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SEPTEMBER 1973

TEACHING AS GUIDANCE OF LEARNING

GROUP METHODS AND PERSONAL GROWTH

IDENTIFICATION OF LEARNING NEEDS
BY MEANS OF CRITICAL EVENTS

CONCEPT TEACHING IN NURSING

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SEPTEMBER 1973

This is the second of three issues of Nursing Papers for 1973, during which we have come half-way towards becoming a quarterly. Our next issue will appear in November. And starting with Spring, 1974, we will publish four times a year. We are continuing to charge \$1.00 per issue, and have adjusted our subscription rates accordingly.

A colleague wrote us asking how we handled articles submitted to Nursing Papers. Each article is circulated to the Committee on Nursing Papers, which meets at intervals to review the contents of the magazine. With our increased frequency of publication, we will be planning several issues ahead, meeting more often, and reporting more quickly.

From time to time we ask authors to expand articles, and a common request is that actual situations, observations and concrete examples be included. Ideally, we hope that each article presents sufficient evidence to permit the reader to think independently of the conclusions reached by the author. Then, readers with many different points of view can profit from the author's ideas and experiences.

Another way in which we hope to broaden the relevance of papers submitted to us, is by soliciting responses both before and after publication. In the former case, we will publish the article and the response simultaneously.

All four of the articles which follow bear upon the general topic of education in and for nursing. Your ideas about these topics, and your experiences in similar situations, are eagerly sought.

TEACHING AS GUIDANCE OF LEARNING

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THERE are many definitions of teaching, some of them complex, but a very simple one is that it is any activity designed to influence learning toward a pre-determined goal. The learning may be cognitive, affective or psychomotor. Teaching has a distinctive connotation of rational explanation and critical dialogue, the goal of which is to "develop learning in which the student will be capable of backing his beliefs by appropriate and sufficient means"(1). Teaching is a complex form of interaction between teacher and students or between students and is concerned with subject matter of some kind. It is the sort of interaction which exposes the teacher's underlying judgement to the critical evaluation of students and invites the student to form and submit his own judgement to critical appraisal(2). In this view the teacher is seen as a facilitator of learning rather than a transmitter of knowledge alone, and learners become active participants in the process of their own learning.

Teaching is an essentially human and humane interaction. "To teach is to touch someone's life in progress and in so doing, one hardly remains untouched oneself."(3)

Erickson stated,

And man needs to teach, not only for the sake of those who need to be taught, and not only for the fulfillment of his identity, but because facts are kept alive by being told, logic by being demonstrated, truth by being professed. Thus, the teaching passion is not restricted to the teaching profession. Every mature adult knows the satisfaction of explaining what is dear to him and of being understood by a groping mind.(4)

During a period of stability or slowly expanding knowledge and technology, in which the adult could be in control of the known and needed facts and processes, motivating the student to learn what was necessary was accepted as a teaching task. In a period of rapid change

on all fronts simultaneously, it is impossible to feel confident of one's capability to transmit the field of knowledge or even a narrow segment of it. Our task as teachers has become one of "initiating the young into the life-long venture of learning on their own initiative"(5), of assisting them in their task of learning how to learn, of providing the guidance and opportunities for them to experience the exasperation and the joy of learning. If the student is fortunate enough to enjoy a "peak experience" he may be committed to learning throughout his lifetime. If he fails to achieve a deep satisfaction, he may remain uncommitted and dependent upon external stimulation for continuing professional growth.

If both teachers and students accept teaching as a means of mobilizing and expanding the student's capacity for self-instruction, and both participate fully in the interaction, then both teacher and students must be authentic and open people. Each is dependent on the other to the extent that she cannot share if no one receives, she cannot teach, if no one responds. Teaching, as interaction, consists in sharing with a sense of mutual purpose, in a common enterprise with an accepted goal, or one jointly developed. The teacher as facilitator spends much more time listening, asking questions to help clarify thinking or to sharpen its focus, and much less time in lecturing. The relationship between teacher and student becomes an I-Thou rather than I-It of domination or power over another. Full interaction demands a relationship of trust and mutual respect. Without it, students hesitate to participate and teaching degenerates into telling; learning becomes passive reception of the thoughts of others.

