AN EVALUATION OF PERFORMANCE OF FOUR NURSING FUNCTIONS BY GRADUATE NURSES

Anne L. Mines

A Thesis

In

The Department of

Education

Presented In Partial Fulfilment of The Requirements for
The Degree of Master of Arts in Educational Technology at
Concordia University
Montreal, Québec, Canada

June, 1979

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By: Anne Mines

Abstract

The setting and priority of nursing education in Québec has shifted from hospital to community college and from service needs of the hospital to educational needs of the student. The purposes of this study were to determine: 1. the relationship between four nursing functions of the nursing program and those of the employer; 2. level of performance by graduate nurses on each; 3. weak performance areas of each; and 4. recommendations to improve weak areas. The sample consisted of 30 beginning John Abbott diploma nursing graduates from class of May, 1977, whose selection was based on their willingness to participate and place of employment. Three instruments used for data collection were: two lists of nursing behaviors representing nursing functions from program and employer; and a defined four level performance scale. Level of performance of graduates on each list of nursing behaviors and on each behavior of each list was rated by their head nurses. Level of performance on program behavior was rated by graduates themselves as well. Most realistic time for attainment of each defined level of performance was determined by other head nurses. Comparisons were made

between: mean performance scores on each list of behaviors, mean performance scores on program behaviors, mean performance level scores on employer behaviors and mean length of experience with the most realistic time for attained level. It was hypothesized that: the performance by the graduates of the nursing functions would correlate positively with those of employer; 2. 75 percent of graduates would perform competently on each. Data was analyzed with t-test, correlation, scattergram and multiple regression using .05 level of significance. Results indicated a high positive correlation in performance between program and employer nursing functions and a less than competent level of performance on each.

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I. A. PROBLEM STATEMENT

In September, 1967, the education of diploma nurses in Québec shifted from the traditional hospital schools to the Collèges d'Enseignement Général et Professional (CEGEP). For many years the nursing profession had been hoping for this integration of the nursing program into the general system of education. As far back as 1932, following an inquiry on nursing education in Canada, George Weir recommended that the training of nurses, like the training of teachers, be integrated into the general educational system of the province (Weir, 1932).

The developments in nursing education which led to this shift were based on the premise that nursing education must have, as its priority, the educational needs of the student; the service needs of the hospital, although a major component of nursing education, should not guide the learning experience.

Since the shift in setting and focus of nursing education in Québec no formal evaluation of the performance of its graduates has taken place although there has been much informal feedback on their performance by consumers of health care services, hospital personnel, nursing educators and the graduates themselves. Their evaluation of adequacy of nursing preparation and level of performance of nursing functions of the graduates tends to be subjective in nature and somewhat

inconsistent. Graduates of this programme are prepared to act as first level nursing practitioners to meet the needs of their clients in a safe and knowledgeable manner.
(See page 17.)

B. OBJECTIVES

This study has attempted to determine whether the shift in educational focus has created different views of nursing functions in nursing education and nursing service; in other words, are the beginning diploma nursing graduates being prepared for the nursing functions that their employer expects them to perform? How well are they performing these functions?

The specific objectives of this study were: 1. to determine the relationship between the nursing functions for which the beginning graduates had been prepared and those expected of them by their employer; 2. to determine whether they were able to competently perform the nursing functions originating from the nursing program itself; 3. to determine whether they were able to competently perform those functions expected of them by their employer; 4. to identify weak performance areas; 5. to make recommendations for change either to the nursing program or the employer or both to improve graduates performance in these areas; and 6. to examine in a practical application the usefulness of analytic and measurement tools that have been developed for evaluating the relationship between curriculum and on-the-job performance.

II: REVIEW OF THE LITERATURE

The purpose of an evaluation is to determine the extent to which the goals of a learning activity are being realized (Tyler, 1967); to provide relevant information to decision-makers (Stufflebeam, 1973); to establish and justify merit or worth (Scriven, 1967); and to determine whether to improve, maintain or terminate a program (Provus, 1969).

The key emphasis is specification of objectives and measuring learning outcomes of pupils (Tyler, 1967); justification of data gathering instruments, weighting, and selection of goals (Scriven, 1967); and identifying discrepancies between standards and performances (Provus, 1969).

The relationship of the evaluation to objectives implies attainment of behavioral objectives stated and a comparison of performance against standards to see whether a discrepancy exists (Tyler, 1967), thereby providing information for decision-makers to use on strengths and weaknesses of curriculum (Tyler, 1967).

The proposed construct for a post-measurement of performance to determine how well the program prepares its learners to meet the expectations of the employer, requires information about the context of the program and the inputs into the program from which the general goals and specific objectives of the program are decided (Hammond, 1969; Gagné & Briggs, 1974). Properly stated objectives from the program and from

the employer will: 1. specify the kind of behavior which will be accepted as evidence that the learner has achieved the objective; 2. state the conditions under which the behavior will be expected to occur; and 3. specify the criteria of acceptable performance by describing how well the learner must perform.

These outcome behaviors must be classified by experts according to the intellectual processes involved and pre-tested in a natural setting to ensure their content validity and reliability (Stufflebeam, 1973).

Different levels of complexity provide a possibility for classification of intellectual skills. Eight levels of complexity in intellectual skills have been hierarchially arranged (Gagné & Briggs, 1974). They are: stimulus response, chains, verbal associations, discrimination,concepts, rules and problem-solving. Sometimes, the rules which humans learn are complex combinations of simpler rules. Moreover, it is often the case that these more complex, or "higher-order" rules are invented for the purpose of solving a practical problem or class of problem. In attaining a workable solution to a problem the learner learns a new rule, or perhaps a new set of rules.

The nursing process is described as one of problem-solving in which the "higher order" rule involves: data collection, assessment of data, goal statement, nursing interventions or approach, statement of principles or rationale for action and reassessment of goal statement (Allen, 1975).

The trend since the mid 1960's across Canada has been a shift of the diploma nursing program from the traditional hospital school to an education institution.

Two notable full scale evaluation studies have been conducted on these new nursing programs.

The first study was conducted over a five year period at Ryerson Polytechnical Institute in Toronto between 1965 and 1970 (Allen & Reidy, 1971). It consists of four kinds of evaluations: context, input, content and product. The systems approach provided for measurement of change, development and attitude formation in the Ryerson Nursing student and the subsequent fit of the graduate into the work world. An instrument was developed by a panel representing nursing education and nursing service. They were asked to give specific behavioral examples of "responsible" behavior. These 50 behavioral examples were then categorized under 2 main headings and 2 sub-headings. After submission to a second panel of judges 22 examples were retained. These items were administered in three different forms: 1. to head nurses to have them evaluate the "responsibility" of the Ryerson graduate as compared with other young graduates; 2. to faculty to determine which aspects of "responsibility" they consider to be important in teaching nursing; and 3. the staff in cooperating agencies to determine which aspects of "responsibility" they considered to be important in giving nursing care. In order to compare and contrast the Ryerson graduate with other new graduates of diploma programs, the list of behavioral items

was submitted to the head nurses of the young Ryerson graduates. They were asked to consider the list in terms of how well these characteristics were developed in the new Ryerson graduate, and in the new graduates of other diploma programs, using a three-point scale of "not too", "some" and "very."

Allen describes her findings about the characteristics of the Ryerson graduate and her performance and "fit" in the work world as follows: "On the one hand, she is flexible, adaptive and independent. She is able to think things through, applies basic principles and is willing to learn. She is articulate and uses supervisory staff for support and reference. She respects herself and her patient, is interested in her patients and is able to give emotional support to them. She is an eager young woman skilled in communication arts who fits well into the work world. On the other hand, she lacks self-confidence, is initially slower in procedures, needs extra help in taking charge, and in the eyes of the directors of nursing, has not had enough experience (Allen, 1971).

In Québec, the findings from a questionnaire submitted to 340 nurses who graduated from 31 CEGEP's between 1970 and 1973 and who worked in nine different hospitals in five distinct regions of the province, reported three kinds of data: 1. positions held; 2. percentage of CEGEP nurses who consider their preparation adequate or not as regards to the position they held; and 3. the field where knowledge was considered deficient by CEGEP nurses (ONQ, 1974). Sixty-seven percent were bedside nurses in their first positions held, of which only

33 percent considered their preparation adequate. Whereas of those in higher positions or in specialized areas, between 11 percent and 30 percent considered their preparation adequate. Approximately 75 percent considered their clinical experiences to be insufficient. 18 percent considered course adequate.

In 1977, a study was conducted on two year diploma nursing programs in Ontario (Ministry, 1978). Two approaches were taken to assess the performance of the graduates in the work world. First, respondents were asked a series of detailed questions concerning the performance and general acceptability of the "average" 1977 graduate. Second, the supervisor of each 1977 graduate was asked to evaluate the proficiency of that individual with respect to 132 key nursing tasks.

These tasks were identified by a panel of senior persons from nursing education and nursing service, and classified under three headings: 1. effective use of the nursing process; 2. participation as a health team member; and 3. supervision. The nursing process consists of four steps: 1. assessing the health needs of the patient; 2. developing and modifying the nursing care plan; 3. participating in the implementation of the nursing care plan; and 4. participating in systematic and continuous evaluation of patients' needs.

