0 0	12 85	2 14	14 100	0 0
e	2 40	3 60	3 60	2 40	6 86	1 14	7 100	0 0	0 0	2 100	2 100	0 0	8 57	6 42	12 85	2 14
5 a	1 20	4 80	2 40	3 60	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	10 71	4 28	11 78	3 21
b	0 0	5 100	1 20	4 80	1 14	6 86	5 71	2 29	0 0	2 100	2 100	0 0	1 7	13 92	8 57	6 42
c	0 0	5 100	2 40	3 60	2 29	5 71	6 86	1 14	1 50	1 50	2 100	0 0	3 21	11 78	10 71	4 28
d	1 20	4 80	2 40	3 60	2 29	5 71	5 71	2 29	0 0	2 100	1 50	1 50	3 21	11 78	8 57	6 42
e	0 0	5 100	1 20	4 80	0 0	7 100	5 71	2 29	0 0	2 100	1 50	1 50	0 0	14 28	7 50	7 50
6 a	5 100	0 0	5 100	0 0	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	14 100	0 0	14 100	0 0
b	5 100	0 0	5 100	0 0	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	14 100	0 0	14 100	0 0
c	3 60	1 20	3 60	1 20	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	12 85	1 7	12 85	1 7
d	1 20	3 60	3 60	1 20	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	10 71	3 21	12 85	1 7
e	0 0	4 80	3 60	2 40	6 86	1 14	7 100	0 0	2 100	0 0	2 100	0 0	8 57	5 35	12 85	2 14
7 a	5 100	0 0	5 100	0 0	6 86	1 14	7 100	0 0	2 100	0 0	2 100	0 0	13 92	1 7	14 100	0 0
b	3 60	1 20	3 60	1 20	5 71	2 29	5 71	2 29	2 100	0 0	2 100	0 0	10 71	3 21	10 71	3 21
c	4 80	0 0	4 80	0 0	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	13 92	0 0	13 92	0 0
d	2 40	2 40	3 60	1 20	4 57	3 43	6 86	1 14	2 100	0 0	2 100	0 0	8 57	5 35	11 78	2 14
e	1 20	3 60	2 40	3 60	3 43	4 57	5 71	1 14	2 100	0 0	2 100	0 0	6 42	7 50	9 64	4 28
8	3 60	2 40	3 60	2 40	5 71	2 29	5 71	2 29	1 50	1 50	1 50	1 50	9 64	5 35	9 64	5 35
9 a	0 0	5 100	0 0	5 100	2 29	4 57	0 0	5 71	0 0	2 100	0 0	2 100	2 14	11 78	0 0	12 85
b	5 100	0 0	2 40	1 20	6 86	0 0	2 29	3 43	0 0	2 100	0 0	2 100	11 78	2 14	4 28	6 42
c	3 60	2 40	1 20	3 60	5 71	1 14	0 0	5 71	0 0	2 100	0 0	2 100	8 57	5 35	1 7	10 71
d	0 0	5 100	0 0	5 100	4 57	2 29	0 0	5 71	0 0	2 100	0 0	2 100	4 28	9 64	0 0	12 85
e	5 100	0 0	4 80	0 0	4 57	2 29	2 29	3 43	2 100	0 0	0 0	2 100	11 78	2 14	6 42	5 35
10	5 100	0 0	5 100	0 0	5 71	2 29	7 100	0 0	1 50	1 50	2 100	0 0	11 78	3 21	14 100	0 0
11	4 80	1 20	5 100	0 0	5 71	2 29	7 100	0 0	1 50	1 50	2 100	0 0	10 71	4 28	14 100	0 0
12	4 80	1 20	4 80	1 20	7 100	0 0	7 100	0 0	2 100	0 0	2 100	0 0	13 92	1 7	13 92	1 7
13	2 40	2 40	2 40	2 40	6 86	1 14	6 86	1 14	2 100	0 0	2 100	0 0	10 71	3 21	10 71	3 21