The concept of teaching as interaction in no way lessens the responsibility of the teacher. Offering to assist one to learn what he wishes to know and be able to do, still presupposes that the offer is made by someone who indeed can help; someone with a degree of expertise to bring to the learner. Otherwise, the teacher is not authentic. The teacher is still responsible for the design of learning activities even with considerable contribution from students. Creating the design which facilitates achievement of the goals set by teacher and students may be the most important task of teaching.

The student in our university schools of nursing has a high degree of learning ability or academic aptitude as measured by secondary school testing programs and grades. However, she may be inexperienced in some of the essential cognitive skills. In the past, it was considered that students must accumulate factual knowledge before they could begin thinking about the significance that such knowledge might have. It was held that they would learn to think as a by-product

of memorizing the thoughts of others. Years ago, Whitehead warned against "inert ideas" which he termed "dry rot" — ideas that are "merely received into the mind without being utilized or tested or thrown into fresh combinations"(6).

Most of what takes place today in elementary and secondary school classrooms apparently is reception learning. A disproportionate amount of time in class is given to activities involving recall of observation or knowledge and very little time is given to evaluation, analysis or synthesis. In Bellack's study of teaching, he found that only about 10% of the verbal discourse in the secondary schools in his sample was concerned with thinking at or above the level of analysis(7). The probability exists, then, that our students will not have mastered the skills of critical thinking and problem solving, and may experience considerable difficulty with synthesis evaluation.

Most of us anticipate that students will enter the university with a considerable fund of knowledge on which they can build. Studies of retentions, however, have shown that a large proportion of the facts learned in any course are rapidly forgotten while broad generalizations and data in meaningful association are retained much longer(8). Bruner forecast a "pitifully short half-life in memory"(9) for unconnected facts. He emphasized the importance of teaching the "underlying principles that give structure to that subject," as well as the supporting skills that make possible the active use of materials in progressively more complex situations. For example, Bruner would use the first two years of elementary schooling to teach the foundational concepts and logical operations of mathematics and science(10). These basic ideas and principles would be revised and built upon throughout the curriculum until the student had grasped the "full formal apparatus". Taba, working with social studies in the elementary grades designed a curricula in which young children learned to arrive at generalizations, to order and group data logically, to build inferences and make predictions which they then evaluated(11). In spite of the difference in age of our learners and those of Taba and Bruner, we could learn from reports of their experiments.

If we are to use the experiences and concepts of others in teaching and learning, we must examine them in the light of our own purposes. Taking it for granted that we have broad areas of agreement about the purposes of university schools of nursing, I would like to look at some of the implications that theories of learning and instructions have for professional education in nursing.

In contrast to students in general education, students in nursing are expected to become practitioners; doers as well as critical thinkers.

By definition a professional practitioner must be able to translate theoretical knowledge into practice. He must not only "know that" but "know how to". Scheffler comments that "knowing how to" represents "the possession of a skill, a trained capacity, a competence or technique" which is not required of graduates in arts(12).

"Be ye doers of the word, not hearers only". Translation of concepts into action is far from easy in either religion or education. Few of us behave as well as we know how. One hindrance is that action which might result from knowing does not automatically follow acquisition of knowledge, but apparently requires a different process of thinking. What is implied in "knowing how to" nurse?

From reading and discussing nursing, I have observed a general consensus that our graduates should be decision-makers. With this as a starting point I would like us to consider the steps in the process and then the implication which the model has for teaching nursing.

Briefly the nursing process consists in five steps: appraisal, diagnosis, design of care, implementation and evaluation.