Participating as a health team member consists of: 1. co-operating with other members of the health team in the provision of care; 2. co-ordinating nursing care with other aspects of health care; and 3. referring and reporting perti-

nent information to other members of the health team.

Supervision consist of: 1. collaborating with other members of the nursing team; 2. delegating appropriate activities to others based on an understanding of that person's role; and 3. providing effective supervision for those to whom she delegates activities. A five-point rating scale was used to determine proficiency level on the items contained in the above classifications. This scale did not state criteria or conditions for performance of the task.

The results of the study indicated that the beginning graduates were having difficulties in the following areas: 1. activities related to the organization and planning required to carry a full patient load; 2. activities which relate to the ability to evaluate care given; 3. activities involved in the supervision of and communication with auxiliary staff and coordination of nursing care with other health team members; and 4. activities involved in team leading. General dissatisfactions expressed were: 1. graduate's ability to cope with emergency situations and length of time required before graduate can function as team leader or take charge on night tours of duty and on weekends; 2. need for close supervision of graduates; and 3. graduate's lack of confidence and judgment. There were generally positive reactions to the nursing theory component and the educational base provided for the students, while concerns were expressed regarding both the duration and nature of the clinical

experience obtained by the students.

There appears to be no specific rules for response mode selection; however, a scaled response mode most readily lends itself to parametric statistical analysis since it often can be considered to be interval data. The forementioned nursing studies utilize either a three or a six level scaled response mode. The proficiency code used by the United States Airforce to determine level of performance of pilots-in-training utilizes a four level scaled response mode ranging from "extremely limited" to "highly proficient" (Carpenter & Horner, 1972). Two common tendencies on the part of respondents with a scaled response mode are: either to avoid selecting extreme levels or to favour a particular level.

In summary, there are many purposes for evaluating and the extent to which the goals of a learning activity are being realized is a very valid one. Information about context and input into the program are necessary since it is from these that the goals and objectives are derived. The proposed design for post-measurement of performance implies a comparison between actual versus a standard performance to determine how well the goals of the learning activity are being realized. All data gathering instruments must be justified. A scaled response mode most readily lends itself to parametric statistical analysis, as stated above. Nursing is a problem-solving process, therefore, a "higher-order" intellectual skill. Two major nursing studies on the performance of beginning graduate nurses indicate satisfaction with their theoretical knowledge and dissatisfaction with their clinical experience.

III. A. HYPOTHESES

The effectiveness of the John Abbott nursing program in preparing its graduates to meet employer expectations was measured in terms of the relationship between the nursing functions for which they had been prepared and those expected by the employer and, secondly, on their level of performance of each.

It was hypothesized: 1. that the performance by the beginning diploma nursing graduates of the nursing functions comprising the terminal objectives for third year students of the John Abbott nursing program* would correlate positively with their performance on those functions expected by their employer**; 2. that 75 percent of these graduates would perform the JAC program functions at the competent level; and 3. that 75 percent of these graduates would perform the expected employer functions at the competent level.

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* hereafter called "program functions"

** hereafter called "employer functions"

B. OPERATIONAL DEFINITIONS OF VARIABLES

The variables to be operationalized were:

1. Beginning diploma nursing graduates:

   refers to those nurses who graduated from the diploma nursing program at John Abbott College in May, 1977 and who, therefore, have been practising as graduate nurses for less than one year.

2. Nursing functions as defined by the Québec Nurses Act are:

   1. assessing health needs, 2. planning patient care, 3. providing patient care and 4. reassessing health needs for the promotion of health, treatment, rehabilitation and education of the clientele, according to medical prescription.

3. Terminal Objectives for Third Year Students:

   refers to objective 3 only which is "to use the nursing process to provide individualized nursing care to the client." Appendix E indicates the nursing behaviors to be developed to achieve this objective.

4. Employer: refers to the head nurses of the beginning John Abbott diploma nursing graduates in three major Montreal hospitals where they are presently employed. Expected employer behaviors are listed in Appendix H.

5. Competent performance means the graduate can do all parts of the task. Needs only a spot check of completed task. Speed and accuracy acceptable to head nurse. (see Appendix F)

C. RATIONALE FOR THE HYPOTHESES

The nursing functions comprising the terminal objectives for third year students of the nursing program and those expected by the employer, should have either the same or equivalent content. Ideally, a nursing programme is established in response to the health situation and needs for health and nursing services at a point in time and in view of the direction toward health goals of a particular community. The goals and purposes of the programme are related to the functions the graduates will perform, which are, in turn, related to the health problems of the community and the type of care and services which these problems demand (Allen, 1975).

Since an analysis of the context in which education is to occur is the initial step in the utilization of the systems approach to curriculum development, curriculum designers must ask some vital questions if they are to design a valid and usable curriculum. These vital questions are: What are society's needs in this community? Who are the students? What resources are available? What should the entrance requirements be? What are the requirements for the profession? What are the educational requirements? The answers to these questions and others constitute the inputs into the John Abbott

nursing program. The effectiveness of this educational system determines the quality of its output. A measure of the output of this system will be its ability to meet the needs of society. (Figure 1.)

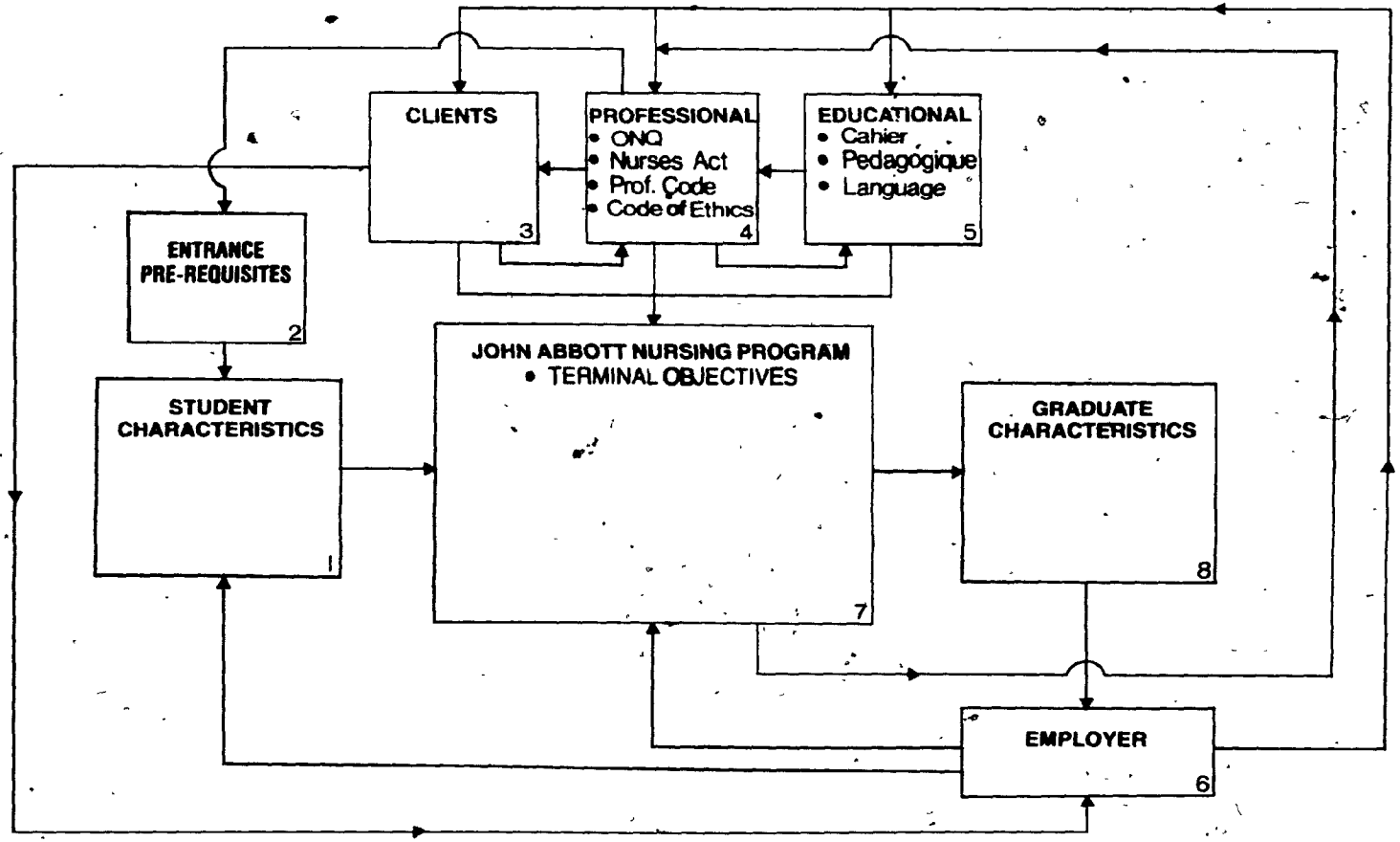
The JAC Nursing Program as An Educational System

1. Student Characteristics. The majority of students entering the existing John Abbott nursing program are females who are over sixteen years of age and who are residing with their parents. However, each new group of students typically contains mature students who range in age from nineteen to fifty years of age, married or single. The bulk of the students are drawn from the middle class Anglophone communities of the West Island of Montreal and possess at least a working knowledge of English. Since the methodology of a majority of the feeder schools in the West Island is based on the modular approach, the students are familiar with the modular system of learning existing in the nursing program.