APPENDIX F--Continued

Item	Sophomore N = 5								Junior N = 7								Senior N = 2								Total N = 14							
	Did				Should				Did				Should				Did				Should				Did				Should			
	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%	Yes	%	No	%
	n = 4		n = 4		n = 4		n = 4		n = 6		n = 6		n = 6		n = 6		n = 2		n = 2		n = 2		n = 2		n = 12		n = 12		n = 12		n = 12	
B. Course Level																																
B 14	4	80	0	0	4	80	0	0	6	86	0	0	5	71	0	0	1	50	1	50	2	100	0	0	11	91	1	8	11	91	0	0
15	4	80	0	0	4	80	0	0	5	71	1	14	5	71	1	14	1	50	1	50	2	100	0	0	10	83	2	16	11	91	1	8
16	2	40	2	40	2	40	2	40	1	14	5	71	2	29	4	57	1	50	1	50	1	50	1	50	4	33	8	66	5	41	7	58
17	3	60	1	20	4	80	0	0	2	29	4	57	6	86	0	0	1	50	1	50	2	100	0	0	6	50	6	50	12	100	0	0
18	0	0	4	80	0	0	4	80	2	29	4	57	2	29	4	57	1	50	1	50	2	100	0	0	3	25	9	75	4	33	8	66
19 a	0	0	4	80	2	40	1	20	2	29	4	57	4	57	2	29	0	0	2	100	0	0	1	50	2	16	10	83	6	50	4	33
b	0	0	4	80	2	40	1	20	1	14	5	71	5	71	1	14	0	0	2	100	1	50	0	0	1	8	11	91	8	66	2	16
c	0	0	4	80	2	40	1	20	1	14	5	71	4	57	2	29	1	50	1	50	1	50	0	0	2	16	10	83	7	58	3	25
d	0	0	4	80	3	60	0	0	1	14	5	71	4	67	1	14	0	0	2	100	1	50	0	0	1	8	11	91	8	66	1	8
20	0	0	4	80	2	40	2	40	1	14	5	71	4	67	2	29	1	50	1	50	2	100	0	0	2	16	10	83	8	66	4	33
21	3	60	1	20	3	60	1	20	2	29	4	57	6	86	0	0	1	50	1	50	2	100	0	0	6	50	6	50	11	91	1	8
22	3	60	1	20	1	20	3	60	5	71	1	14	1	14	5	71	1	50	1	50	0	0	2	100	9	75	3	25	2	16	10	83
	n = 5		n = 5		n = 5		n = 5		n = 7		n = 7		n = 7		n = 7		n = 2		n = 2		n = 2		n = 2		n = 14		n = 14		n = 14		n = 14	
C. Program Level																																
C 23	2	40	3	60	4	80	1	20	4	57	3	43	5	71	1	14	0	0	2	100	2	100	0	0	6	42	8	57	11	78	2	14
24	4	80	1	20	5	100	0	0	6	86	0	0	6	86	0	0	2	100	0	0	2	100	0	0	12	85	1	7	13	92	0	0
25	1	20	3	60	4	80	0	0	3	43	3	43	6	86	0	0	0	0	2	100	2	100	0	0	4	28	8	57	12	85	0	0
26	3	60	1	20	4	80	0	0	6	86	1	14	7	100	0	0	2	100	0	0	2	100	0	0	11	78	2	14	13	92	0	0
27	2	40	2	40	4	80	0	0	0	0	7	100	6	86	1	14	1	50	1	50	1	50	0	0	3	21	10	71	11	78	1	7

APPENDIX G

PATIENT DATA SUMMARY

Degree of Illness: Critical ☐ , Serious ☐ , Convalescent ☐

Student No. _____

PNP's			INFORMATION				SOURCES OF INFORMATION							(A) MICROSYSTEMS		
MAJOR	MINOR	TOTAL	Total Info. Bits	Unnec. ⊖ Info.	Info. ⊕ Missed	No. of NECC. BITS	PATIENT: Direct	PATIENT: Intxn.	KARDEX	CHART	DOB	INTXN. with OTHERS	Nurses' Notes	BIO-CHEM	CELLUL.	ORGAN.