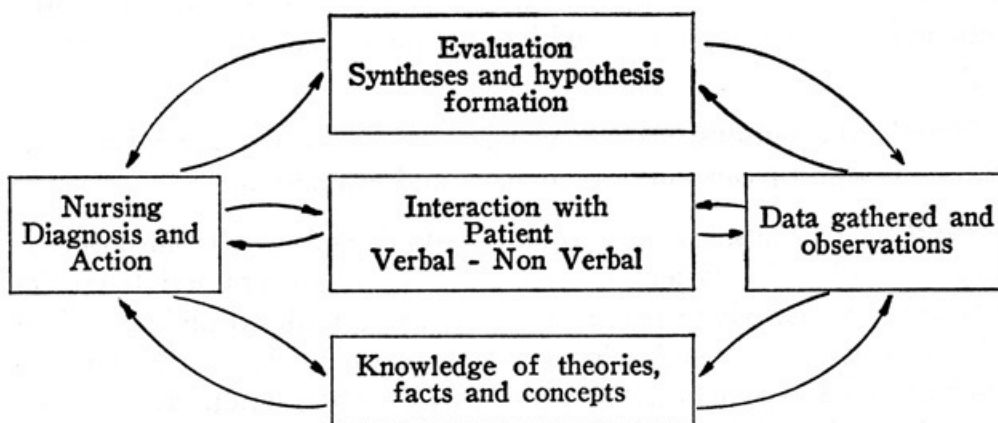
First — Appraisal of the patient. Data is collected from observations made by the student herself, by other observers and from the medical records, where pertinent. Knowledge basic to understanding of the problem is sought from a variety of sources including the students' own experience. The validity of the observations are checked with the patient. The tense, strained facial expression may be due to mislaid glasses, not anxiety. The student's experience with other clients may provide her with a wide range of possible factors or "hunches" to follow.

Second — The data is now in — what does it mean? Analysis will provide the answer. Initially, the student may need considerable help with analyzing data. Many can gather observations, order them in appropriate categories for analysis but block at this level of cognitive demand. Analysis, however, is essential to a diagnosis.

Third — Once the diagnosis has been made, the next step is decision-making. To make a wise decision, the student needs knowledge of alternative actions, which might be possible or even plausible to take. She must be able to predict consequences of the alternatives in order to make a choice among them. This is apparently the most difficult step but is essential to a comprehensive design for action. The hypothetical character of the decision and its implication for nursing practice must be learned.

Fourth — The student needs the experience of putting into practice her decision or design for action, trying out her hunches, carefully gathering observation of the results for further analysis, and for the final and *fifth step* of evaluation:

How well did it work? What happened as a result of the action taken? Utilizing the process stimulates the student to seek more theoretical knowledge, collect more data, do additional critical analysis of her data and refine her predictions and possible choices. The process is a circular one as evaluation improves observation — the inquiry process leads to discovery of new knowledge.



At this point the teacher has some further decisions to make. The goal of preparing a competent decision-maker has been accepted as the end-in-view of the teaching learning activity. Through what sequence of experiences will the student be most likely to achieve the desired learning? Critical thinking begins with a problem, recognized as such by the learner. If the problem is real, and solving it is recognized as relevant to the learner's goals, motivation will be high. Nursing education has the very great advantage of reality in the clinical practice laboratory. For clarity, first, I would like to distinguish between practice and apprenticeship training. The clearest statement I have found was made by John Dewey in 1904 at the third meeting of the *National Society for the Scientific Study of Education* entitled "The Relation of Theory to Practice in Education":

On the one hand, we may carry on practical work with the object of giving teachers in training working command of the necessary tools of their profession; control of the technique of class instruction and management; skill and proficiency in the work of teaching. With this aim in view, practice work is, as far as it goes, of the nature of apprenticeship. On the other hand, we *may propose to use practice work as an instrument in making real and vital, theoretical instruction*; the knowledge of the subject matter and of the principles of education. This is the laboratory point of view. The contrast between the two points of view is obvious . . . From the one point of view, the aim is to form and equip the actual teacher; the aim is immediately as well as ultimately practical. From the other point of view, the immediate aim, the way of getting at the ultimate aim, is to supply the intellectual method and material of good workmanship, instead of making on the spot as it were, an efficient workman. Practice work thus considered, is administered primarily with reference to the intellectual reactions it incites, giving the student a better hold upon the educational significance of the subject matter he is acquiring and of the science, philosophy and history of education. Of course the results are not exclusive. It would be very strange if practice work should not at the same time insure some skill in the instruction and management of a class(13).