2. Entrance Pre-requisites. Prior to acceptance into the program, all students must have completed several pre-requisite courses in the natural sciences; therefore, a knowledge to the Secondary V level in the disciplines of chemistry and physics and to the Secondary IV level in mathematics, can be anticipated. Upon acceptance, students whose first language is not English, are required to take an English proficiency test. Remedial English instruction can be obtained through Student Counselling Services during the

Figure I: GENERAL MODEL: CEGEP JOHN ABBOTT NURSING PROGRAM -

Direction of arrows indicated Relationship of Components of System. Components are numbered to facilitate discussion.



first semester for those found deficient. Since the Official Language Act requires that all beginning nursing graduates must possess a working knowledge of French, there is an opportunity to take one to four French language courses as one or all of their four required complementary courses within the program. Pre-requisite medical examinations ensure that all students are in good health and have no physical handicaps which would interfere with their completion of the program. In addition, students entering the program are required to meet immunization standards set by the college and its affiliating hospitals.

3. Clients. The nature, type and quantity of health care services required is determined by a population which is increasing, by a population in which life expectancy has increased resulting in more elderly people and by a population in which the most common health problems are cardio-vascular disorders, cancer and multiple trauma (ONQ, 1974). In Québec, the urgent need for francophone services is apparent since 80 percent of the population are francophones. Recent research on the employment of nurses in Canada would indicate that the health care needs of the client are presently being met within institutions since approximately 80 percent of the nurses are employed in the latter and the remaining 20 percent in the community (ONQ, 1974).

However, due to increasing demand for health care services and spiralling health costs, the emphasis of mass medicine will in the future likely be placed on the prevention of illness

and the prompt return of the hospitalized client to the community; therefore, future graduate nurses will be involved more in the preventive and rehabilitative aspects of illness and in the role of a client teacher and provider of services outside the hospital. In Québec, this has been the intention of Bill 66 and the development of "Local Community Service Centers" (CLSC). The nursing curriculum must reflect both present and future trends in health care services to meet the changing needs of the client.

4. Professional Requirements:

Nurses Act (Bill 273) outlines the specific acts and skills comprising the profession of nursing. All practicing graduate nurses are governed by this law upon graduation.

Professional Code (Bill 250) subjects all practicing graduate nurses to supervision by "the office des professions du Québec." It is a multi-professional body designed to ensure public protection.

Code of Ethics provides guidelines for conduct in the work place and in professional relations. It directs attention to excellence in practice. All practicing graduate nurses are subject to this code upon graduation.

5. Educational Requirements. The Direction Générale de l'Enseignement Collégial (DIGEC) specifies those courses which may be offered at the CEGEP level. It thus ensures standardization amongst all nursing programs in regard to number of nursing courses, other compulsory, complementary and option courses. Upon completion of these educational requirements, the successful candidate is awarded a diploma for college

studies (DEC). Program information is contained in the Cahier.

Regimé Pedagogique provides a series of academic rules to which all courses in all CEGEPs must follow in regard to expected learning behaviors, number of hours per class and per laboratory, numbers of semesters per course and per program and length of semester.

Québec Official Language Act (Bill 101) requires a demonstration of mastery of both oral and written French comprehension and expression for all persons being admitted to a professional corporation before a permanent licence to practice will be granted. All practicing graduate nurses are governed by this law upon graduation.

6. Employer requires a safe, knowledgeable nurse who is defined in the Nurses Act as "having the ability to identify the health needs of persons, contribute to methods of diagnosis, provide and control the nursing care required for the promotion of health, prevention of illness, enhancement of treatment and facilitation of rehabilitation, and to provide care according to a medical prescription." A previous study has identified a list of 22 nursing behaviors representative of these nursing functions. A sample of 10 of these behaviors appears in Appendix H.

7. John Abbott Nursing Program Terminal Objectives are a list of expected outcome performance behaviors for third year students. They were compiled by the nursing teachers based on the inputs to the program discussed above. The list of nursing behaviors in Appendix E represent objective 3 which states the student will, upon completion of the program, be able to: use

the nursing process to provide individualized nursing care to:

a. assess health status of the individual
b. state problems in terms of patient behavior
c. write realistic objectives in terms of patient behavior
d. intervene to assist the patient to meet the stated objectives
e. evaluate the degree to which the objectives have been met. (See Appendix O for other objectives).

8. Graduate Characteristics consist of the knowledge and skill developed in the student by the nursing program according to the inputs of society for the purpose of meeting the health needs of society.

All of the above considerations should have the effect of minimizing the differences between the nursing functions taught in the program and those expected by the employer.

This relationship should further develop as a result of field experience in areas of future employment.

A competent level of performance was stated in Hypotheses 2 and 3. Since many of the sample would be practicing with the benefit of a hospital orientation program for at least six months, they should be able to perform all parts of a task needing only a spot check of the completed task. Their performance speed and accuracy should be acceptable to their employer.

The beginning graduate should be performing at a competent level aided by the hospital orientation program and time

to further consolidate their nursing practice needs given that the goals and purposes of the nursing program are related to those of the employer.

Allowing for differences in length of graduate experience and for unrealistic performance expectations by some head nurses, 75 percent of the beginning graduates should be at the competent level of performance.

D. SCOPE AND LIMITATIONS OF THE STUDY

The findings were restricted to only one class of beginning diploma nursing graduates within one CEGEP diploma nursing program. Although all CEGEP nursing programs are subjected to the same guidelines, from the Department of Education in conjunction with the Order of Nurses of Québec through Direction Générale de l'Enseignement Collégial (DIGEC), the implementation of same probably varies from college to college and, to a certain extent, from year to year within each college program.

This study was an one-shot evaluation measuring the "here and now" performance of the beginning diploma nursing graduate of four nursing functions. There is no simple way of knowing whether there was a difference between the "here and now" and "initial" performance.

The three settings are considered the chief employers of this College's graduates. The findings of a 1978 survey representing 38 percent of all JAC nursing graduates indicated that 45 percent were employed in either one of these settings; therefore,

the findings of this study are an important measure of how well the program is meeting the needs and expectations of the employer.

No effort has been made to define either the philosophy of nursing or type of health care service in the three settings.

The methodology provides a common reference for evaluators to determine: the actual versus the expected performance while controlling for length of experience; a comparison on performance between what was taught and what was expected by employers; and a comparative evaluation of performance by the graduates and their head nurses.

IV. PROCEDURES

A. GENERAL METHOD

The effectiveness of the nursing program was evaluated in terms of the performance of its beginning graduates on four nursing functions: assessing health needs, planning patient care, providing patient care and reassessing health needs.

Two lists of nursing behaviors representing each of these four functions were compiled from the nursing program and employer. A well-defined performance rating scale was used to provide a common frame of reference to evaluators. The performance level on each was rated by either the graduate and her head nurse or the head nurse only, and the results were compared. These tools were pre-tested for reliability and content validity. Level of performance on program and employer nursing behaviors was used as an indicator of their congruity.

A second group of head nurses estimated the point in time when beginning CEGEP diploma graduates should attain each of the four performance levels. By comparing the group mean performance level on the employer nursing behaviors with the time estimated for the achievement of that particular level it was possible to determine whether they were actually performing the four nursing functions at the expected level.

B. POPULATION AND SAMPLE TESTED

The population delineated was 68 diploma graduate nurses who graduated in May, 1977 from the John Abbott nursing program. They were the fourth graduating class for this nursing program.

The setting selected was three major Montreal hospitals designated Hosp A, Hosp B and Hosp C.

A cover letter was sent to each of the three Directors of Nursing at the designated hospitals to inform them of the proposed study. This letter was followed by a personal interview with each Director for clarification purposes, to receive their permission and support to approach their head nurses, to obtain the names and nursing areas of the graduates in the population and to establish contact persons who would act as data collectors and as resource persons should problems arise with data collection.

It was learned from the three Directors that there were 34 graduates from the delineated population presently employed in the three hospitals. There were 22 at Hosp A, 7 at Hosp B and 5 at Hosp C.

A cover letter and consent form (see Appendix A) was sent to the 34 graduates. A signed consent form was necessary since they were to be evaluated by their head nurses. These forms were either returned through the hospital internal mail to contact persons or to me personally.

A total of 30 signed consent forms were returned which represented 44 percent of the delineated population. Of the four

other available graduates, one refused to participate, two were "float'nurses" with no clear evaluator available and one could not be reached. Of the sample, 19 were at Hosp A, 6 at Hosp B and 5 at Hosp C.

Background information provided by the graduates indicated their nursing areas were either medical or surgical or combined medical and surgical in Hosp A; medical in Hosp B and pediatric in Hosp C; that in terms of the Canadian Nurses Association Testing Service examinations which had been taken in the previous year, the graduates at Hosp A had a higher mean score in the surgical nursing exam than graduates at either Hosp B or Hosp C; that graduates at Hosp B had a higher mean score in the medical nursing exam than graduates at either Hosp A or Hosp C; and that graduates at Hosp C had a higher mean score in the pediatric nursing exam than graduates at either Hosp A or Hosp B. The graduates clearly tended to be working in nursing areas in which they had the highest level of knowledge.