(A) MICROSYSTEMS

Traditional Body Systems

C - V - R				N.S.		MOTOR			NUTRITION				ELIMINATION				
Heart	Circul.	Respir.	R-E-S	CNZ & Senses	ANS & Endo.	Muscul.	Skelet.	ENDO & REPROD.	Ingest.	Digst.	Absp.	Metab.	Skin	G-I	Uri-nary	SKIN & APPEN.	TEETH

(B) INTEGRATED PERSON SYSTEM			(C) PROXIMAL SUPRA-SYSTEM				(D) INTERMEDIATE SUPRA-SYSTEM			(E) DISTAL SUPRA-SYSTEM
Perceptions	Habits	Other	Family	Other Significant Persons	Home Conditions	Other	Instnl. Pol's. & Prac's/ Hospital	Staff & Proc's/ Unit	Other	Community: Neighborhood, Soc. & Work Conditions

APPENDIX H

DISTRIBUTION OF MAJOR AND MINOR PRESENTING NURSING PROBLEMS (PNP's) OF PATIENTS SELECTED FOR CLINICAL EXPERIENCE OF 3-GRADE LEVELS OF NURSING STUDENTS

Instructor-Group	Number of Patients	TOTAL PNP's	$\bar{X}$ PNP's per Patient	MAJOR PNP's	% of TOTAL PNP's	MINOR PNP's	% of TOTAL PNP's
		Sophomore Grade Level					
A	5	10	2	0	0	10	100
B	7	43	6	9	21	34	79
C	17	116	7	28	24	88	76
D	0						
E	18	145	8	4	<1	141	99
Total	47	314	7	41	12	273	88
		Junior Grade Level					
F	3	34	11	22	65	12	35
G	4	44	11	33	75	11	25
H	1	14	14	13	93	1	7
	3	34	11	..		..	
I	5	55	11	51	93	4	7
J	5	42	8	24	57	18	43
K	4	48	12	48	100	0	0
	1	12	12	..		..	
L	6	22	4	12	55	10	45
Total	32	305*	10	203*	67	56*	33
		Senior Grade Level					
M	10	142	14	101	71	41	29
N	10	82	8	56	68	26	32
Total	20	224	12	157	70	67	30
TOTAL	99	843*	9	401*	48	396*	47

*Major PNP's and Minor PNP's ≠ TOTAL PNP's because 46 PNP's of 4 patients were not differentiated as to Major or Minor; 46 PNP's = 5% of TOTAL PNP's.

APPENDIX I

SIMPLE CORRELATIONS BETWEEN SELECTED CHARACTERISTICS OF STUDENTS' PREPARATION STRATEGIES, ROLE SATISFACTION AND PROBLEM IDENTIFICATION BEHAVIOR

Frequency of Paired Observations	VARIABLES 1	VARIABLES 2	Correlation Coefficient
119	New Time	Study Time	-0.17
119	Social Time	Study Time	-0.20
93	Patient Care RSI	Study Time	-0.04
93	Course RSI	Study Time	0.03
90	Accuracy on Major PNP's	Study Time	-0.13
94*	Total Accuracy	Study Time	0.05
94	Efficiency	Study Time	-0.04
96	Course RSI	Patient Care RSI	0.36
96	Program RSI	Patient Care RSI	0.36
73	Total PNP's/ Patient	Patient Care RSI	0.00
73**	Total Accuracy	Patient Care RSI	0.12
73	Efficiency	Patient Care RSI	-0.04
96	Program RSI	Course RSI	0.31
73	Total Accuracy	Course RSI	0.10
73	Information Omitted	Course RSI	0.29
103	Information Omitted	Efficiency	-0.08
99	Accuracy on Minor PNP's	Accuracy on Major PNP's	0.22
99	Accuracy on Major PNP's	Total PNP's/Patient	-0.42
99	Accuracy on Minor PNP's	Total PNP's/Patient	-0.31
103	Total Accuracy	Total PNP's/Patient	-0.37
103	Efficiency	Total PNP's/Patient	-0.28
103	Information Omitted	Total PNP's/Patient	0.36

*This correlation relates to Hypothesis #6.

**This correlation relates to Hypothesis #9.

APPENDIX J

AVERAGE STUDY TIME ON ASSESSMENT DAY OF INSTRUCTOR-GROUPS OF STUDENTS AND THE ACCURACY OF THEIR PROBLEM IDENTIFICATION BEHAVIOR

Instructor-Group	Number	Average Study Time in Hours and Minutes	Number	Average Accuracy in %
		Sophomore Grade Level		
A	6	5'31"	5	83
B	8	5'26"	7	89
C	16	5'39"	17	65
D	18	5'19"	0	..
E	17	5'55"	18	57
Total	65	5'35"	47	67
		Junior Grade Level		
F	3	5'45"	3	65
G	4	8'	4	71
H	4	5'41"	4	92
I	4	7'	5	79
J	5	5'12"	5	80
K	5	8' 9"	5	71
L	5	6'39"	6	95
Total	30	6'38"	32	80
		Senior Grade Level		
M	10	6'28"	10	45
N	10	5'18"	10	47
Total	20	5'53"	20	46