If we substitute “nursing” for “education” and “nurse” for “teacher” and finish with “some skill in patient care”, the statement is most pertinent to our concerns.

Within university education in nursing, there has been a shift from emphasis on practice in techniques and devices, which would “form and equip” the learner in elementary skills, to emphasis on the intellectual activities of diagnosing, analyzing, hypothesizing, testing, synthesizing and evaluating: abilities essential to decision making. The implications of this shift for laboratory practice seem obvious. However, we need to ensure that the practice component does, in fact, “make clear and vital the theoretical instruction”. All too often students are presented with a problem already defined for them and go through prescribed steps to reach a solution which is already known. In many instances, the problem is never defined or identified clearly and students follow a prescription embodied in “routine care”. Without a goal, evaluation is impossible.

Students need the opportunity to identify and solve problems in the clinical setting using the approach and ideas gathered from classes and seminars. The teaching-learning process carried on in the various settings is a dynamic cycle of enquiry. In the practice laboratory, they use their acquired knowledge to formulate plans for action. The

knowledge acquired in clinical practice is utilized in subsequent seminars and class. In turn, seminars and tutorials help students with critical analysis of practice. The evaluation component of practice and seminar stimulates students to seek more knowledge and to analyze critically their clinical experience. Although the intellectual skills of problem solving are essential, the students must also learn to implement their plan for care, using technical performance skills. Woodruffe comments that the use of practice without an adequate conceptual background will result in a mediocre performance(14) — but an excellent conceptual framework alone will not make a practitioner.

One of the objectives of our programs is to produce skilled practitioners of nursing, with basic psychomotor skills. Performance skills are learned most naturally when a person needs them in order to carry out his concept of actions and behaviour. Until there is an idea in mind, there is no need for a performance skill(15).

First level or basic psychomotor skills may be taught in laboratory sessions and practiced with patients until proficiency in manipulation is achieved. Instruction focuses on the purpose and basic underlying principles, the necessary equipment and how to manipulate it. Single concept films may supplement or take the place of direct demonstrations. Films have the advantage of being readily available to students for individual review or relearning. In a class, every student can see the fine hand movements in the filmed sequence as well as if she were at the instructor's side. Skills require a high degree of neuro-muscular co-ordination and are best learned by intensive but spaced practice under guidance.

I am not concerned with integrating psychomotor skills into comprehensive patient care. The human mind is thoroughly capable of integrating subject matter for itself. All the help it needs is to have the subject matter made vivid so it can be clearly perceived(16). Opportunities are provided to utilize procedures as needed in the case of assigned patients; to make necessary adaptations and to describe the results and the patients' reaction accurately. Students learn to evaluate the consequences of the procedure for the patient and to consider alternative actions which might reduce the undesired reactions.

There are a variety of other experiences apart from direct clinical practice which may be designed to achieve the desired learning. Perhaps two are sufficient to mention:

Clinical situations requiring problem solving and decision-making may be simulated. Several universities are developing highly sophisticated teaching — learning devices or learning boxes. The University of Toronto Faculty of Medicine has instructional computer-programs for learning clinical judgement, which present the student with

detailed examples of critical incidents in patient management and require that he select among possible alternatives the one which he judges to be most effective. Evaluation of his choice is immediately available to him. If his choice was inadequate, additional data is provided and he is instructed to repeat the selection. The result of his choice is given in terms of patient welfare.

It is possible that the same results might be achieved at less cost by printed multiple-branded programmed-instruction. The novelty of the device, however, may make it more acceptable to a sophisticated learner.

A second example and a more familiar one might be the use of case studies in which students are helped to perceive and clarify major concepts within their experiential frame. Through discussion, experiential students learn the tactics and strategies of methods of inquiry and intervention which may be generalized for individual application.