Background information (see Appendix B) provided by the two groups of head nurses indicated that 55 percent (10) of the graduates' head nurses and 40 percent (4) of the second group of head nurses had a university diploma or higher; and that 71 percent and 80 percent of each group respectively had obtained their R.N. more than 10 years ago, had been in their present position between 1 - 9 years and worked mainly either in medical or surgical nursing areas.

C. EVALUATION MODEL AND RESEARCH DESIGN

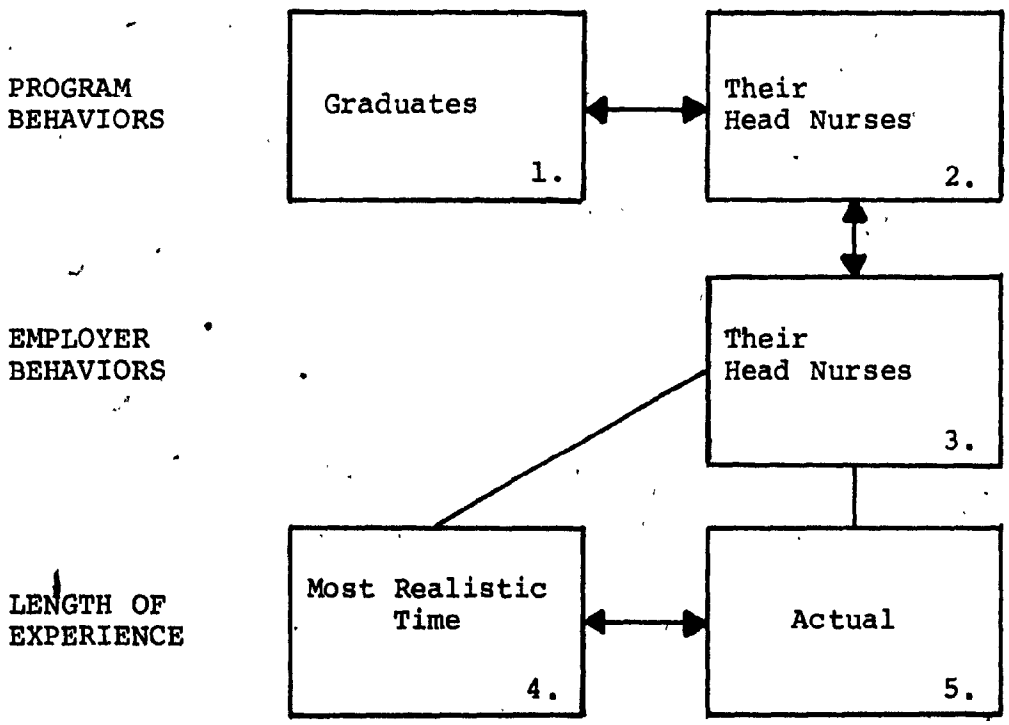
The general objective of this study was to determine whether the beginning diploma nursing graduates were being prepared for the nursing functions expected of them by their employer by measuring their performance level. All practising nurses are governed by the Québec Nurses Act upon graduation which defines four nursing functions as: assessing health needs, planning and providing patient care and reassessing health needs. These functions were further operationalized into program and employer nursing behaviors (see Appendices E, H).

Referring to Figure I., these behaviors are represented in Boxes 8 and 6 respectively.

The research design in Figure 2. illustrates the method of evaluation used to determine how well program and employer nursing behaviors were developed in the beginning graduate. In Boxes 1 and 2 the beginning graduates actual performance on the 10 John Abbott program behaviors was evaluated by the graduates themselves and their head nurses. The degree of agreement on performance was assessed by comparing their responses. In Box 3, their actual performance on the 10 expected employer nursing behaviors was evaluated by their head nurses. The degree of congruity between what was being taught with what was expected was assessed by comparing the head nurses' evaluations on these 2 scales (Boxes 2 and 3).

In Box 4, the most realistic time for attainment of given levels of performance on employer behaviors was determined

Figure 2: RESEARCH DESIGN: A Representation of the Process of Determining the Relationship between: Actual Performance Level of Graduates on Program Behaviors as indicated by Graduates and their Head Nurses (1,2), Graduates' Performance Level on Program and Employer Behaviors (2,3) and, Graduates' Performance Level on Program Behaviors, their Actual Length of Experience and Most Realistic Length of Experience for attaining given level (3,4,5).



by a group of head nurses who had experience with CEGEP nursing graduates. They were then used as standards of comparison for actual performance and actual length of experience of the beginning graduates in Boxes 3 and 5.

D. INSTRUMENTATION AND DATA GATHERING

The three instruments used for data gathering were: two lists of nursing behaviors representing nursing functions expected by the nursing program and employer and a rating scale. It was necessary to establish content validity and reliability of these instruments. The list of program nursing behaviors were validated for content by two JAC pediatric nursing teachers who were asked to categorize the 10 nursing behaviors according to one of the four nursing functions. One nursing behaviors fell under assessing health needs, three under planning patient care, five under providing patient care and one under reassessing health needs. (See Appendix E)

Two senior staff members working in the same nursing area categorized the employer nursing behaviors. Three behaviors fell under assessing health needs, two under planning patient care, three under providing patient care and two under reassessing health needs. (See Appendix H)

Employer nursing behaviors were equally distributed among the four nursing functions while those of the program emphasized planning and providing patient care.

Reliability of the program nursing behaviors was examined by using the same JAC teachers. They independently rated the

performance of five students that they had in common using the defined four level performance scale. (See Appendices D, E, F, G).

Inter-rater reliability on the 10 nursing behaviors was 0.89 ($p = .02$). Since this correlation was based on the ratings of only five students it must be interpreted with great caution; however, there seemed to be a trend of agreement between the ratings of the two teachers.

Reliability of the employer nursing behaviors was examined by using two senior staff members who worked with three John Abbott nursing graduates. They independently rated the performance of these graduates using the defined four level performance scale (see Appendices D, F, H, I). Inter-rater reliability on the 10 nursing behaviors was 0.99 ($p = .001$). In view of the low numbers available, this correlation is encouraging but not conclusive. See Appendix C for background information on these two groups of evaluators.

E. DATA COLLECTION

After obtaining the approval of the three Directors of Nursing at Hosp A, Hosp B and Hosp C, the researcher sent 21 head nurses a package containing instructions for use of instruments, two lists of nursing behaviors, a defined four level performance scale, a copy of graduate's consent form, two scaled response forms, additional comment form, background information sheet and self-addressed envelope (Appendices A, D-I). A similar package was sent to the JAC graduates.

Each head nurse and/or graduate were asked to assess the degree to which the beginning graduates displayed each item on the two lists of nursing behaviors. Their rating was to be based on a normal everyday workload. They rated the development of each behavior on a defined four level performance scale of "extremely limited" (1), "partially proficient"(2), "competent" (3), to "highly proficient"(4).

For head nurses rating two or more graduates two weeks was allowed while others were allowed one week. The answer sheets were returned in the self-addressed envelope by internal hospital mail to the contact person.

A second group of head nurses who had experience with beginning nursing graduates from CEGEP programs were sent a package containing a cover letter, background information sheet, instructions, a defined four level performance scale with time scale, answer sheet and a self-addressed envelope (Appendices H, J-M). They were asked to select the most realistic time for the attainment of each of the defined four levels of performance (see above). Answer sheets were returned within one week as above. A coding system was used to ensure confidentiality for all evaluators.

F. DATA ANALYSIS

A t-test was performed on the graduates' scores on the two lists of nursing behaviors to determine whether they were to be treated as one or three hospital groups.

Statistical tests for Hypothesis I were: Spearman's

rho, Kendall's tau, multiple regression and a scattergram. The mean actual performance scores of graduates on the two lists of nursing behaviors were compared. Tests for Hypothesis 2 were: mean, standard deviation, variance, Spearman's rho and a scattergram. The mean score for graduates' length of experience was computed. A comparison was made between mean actual performance scores on program behaviors between the graduates themselves and their head nurses. Item by item as well as overall mean performance were computed. Tests for Hypothesis 3 were: mean, standard deviation, variance and multiple regression. Using graduates' mean length of experience and actual performance score on employer behaviors a comparison was made with "the most realistic time" for the attainment of the particular level. Item by item as well as overall mean actual performance scores were computed.

V. RESULTS

For each of the 2 lists of nursing behaviors, the performance of JAC graduates was compared among hospitals A, B and C. Since all t-values did not attain statistical significance ($p=.05$), indicating that performance did not differ among hospitals, all JAC graduates in the sample were treated as a single group (Tables 1,2).

Hypothesis 1: The performance by the beginning diploma nursing graduates of the nursing function comprising the terminal objectives for third year students of the John Abbott nursing program correlate positively with their performance on those expected by their employer.

The Spearman rho 0.71 ($p < .001$) and Kendall's tau 0.51 ($p < .001$) indicate clearly that the performance of 30 JAC graduates on the 10 program behaviors had a high positive correlation with the 10 employers behaviors. Hypothesis 1 is, therefore, substantiated. (See Appendices E, H.)

Hypothesis 2: that 75 percent of these graduates would perform the nursing functions comprising the terminal objectives for third year students of the John Abbott nursing program at the competent level.

As shown on Table 3, the 10 head nurses who had experience with beginning graduates from CEGEP programs indicated that the beginning graduate from these programs should attain the "competent" level after six months on the job.