APPENDIX K

ROLE SATISFACTION OF 3-GRADE LEVELS OF FACULTY AND THE MEAN ROLE SATISFACTION OF THEIR STUDENTS

Instructor-Group	Total	STUDENTS						FACULTY			
		Returns	% of Total	Role Satisfaction (%)				Role Satisfaction (%)			
				s_1	s_2	s_3	S	f_1	f_2	f_3	F
				Sophomore Grade Level							
A	(10)	4	40	79	28	63	67	77	100	60	79
B	(9)	9	100	76	54	82	74	93		100	94
C	(17)	13	76	79	44	75	73	64	83	40	67
D	(20)	18	90	84	52	80	78	91	42	40	71
E	(20)	13	65	73	55	80	72	74	50	80	69
Total	(76)	57	75	79	50	78	75	80	69	64	76
				Junior Grade Level							
F	(3)	2	67	84	59	71	77	88	67	80	82
G	(4)	3	75	74	54	72	71	74	73	80	75
H	(4)	3	75	85	90	70	84	67		40	63
I	(5)	4	80	80	69	69	75	73	42	75	65
J	(5)	4	80	55	67	74	61	71	73	50	70
K	(5)	4	80	81	92	88	85	89	58	50	77
L	(6)	2	33	76	22	83	70	82	42	80	72
Total	(32)	22	69	76	68	69	75	77	59	65	72
				Senior Grade Level							
M	(10)	8	80	82	50	87	75	91	58	60	80
N	(10)	7	70	67	27	72	63	72	50	50	66
Total	(20)	15	75	75	39	80	70	81	54	55	73

APPENDIX L

AVERAGE SATISFACTION OF INSTRUCTOR-GROUPS OF STUDENTS WITH THEIR PARTICIPATION IN DECISION-MAKING RELATED TO PATIENT CARE (RSI_{sl}) AND THE ACCURACY OF THEIR PROBLEM IDENTIFICATION BEHAVIOR

Instructor-Group	Average RSI_{sl} Number	Average RSI_{sl} (%)	Average Accuracy Number	Average Accuracy (%)
		Sophomore Grade Level		
A	4	79	5	83
B	9	76	7	89
C	13	79	17	65
D	18	84	0	..
E	13	73	18	57
Total	57	79	47	67
		Junior Grade Level		
F	2	84	3	65
G	3	74	4	71
H	3	85	4	92
I	4	80	5	79
J	4	55	5	80
K	4	81	5	71
L	2	76	6	95
Total	22	76	32	80
		Senior Grade Level		
M	8	82	10	45
N	7	67	10	47
Total	15	75	20	46

APPENDIX M

PROPORTION OF DATA REQUIRED BY 3-GRADE LEVELS OF FACULTY

Grade Level	FACULTY QUESTIONNAIRE Role Satisfaction			CORRECTED NURSING CARE PLANS		
	Total	N	%	Total	N	%
Sophomore	5	5	100	76	47	62
Junior	7	7	100	32	32	100
Senior	2	2	100	20	20	100
TOTAL	14	14	100	128	99	77

APPENDIX N

PROPORTION OF DATA RETURNED BY 3-GRADE LEVELS OF STUDENTS

Instructor-Group	Total	STUDENT QUESTIONNAIRES: Preparation Strategies: #1 N	%	Role Satisfaction #2 N	%	CORRECTED NURSING CARE PLANS N	%
		Sophomore Grade Level					
A	10	6	60	4	40	5	50
B	9	8	89	9	100	7	70
C	17	16	94	13	76	17	100
D	20	18	90	18	90	0	0
E	20	17	85	13	65	18	90
Total	76	65	86	57	75	47	62
		Junior Grade Level					
F	3	3	100	2	67	3	100
G	4	4	100	3	75	4	100
H	4	4	100	3	75	4	100
I	5	4	100	3	75	4	100
J	5	5	100	4	80	5	100
K	5	5	100	4	80	5	100
L	6	5	83	2	33	6	100
Total	32	30	94	22	69	32	100
		Senior Grade Level					
M	10	10	100	8	80	10	100
N	10	10	100	7	70	10	100
Total	20	20	100	15	75	20	100
TOTAL	128	115	90	94	73	99	77