TABLE 1: Mean, Standard Deviation, Standard Error, T Value, 2-Tail Problem for Actual Performance of 30 JAC Graduates on 10 Program Behaviors as Determined by their Head Nurses (APIHN) at Hosp A and B; Hosp B and C; and Hosp A and C. Statistically all same Group if Table Value does not exceed ±2.06, ±2.26, ±2.07 (p=.05) Respectively.

GROUP 1 - HOSP EQ 1. = HOSPA
GROUP 2 - HOSP EQ 2. = HOSPB

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
APIHN ACTUAL PERFORMANCE OF GRADS ON INST1 BY							
GROUP 1	19	26.4211	3.834	.880			
GROUP 2	6	25.8333	5.193	2.120	.30	23	.766

GROUP 1 - HOSP EQ 2. = HOSPB
GROUP 2 - HOSP EQ 3. = HOSPC

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
APIHN ACTUAL PERFORMANCE OF GRADS ON INST1 BY							
GROUP 1	6	25.8333	5.193	2.120			
GROUP 2	5	28.2000	2.588	1.158	-.92	9	.380

GROUP 1 - HOSP EQ 1. = HOSPA
GROUP 2 - HOSP EQ 3. = HOSPC

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
APIHN ACTUAL PERFORMANCE OF GRADS ON INST1 BY							
GROUP 1	19	26.4211	3.834	.880			
GROUP 2	5	28.2000	2.588	1.158	-.97	22	.341

TABLE 2: Mean Standard Deviation, Standard Error, T Value, 2-Tail Problem for Actual Performance of 30 JAC Graduates on 10 Employer Behaviors as Determined by their Head Nurses (AP2HN) at Hosp A and B, Hosp B and C, and Hosp A and C. Statistically all same Group if Table Value does not exceed ±2.06, ±2.26, ±2.07 (p=.05) Respectively.

GROUP 1 - HOSP EQ 1. = HospA
GROUP 2 - HOSP EQ 2. = HospB

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
AP2HN ACTUAL PERFORMANCE OF GRADS ON INST2 BY							
GROUP 1	19	26.5789	4.464	1.024			
					-.04	23	.969
GROUP 2	6	26.6667	5.820	2.376			

GROUP 1 - HOSP EQ 2. = HospB
GROUP 2 - HOSP EQ 3. = HospC

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
AP2HN ACTUAL PERFORMANCE OF GRADS ON INST2 BY							
GROUP 1	6	26.6667	5.820	2.376			
					-.84	9	.425
GROUP 2	5	29.0000	2.345	1.049			

GROUP 1 - HOSP EQ 1. = HospA
GROUP 2 - HOSP EQ 3. = HospC

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
AP2HN ACTUAL PERFORMANCE OF GRADS ON INST2 BY							
GROUP 1	19	26.5789	4.464	1.024			
					-1.16	22	.259
GROUP 2	5	29.0000	2.345	1.049			

TABLE 3: Most Realistic Times for the attainment of each Level of Performance as determined by 10 other Head Nurses.

* Most Realistic Times stated in terms of median since there was a wide range;

** P.G. means Pre-Graduation.

Four Levels of Performance on Rating Scale	Most Realistic Times*
1. Extremely Limited	P.G.**
2. Partially Proficient	2 mo.
3. Competent	6 mo.
4. Highly Proficient	15 mo.

Table 4 shows that graduates were employed in their present position for a mean time of 8.3 months (n=25), and that they achieved a mean actual performance level score 26.6 (n=30) on the 10 program behaviors or an average of 2.7 per behavior.

Since the competent level of performance on the four level performance scale is 3.0, and since 6 months is "the most realistic time" to attain this level, there is a performance deficit of 0.3 with a 2 months delay. Only 7 graduates (23%) attained the expected performance level, however, variance of performance scores was small.

TABLE 4: Mean, Standard Deviation and Variance of Actual Performance by 30 JAC Graduates: on Program Behaviors as determined by their Head Nurses (APIHN) and Self-Evaluation (APIG); on Employer Behaviors as determined by their Head Nurses (AP2HN). Graduates' length of experience shown (GLOE). A competent level of performance is a mean of 30.0 or greater.

VARIABLE	API HN	ACTUAL PERFORMANCE OF GRADS ON INST1 BY			
MEAN	26.600	STD DEV	3.909	VARIANCE	15.283
VALID CASES	30	MISSING CASES	0		
VARIABLE	API G	ACTUAL PERFORMANCE OF GRADS ON INST1 BY			
MEAN	32.074	STD DEV	3.842	VARIANCE	14.764
VALID CASES	27	MISSING CASES	3		
VARIABLE	AP2HN	ACTUAL PERFORMANCE OF GRADS ON INST2 BY			
MEAN	27.000	STD DEV	4.449	VARIANCE	19.793
VALID CASES	30	MISSING CASES	0		
VARIABLE	GLOE	GRADS LENGTH OF EXPERIENCE			
MEAN	8.320	STD DEV	2.135	VARIANCE	4.560
VALID CASES	25	MISSING CASES	5		

Table 5 shows a breakdown of the actual performance scores of the graduates on each of the 10 program behaviors. only on behavior 9, "reports and charts effects of nursing actions on the patient", were they performing at the competent level. There was a Spearman rho -.03 for n = 25 (p = .42) between mean actual performance score of graduates and their length of experience. Actual performance scores were cross-tabulated with length of experience. Table 6 indicates that 3 of the 5 low achievers had 10 months (median) of experience and that 3 of the 7 high achievers had either 4 or 7 months of experience. The trend with this small sample of 12 suggests that experience was having differential effects on these graduates. Since there was no linear relationship evident between performance level and length of experience, it was impossible to say at what point they would achieve the competent level.

The self-rating of the graduates on the same behaviors was computed to compare their view of their performance with the views of their head nurses. Table 4 indicates that the graduates saw their mean actual performance in better light than did their head nurses. The graduates felt that they achieved the third terminal objective of the nursing program and were performing competently all 10 items. These results indicated a discrepancy between the graduates and their head nurses in rating of actual performance. The former saw themselves as being above the mean expected competent level and the latter saw them below. There was a Spearman rho .11,

TABLE 5: Mean, Standard Deviation and Variance of Actual Performance by 30 JAC Graduates on each of the 10 Program Behaviors (ITI-10). A competent level of performance is a mean 3.0 or greater.

VARIABLE	IT1	FIRST TEST ITEM			
MEAN	2.533	STD DEV	.507	VARIANCE	.257
VARIABLE	IT2	SECOND TEST ITEM			
MEAN	2.833	STD DEV	.592	VARIANCE	.351
VARIABLE	IT3	THIRD TEST ITEM			
MEAN	2.400	STD DEV	.563	VARIANCE	.317
VARIABLE	IT4	FOURTH TEST ITEM			
MEAN	2.400	STD DEV	.770	VARIANCE	.593
VARIABLE	IT5	FIFTH TEST ITEM			
MEAN	2.867	STD DEV	.681	VARIANCE	.464
VARIABLE	IT6	SIXTH TEST ITEM			
MEAN	2.400	STD DEV	.675	VARIANCE	.455
VARIABLE	IT7	SEVENTH TEST ITEM			
MEAN	2.867	STD DEV	.730	VARIANCE	.533
VARIABLE	IT8	EIGHTH TEST ITEM			
MEAN	2.567	STD DEV	.728	VARIANCE	.530
VARIABLE	IT9	NINTH TEST ITEM			
MEAN	3.133	STD DEV	.507	VARIANCE	.257
VARIABLE	IT10	TENTH TEST ITEM			
MEAN	2.700	STD DEV	.535	VARIANCE	.286

TABLE 6: Relationship between Low and High Achievers on Program Behaviors and Length of Experience.

Low Achievers have mean scores between 2.1-2.4.

High Achievers have mean score over 3.0

Median score of length of experience is 10 months for both groups of achievers.

JAC graduates	Achievers and Length of Experience		
	Low Achievers	Length of Experience	High Achievers
1	2.4	10 mos.	
2	2.1	4	
3	2.3	10	
4	2.4	10	
5	2.1	7	
6		10	3.0
7		4	3.4
8		10	3.6
9		10	3.2
10		7	3.0
11		10	3.0
12		7	3.1

n27 (p=.28) between the ratings of the graduates and their head nurses, indicating no agreement in their ratings. A Spearman rho -.05, n24 (p=.40) indicated no relationship between their self-rating and their length of experience. Hypothesis 3: that 75 percent of these graduates would perform the nursing functions expected by their employer at the competent level.

Table 4 indicates the mean actual performance score of the graduates on the 10 employer behaviors. The variance was slightly higher than on the program behaviors.

Comparing their mean actual performance score 2.7 per behavior and mean length of experience time 8.3 months with the expected performance level 3.0 per behavior at 6 months, there is a performance deficit of 0.3 with a 2 month time delay. Only 9 graduates (30%) attained the expected performance level.

Although only thirty percent of the graduates attained the expected performance level, the variance of the performance scores on the employer behaviors was small.

Table 7 shows a breakdown of the actual performance scores of the graduates on each of the 10 employer behaviors. Only on behavior 6 (checks carefully to see that everything is done for her patients that should be done) was the average performance at the competent level.

There was a Spearman rho .08, n=25 (p=.34) between actual performance of the graduates as determined by their head nurses, and graduates' length of experience. There is,

TABLE 7 : Mean, Standard Deviation and Variance of Actual Performance of 30 JAC Graduates on each of the 10 Employer Behaviors (ITI-10). A competent level of performance is a mean 3.0 or greater.

VARIABLE	IT1	FIRST TEST ITEM			
MEAN	2.700	STD DEV	.596	VARIANCE	.355
VARIABLE	IT2	SECOND TEST ITEM			
MEAN	2.867	STD DEV	.681	VARIANCE	.464
VARIABLE	IT3	THIRD TEST ITEM			
MEAN	2.433	STD DEV	.679	VARIANCE	.461
VARIABLE	IT4	FOURTH TEST ITEM			
MEAN	2.500	STD DEV	.731	VARIANCE	.534
VARIABLE	IT5	FIFTH TEST ITEM			
MEAN	2.667	STD DEV	.547	VARIANCE	.299
VARIABLE	IT6	SIXTH TEST ITEM			
MEAN	3.000	STD DEV	.587	VARIANCE	.345
VARIABLE	IT7	SEVENTH TEST ITEM			
MEAN	2.900	STD DEV	.712	VARIANCE	.507
VARIABLE	IT8	EIGHTH TEST ITEM			
MEAN	2.700	STD DEV	.651	VARIANCE	.424
VARIABLE	IT9	NINTH TEST ITEM			
MEAN	2.667	STD DEV	.479	VARIANCE	.230
VARIABLE	IT10	TENTH TEST ITEM			
MEAN	2.367	STD DEV	.669	VARIANCE	.447

therefore, no significant relationship between these variables. A further breakdown of actual performance scores among low and high achievers in relation to length of experience is shown in Table 8. Although 4 of the low achievers had the median length of experience. they still did not meet expected performance level, whereas 4 of the high achievers had less than the median length of experience but managed to meet expected performance level. The trend with this small sample of 12 suggests that experience was having differential effects on graduates.

The results of applying multiple regression analysis to mean actual performance scores on the two lists of behaviors indicates that experience is not a reliable predictor of performance.

TABLE 8: Relationship between Low and High Achievers on Employer Behaviors and Length of Experience.

Low Achievers have mean scores between 1.7-2.4.

High Achievers between 3.0-3.6.

Median score for length of experience is 10 months for both groups of Achievers.

JAC graduates	Achievers and Length of Experience		
	Low Achievers	Length of Experience	High Achievers
1	2.4	10 mos.	
2	1.7	10	
3	2.1	10	
4	2.4	10	
5	2.3	7	
6	2.1	7	
7	2.0	4	
8		7	3.0
9		10	3.0
10		10	3.0
11		7	3.0
12		10	3.2
13		10	3.5
14		4	3.6
15		10	3.1
16		7	3.2

VI. DISCUSSION

A. SUMMARY OR RESULTS

The study focused on a sample of 30 beginning JAC diploma nursing graduates who were employed for a mean time of 8.3 months in mainly surgical, medical and pediatric nursing areas at three major Montreal hospitals.

The findings can be summarized as follows:

1. The performance of beginning JAC graduates on nursing functions expected by the employer was significantly correlated with their performance on functions expected in the nursing program.
2. Only 23 percent of the graduates were performing the program nursing functions at the competent level. Only 30 percent of them were performing the employer nursing functions at the competent level.
3. Item by item analysis indicated that the graduates were performing at less than the competent level on all program behaviors related to assessing health needs, planning patient care, and reassessing health needs. On providing patient care they were evaluated as competent on only one of five behaviors - "reports and charts effects of nursing actions on the patient."

They were seen as less than competent in performance on all employer behaviors related to assessing health needs,

planning and providing patient care. On reassessing health needs they were competent in performing one of the two behaviors - "checks carefully to see that everything is done for her patients that should be done."

4. Their actual performance on program and/or employer behaviors was not correlated with their length of experience.

5. The graduates viewed their own performance as competent on all program behaviors related to assessing health needs, planning and providing patient care and reassessing health needs.

In conclusions, the graduates were taught the functions expected by the employer but they were unable to perform them at the expected level.

B. INTERPRETATION OF RESULTS

Since there was a high positive correlation between actual performance on program nursing functions with those expected by the employers, there was strong indication that the program content was appropriate. This finding is not surprising since nursing functions are defined by the Québec Nurses Act; both college program and job description are derived from these functions.

Recommendation 13 states that it is recommended that the Department of Education, the Department of Social Affairs and the Order of Nurses of Québec establish procedures in hospital centers that will facilitate the integration of young graduates into the labour market (ONQ, 1974). The question arises then

as to why the graduates were seen as less than competent after eight months of experience. Head nurses and graduates were asked to respond to questions concerning suitability of unit for placement, suitability of orientation program, orientation needs of graduates compared to other graduates and acceptability of graduate's nursing care. They responded by selecting one of four choices ranging from weakly disagree to strongly agree. The responses of both groups were in strong agreement with each of the questions; therefore, only the percentages for each group in agreement with each question are shown on Table 9. They agreed that the units used for placement of the graduates provided experience to further consolidate their nursing skills and provided them with learning experiences with which they could cope and obtain necessary support; that the hospital orientation program was adequate for meeting the needs of the graduates; that the orientation needs of the graduates were similar to other beginning graduates; that few revisions were necessary to the usual orientation program; and that the nursing care provided by the graduates was adequate. The latter contradicts the finding that the performance by the graduates of program and employer functions was less than competent. No information about the orientation program was collected.

In view of the low variation in actual performance scores of the graduates on the employer and program behaviors and the strong agreement amongst the head nurses to the above questions, there is strong indication that the four level rating scale produced extreme response bias. Perhaps a five level

TABLE 9: Percentage of 18 Head Nurses and of 27 Graduates in Agreement with the Suitability of Unit for Placement of Graduates, Suitability of Hospital Orientation Program and Acceptability of Graduates' Nursing Care.

QUESTIONS ASKED HEAD NURSES AND GRADUATES	Percentage in Agreement	
	Head Nurses	Grads
Suitability of unit for placement:		
1. Provides experience to consolidate nursing skills	96.3	88.8
2. Provides learning experience with which graduate can cope and obtain support	96.3	100.0
Suitability of orientation program		
1. Orientation needs of JAC graduate similar to other graduates	88.9	96.0
2. Usual orientation program meets these needs	88.9	84.6
3. Usual orientation program requires certain revisions	33.3	30.7
Acceptability of graduate's nursing care		
1. Nursing care of graduate acceptable	89.3	96.8

scale would have provided a more accurate and positive reading on actual performance level.

Additional comments provided by their head nurses indicated that the graduates lacked clinical experience when hired. One head nurse used the term "reality shock" to describe what many head nurses described as inability to cope with a normal work-load of patients. In some nursing areas, this workload was 8-11 patients. Further, they were seen as having problems in organizing, planning and providing nursing care in the areas of setting priorities amongst a number and variety of day's activities and in pacing these activities. Consequently, they were dependent on other nursing staff members for guidance and reassurance. Other problems identified by their head nurses were: lack of knowledge of day-to-day running of the ward and in preparing medications.

All in all, general satisfaction was expressed with the graduates' knowledge base and dissatisfaction with their clinical experience. It was never specifically stated what the problem was with their clinical experience, whether it was deficient in duration or nature or both. In this regard, this study confirms conclusions of studies conducted by Allen, (Allen, 1971), Order of Nurses (ONQ, 1974), and the Ministry of Colleges and Universities Province of Ontario (Ministry, 1978).

The second question which arises from the findings was the reason for the discrepancy between the evaluations of the graduates themselves and their head nurses. This problem did not exist between the beginning graduates and their supervisors in a previous study (Ministry, 1978). The latter were in strong

agreement as to the problem. Possible factors contributing to discrepancy between head nurses' and graduates' findings in this study are: 1. the beginning graduates were accustomed to evaluating themselves as students using behavioral items, therefore, they may have had more familiarity with the terminology; 2. inadequate feedback about the graduates' performance from their head nurses; 3. inadequate knowledge of head nurses' performance expectations; 4. difference in performance expectations between their head nurses and their former nursing teachers and 5. four-level rating scale produced an extreme response bias.

C. INTEGRATION OF FINDINGS

This study indicated that the head nurses in three major Montreal hospitals regard the performance on four nursing functions by the beginning John Abbott diploma nursing graduates as less than competent; that their orientation needs were similar to other beginning graduates; that the orientation program was adequate to meet their needs; that few revisions were required to this program to accommodate their needs; that length of experience had different effects on their performance; that the beginning graduates were in disagreement with their head nurses about their performance; and that, although the beginning graduates had many positive characteristics, they lacked clinical experience even after eight months of experience.

It would seem that the head nurses were generally unhappy with the performance of the beginning graduates but it was possible that the four-level rating scale produced an extreme response bias

as indicated by few extreme responses. It was possible that the beginning graduate initially didn't have either a sufficient amount of clinical experience or exposure to the range of responsibilities and activities which would likely confront them as graduates but it was also possible that they lacked the necessary guidance and support to help them consolidate their previous learning in their present work situation.

Due to budgetary restraints, many employers feel that new staff must be capable of functioning independently following a period of orientation to their hospital's policies and procedures. This, together with the relatively small salary differentials between beginning graduates and experienced graduates, leads employers to believe that they have the right to expect graduates to carry out the full responsibilities of a graduate nurse independently and efficiently within a period of not more than several months (Ministry, 1978).

D. RECOMMENDATION

Given the present structure of clinical nursing experience and the general dissatisfaction expressed by head nurses about it, certain changes are needed in the program to improve the beginning graduate's performance of nursing functions. It is, therefore, on this basis that the following recommendations are made in reference to the systems model shown on Figure I. They are:

1. closer liaison between the employer (6) and the nursing teacher (7) to reduce the distance between nursing education

and nursing service since both have as their main goal "the provision of individualized patient care."

2. student characteristics (1) should be monitored more closely with the view of matching learning styles to teaching styles (Gagné and Briggs, 1974); 3. restructuring of clinical experiences (7) to permit the student a wider range of realistic experiences to facilitate her functioning as a health team member later; 4. either development or revision of the hospital orientation program (6) to meet the needs of the beginning graduate; 5. improved guidance and support from the head nurse and her staff (6) to help the beginning graduate either consolidate previous learning or provide new learning; 6. development of a standardized measuring tool for nursing teachers and head nurses to measure level of performance on nursing functions of students and staff (7,6); 7. development of a standardized checklist of behaviors required for each nursing function (7,6).

The role of the educational technologist in this study was to define the context of the problem, state the hypothesis, review the literature on nursing and other studies relevant to the problem and concerning evaluation methods and design, outline and define the nursing educational system, select and outline the evaluation design, select and pre-test the measuring tools for reliability and content validity, select and define the population to be tested, implement the data gathering and data analysis plan, report and interpret the findings and use the findings as input either to make recommendations

for needed changes within the system or as topics of future study.

E. EXTENSIONS

The results of this study suggest a need for further refinement of tools for evaluating the nursing performance of students and graduate nurses. All tools were pretested for their reliability and content validity and no problems were reported by the evaluators in their use. However, it is suggested that a standardized checklist of criteria be stated for each behavior listed in Appendices E and H. Achievement of each behavior can be measured either as "satisfactory" or "unsatisfactory" or in degrees of performance. Criterion-referenced testing increases objectivity, since the evaluators know exactly the criteria for judging each behavior and the nurse is judged purely on whether or not she has met the performance criteria. It is further suggested that the number of levels on the rating scale be increased from four to five to allow for more variation in response.

Further study is needed in the areas of: 1. student's clinical experience in terms of its nature, kind and duration, methods of teaching, and performance expectations, and 2. hospital orientation programs and their ability to meet the needs of the beginning graduate.

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APPENDIX A

December, 1977.

Dear Nursing Graduate of the Class of 1977,

To fulfil a thesis requirement for a M.A. in Educational Technology at Concordia University, I am planning a study to identify the characteristics and the performance of the beginning diploma nursing graduate in the work world.

Since the advent of the nursing diploma programme in the CEGEP system in September, 1967 no formal study had been undertaken to evaluate the performance of its graduates.

As a nursing teacher on an educational leave of absence, I have the time, knowledge and desire to undertake such a long overdue project. Hopefully, the findings of this study will provide the impetus for further full scale evaluation studies which will be of benefit to nursing.

For this study I have chosen May, 1977 nursing graduates from John Abbott College who are presently employed in three Montreal hospitals as my sample of the typical CEGEP nurse. Sample selection will be based on employment in one of these hospitals and on area of employment within each of these hospitals

Since this is a small sample in relation to the total population of all possible CEGEP graduates, your participation is essential to the success of the project.

Your participation is two-fold. On the one hand, you will be asked to rate yourself. This should not be a problem for you since self-evaluation was a part of your diploma program. On the other hand, your head nurse will be asked to rate you in terms of your performance on her unit. Both aspects are essential for a complete evaluation.

To ensure confidentiality of information from both parties, all forms will be coded so that they can be paired on return.

The findings will be used to obtain a composite picture of the beginning John Abbott graduate within each of the three hospitals and amongst the three hospitals.

I have enclosed a consent form to be signed by you to indicate your willingness to participate in both aspects of this study.

Your co-operation is necessary for the success of this first formal evaluation. Please participate!

Thanking you in advance for your support. Forms and further instructions will be sent to you early in January when the study gets underway.

Yours truly,

Anne

Mrs. Anne Mines, N., B.N.

Please tear off and return -

.....

CONSENT FORM

I, _____ (Name), plan to participate in the study involving May, 1977 nursing graduates of John Abbott College and thereby give my permission to my head nurse, _____ (Her name), on _____ (ward/unit), at _____ (Name of hospital), to evaluate me in terms of my clinical performance and fit on her unit.

DATE: _____

SIGNATURE: _____

APPENDIX B

Background information of Two Groups of Evaluations: 18 Head Nurses who rated Actual Performance of 30 JAC Graduates and 10 Head Nurses of CEGEP Graduates who selected most realistic time for attainment of four Defined Levels of Performance.

BACKGROUND INFORMATION	EVALUATORS			
I Highest level of preparation	18 HEAD NURSES OF JAC GRADS		10 HEAD NURSES OF CEGEP GRADS	
	f	%	f	%
R.N. Only	8	44	6	60
R.N. with univ. dipl.	2	11	2	20
R.N. with post basic deg.	4	22	—	—
Basic nurs. deg.	4	22	2	20
Total	18	99	10	100
II Obtained R.N.				
1-4 yrs. ago	2	11	—	—
5-9 yrs. ago	3	16	2	20
10-20 yrs. ago	10	55	5	50
Over 20 yrs. ago	3	16	3	30
Total	18	98	10	100
III Time in present position				
Under 11 mos.	5	26	1	10
1-4 yrs.	7	38	6	60
5-9 yrs.	4	22	2	20
Over 10 yrs.	2	11	1	10
Total	18	97	10	100
IV Nursing area				
Surgical	4	22	6	60
Medical	9	50	2	20
Pediatric	3	16	—	—
Other	2	11	2	20
Total	18	99	10	100

APPENDIX C

Background information of Two Groups of Evaluators Responsible for Checking Reliability and Content Validity of Employer and Program Behaviors.

BACKGROUND INFORMATION	EVALUATORS			
I Highest level of preparation	EMPLOYER		PROGRAM	
	1	2	1	2
RN with univ. dipl.	1			
RN with post basic deg.			1	1
Basic nurs. degr.		1		
II How long since you obtained your R.N.				
5-9 years				1
10-20 years		1	1	
Over 20 years	1			
III Time in present position				
9-11 months				1
1-4 years				
5-9 years	1		1	
Over 10 years		1		
IV Nursing areas				
Medical	1	1		
Pediatric			1	1

APPENDIX D

INSTRUCTIONS FOR ANSWERING INSTRUMENT FORM I AND II

1. Please do not provide any identification. "Instrument Form I and II" are coded to provide confidentiality.

2. You need "Instrument Form I", "List of Nursing Behaviors I" and "Rating Scale."

3. The numbers and statements on "List of Nursing Behaviors I" correspond to the numbers under the heading "Statement" in the left-hand column of "Instrument Form I."

4. Beginning John Abbott graduates and their head nurses will use these two instruments.

5. The headings "Extremely Limited", "Partially Proficient", "Competent" and "Highly Proficient" refer to the level of performance of each of the given 10 "Nursing Behaviors."

6. The numbers 1, 2, 3 and 4 appearing under the headings "Extremely Limited" to "Highly Proficient" respectively represent a value scale assigned to the level of performance on each of the given 10 "Nursing Behaviors."

7. Place "Instrument Form I", "List of Nursing Behaviors I" and "Rating Scale" side by side in front of you.

8. Read each statement on the "List of Nursing Behaviors I" and opposite its corresponding number on the "Instrument Form I" circle the value (1 or 2 or 3 or 4) which most represents the beginning John Abbott graduate's level of performance for each. (See signed consent form granting you permission to do this.)

9. Even if you are unsure of the choice, circle one of the values. PLEASE do not leave blanks.

10. Please check to see that you have 10 circles and that you have made no mistakes.

11. Use the "Additional Comment" section for further information about performance either on any aspect of the 10 given "Nursing Behaviors" or on any other nursing behavior which may have been omitted.

12. Fill out "Background Information" sheet.

...../2

Instructions for Answering Instrument Form I and II (cont'd)

13. Head Nurses will repeat the same procedure using "Instrument Form II", "List of Nursing Behaviors II" and "Rating Scale."

14. Return "Instrument Form I and II", "List of Nursing Behaviors I and II", "Rating Scale", "Background Information" and "Additional Comments" sheets in a self-addressed envelope provided.

15. Forms are to be returned by 0900 hrs. Monday, March 6, 1977.

APPENDIX E

LIST OF NURSING BEHAVIORS I

1. Selectively observes the behavior of several patients.

2. Takes precautionary measures to prevent unnecessary injury to patients.

3. Plans care for several patients according to their priority needs.

4. Involves the patient in the plan of care.

5. Carries out procedures and techniques involved in the preparation and administration of medications and I/V therapy.

6. Carries out the procedures and techniques involved in more complex treatments.

7. Anticipates the needs of the patient.

8. Carries out plan of care for several patients.

9. Reports and charts effects of nursing actions on the patient.

10. Adapts nursing actions to changing patient needs.

APPENDIX F

RATING SCALE

Please use these definitions to help you decide how well each of the given nursing behaviors is developed in the beginning John Abbott graduate nurse.

1. EXTREMELY LIMITED
   Can do simple parts of the task. Needs to be shown how to do most of task.

2. PARTIALLY PROFICIENT
   Can do most parts of the task. Needs help only on hardest parts. May be slow and lacking in accuracy.

3. COMPETENT
   Can do all parts of task. Needs only a spot check of completed task. Speed and accuracy acceptable.

4. HIGHLY PROFICIENT
   Can do the complete task quickly and accurately. Can tell or show others how to do the task.

Code:

APPENDIX G

INSTRUMENT FORM I

How well developed are these behaviors in the beginning graduate of the John Abbott diploma program? Please place a circle around the approptiate number.

STATEMENT	EXTREMELY LIMITED	PARTIALLY PROFICIENT	COMPETENT	HIGHLY PROFICIENT
1.	1	2	3	4
2.	1	2	3	4
3.	1	2	3	4
4.	1	2	3	4
5.	1	2	3	4
6.	1	2	3	4
7.	1	2	3	4
8.	1	2	3	4
9.	1	2	3	4
10.	1	2	3	4

APPENDIX H

LIST OF NURSING BEHAVIORS II

1. Observes and gathers relevant information on which she bases her assessment of patient needs.

2. Follows through on her plan of nursing care.

3. Is efficient and skilled in the performance of nursing procedures and techniques.

4. Recognizes the realities of the nursing situation on the ward and plans from there.

5. Uses knowledge appropriately in coming to nursing decisions.

6. Checks carefully to see that everything is done for her patients that should be done.

7. Continues each day to know more about her patients as a basis for predicting their needs.

8. Follows nursing routines relating to easy ambulation of patients, preparation for discharge, specific teaching plans, etc.

9. Provides helpful ideas and suggestions about the care of patients in the ward.

10. Knows the usual conditions so well that she is able to anticipate her patients' needs.

Code:

APPENDIX I

INSTRUMENT FORM II

How well developed are these behaviors in the beginning graduate of the John Abbott diploma program? Please place a circle around the appropriate number.

STATEMENT	EXTREMELY LIMITED	PARTIALLY PROFICIENT	COMPETENT	HIGHLY PROFICIENT
1.	1	2	3	4
2.	1	2	3	4
3.	1	2	3	4
4.	1	2	3	4
5.	1	2	3	4
6.	1	2	3	4
7.	1	2	3	4
8.	1	2	3	4
9.	1	2	3	4
10.	1	2	3	4

APPENDIX J

April, 1978

Dear Head Nurses,

I have recently finished collecting information from some head nurses in this hospital concerning the actual performance of a sample of John Abbott diploma graduate nurses of the class of May, 1977.

These head nurses evaluated the actual performance of these graduates on certain nursing functions using a given four level rating scale.

In order to do a meaningful analysis of this data, I need further information about the rating scale itself. More specifically, I need another group of head nurses who have experience with CEGEP nurses to estimate when these nurses should be functioning at each of the four levels of performance stated on this rating scale. (CAUTION: I am not asking for actual performance but rather a realistic time for the attainment of each of the four stated levels.)

The study defines the beginning diploma graduate nurse as "one who has been a graduate for less than one year and who, therefore, has been practising as a nurse for less than one year."

I am essentially interested in establishing baseline times for the attainment of each level.

Yours very truly,

A Mines

(Mrs.) A. Mines

APPENDIX K

INSTRUCTIONS

1. Read over the four levels of performance (1,2,3,4) stated on "Rating Scale" as well as the "Time Scale" at the bottom of the same page.
2. There are three divisions on the "Time Scale", e.g. pregraduation (P.G.), first year since graduation and second year since graduation.
3. "The first year since graduation" period is divided into 12 months; "the second year since graduation" period is divided in half only.
4. Consider the time choice available for the attainment of each of the four levels. Select one time only for each level.
5. Write the time choice in the box provided opposite each of the four levels of performance on the answer sheet.
6. Return your answer sheet and background information in the envelope provided by Friday, April 28, 1977.

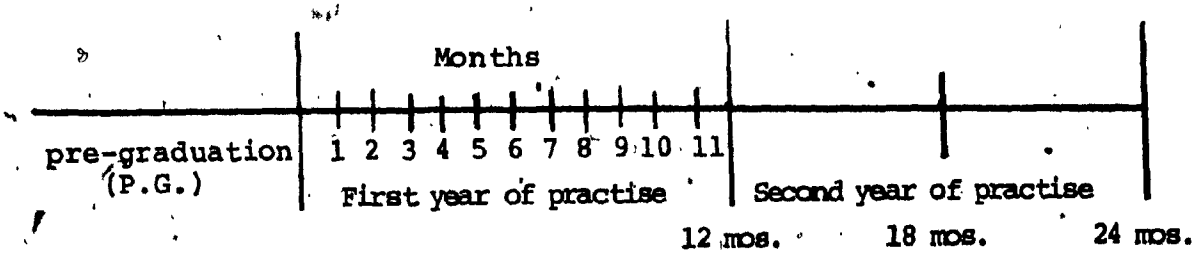
APPENDIX L

RATING SCALE

This is a four level scale used to evaluate the performance of nursing functions.

1. EXTREMELY LIMITED: Can do simple parts of the task. Needs to be shown how to do most of task.
2. PARTIALLY PROFICIENT: Can do most of the task. Needs help only on hardest parts. May be slow and somewhat lacking in accuracy.
3. COMPETENT: Can do all parts of the task. Needs only a spot check of completed task. Speed and accuracy acceptable.
4. HIGHLY PROFICIENT: Can do the task quickly and accurately. Can tell or show others how to do the task.

TIME SCALE



APPENDIX M

ANSWER SHEET

From the "Time Scale" select the most realistic time, based on your experience, by which the beginning CEGEP diploma graduate nurse should have attained each of the four levels of performance stated on the "Rating Scale."

Write one time in each box provided opposite each level as follows:

A. LEVEL I (EXTREMELY LIMITED) A. ☐

B. LEVEL 2 (PARTIALLY PROFICIENT) B. ☐

C. LEVEL 3 (COMPETENT) C. ☐

D. LEVEL 4 (HIGHLY PROFICIENT) D. ☐

APPENDIX N

Air Force proficiency code for technical training

PROFICIENCY CODE KEY		
	SCALE VALUE	DEFINITION: The Individual
* TASK PERFORMANCE LEVELS	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. May not meet local demands for speed or accuracy. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. Meets minimum local demands for speed and accuracy. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
* TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can name the steps in doing the task and tell how each is done. (PROCEDURES)
	c	Can explain why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, identify, and resolve problems about the task. (COMPLETE THEORY)
** SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can explain relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

– EXPLANATIONS –

* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Examples: b and 1b)

** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.

\- This mark is used alone instead of a scale value to show that the individual needs no training in task performance, task knowledge, or subject knowledge at this skill level.

X This mark is used alone in ATC course columns to show that training is not given due to limitations in ATC resources.

APPENDIX O

I. FUNCTION COMPETENTLY AS A HEALTH TEAM MEMBER IN A VARIETY OF SETTINGS.

1. Participate in the coordination and integration of personnel and facilities involved in the total plan of therapy.

2. Initiate referrals to voluntary and official agencies which provide services to all age groups.

II. UTILIZE HER KNOWLEDGE OF PHYSICAL, BIOLOGICAL AND BEHAVIORAL SCIENCES WHEN PROVIDING NURSING CARE TO INDIVIDUALS OF ALL AGES.

1. Demonstrate integration of knowledge (physical and behavioral) when providing nursing care.

2. Utilize scientific principles and/or rationale as the basis for nursing interventions.

IV. COMMUNICATE EFFECTIVELY WITH INDIVIDUALS RECEIVING HEALTH CARE, THEIR FAMILIES, MEMBERS OF THE HEALTH TEAM AND COMMUNITY AGENCIES:

1. Participate as a member of a peer group.

2. Develop a leadership role within the nursing team.

3. Assess her own behaviour and that of others.

4. Modify her approach to effect change in the behaviour of others.

5. Utilize therapeutic techniques of communication with patients and families.

6. Evaluate the effectiveness of communication techniques.

V. PROVIDES HEALTH TEACHING TO AN INDIVIDUAL AND/OR HIS FAMILY WHICH WILL CONTRIBUTE TO THE PREVENTION OF ILLNESS, MAINTENANCE OF HEALTH, RECOVERY FROM ILLNESS OR A PEACEFUL DEATH.

1. Using the steps of the nursing process teach individual and family.

VI. ACT IN ACCORDANCE WITH THE LEGAL AND ETHICAL RESPONSIBILITIES OF A GRADUATE NURSE.

1. Provide nursing care in accordance with provincial legislation governing nursing practice.

2. Prepare and administer medications in accordance with legal requirements.

3. Maintain a professional appearance and demeanor in the clinical setting.

4. Establish a professional relationship with individuals assigned to her care and with other health team members.

VII. EVALUATE HER NURSING ABILITY AND TAKE ACTIONS THAT WILL CONTINUE HER DEVELOPMENT AS A PROFESSIONAL.

1. Utilize resource materials and health team members to develop her nursing ability.

2. Assume responsibility for her own learning and professional development.