Learning depends on knowledge of results at a time and place where the knowledge can be used for correction and for judging whether or not an activity leads toward a desired goal. To be effective, knowledge of results must come as close to the performance as possible. Whenever possible the reinforcement should be positive. We tend to forget that the whole self is involved in learning, so praise for accomplishment improves the learners' concept of self and increases the likelihood of future success. It is much more difficult to learn with negative reinforcement. Being told what was wrong with a performance is difficult to transform into knowing the correct action. Telling a person what *not* to do, doesn't help him learn the desired activity.

We assume that the students learn best when pertinent information is presented to them at a time they require it, however, a student may be unable to use information about her performance if her level of anxiety is high. While the performance of low anxiety students improves under stress that of high anxiety students worsens. High levels of anxiety may prevent the student from utilizing any innovation or suggestion while she repeats possible solutions that have not worked in the past. "This tendency toward fixation of response, stereotyping and repetitiveness not only inhibits effective creative thinking, reasoning, and problem solving but renders them impossible" (17). Lessening anxiety by temporary withdrawal from a tense situation may be more effective than suggestions to "try harder." If knowledge of performance or suggestion for change is offered in a mode foreign to the student's pattern of thinking, she may be unable to utilize it effectively. The student may need time to re-organize her approach and make more effective use of her efforts and abilities.

The teacher may need more diagnostic tools to discern the problems faced by the students in learning.

The student may need more information about the goal to be reached. If this is unclear, the learner may flounder and miss or misinterpret cues offered to her for guidance. Knowing the level of achievement expected for a satisfactory or acceptable performance may increase motivation. Students may have goals which are impossible to achieve in the time available. Her discouragement and apparent lack of motivation may be due to her unrealistic goals. She may respond favourably to a more realistic view of the expected level of achievement.

The teacher's responsibility to measure achievement against objective criteria or to compare the performance of learners with each other as a means of establishing grades has not been discussed. At some point teachers make decisions about competence of students. Whether they use a pass-fail or more detailed scale, the judgement must be valid, reliable and responsible. Bloom states that given adequate time and guidance, 90% or more of our students could achieve mastery (18). Our basic task is to determine what we mean by mastery and to search for methods and experiences which would enable the largest number of students to attain it.

A discussion of mastery and evaluation of its achievement while a teaching responsibility, demands more time for consideration than is available here. It might be a good topic for a future article. To summarize briefly :

Teaching involves interaction between students and teachers for the purpose of learning or changing behaviour in a desired direction. Learning is fostered when the basic concepts and relationships of a discipline are clearly conceptualized and utilized in thinking and performance tasks which students recognize as relevant to their goals. Clinical practice laboratories provide real problems to be solved and real decisions to be made. Practice also provides new data for analysis and theory building which can then be tested out in practice — a cyclical process of learning.

Individual students have different coping patterns some of which create blocks in achievement of critical thinking, problem-solving or decision-making. Teachers need to be sensitive to this and flexible in their response. With use of some of the new educational techniques it may be possible to provide more individual instruction than at present and so enable more students to achieve mastery.

Students in professions need competences which require the continual exercise of strategic judgment concerning

cases which they have never confronted before and for which there are no exhaustive rules, . . . (students need) opportunities which provide for genuine exercise of . . . judgment as well as for critical reflection on outcomes and strategic principles of such judgment⁽¹⁹⁾.

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GROUP METHODS AND PERSONAL GROWTH OF FRESHMAN NURSING STUDENTS

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IN a world of rapid change when educationists are becoming increasingly aware of prevailing forces affecting students' attitudes, a question which has arisen in nursing education is whether the growth of democratic attitudes can be facilitated through group participation. Although the researchers' findings in the study of group methods are frequently inconclusive, sometimes doubtful, and often contradictory, the professional educator should continue searching for means of applying the group methods which promote personal growth as well as acquisition of skills and knowledge.

The faculty of the University of Saskatchewan School of Nursing, interested in designing a program which would enhance the student's personal growth, focused attention on the freshman nursing students. This came about primarily because of the observation having previously been made that in the large freshman classes many of the students experienced loneliness and discomfort in the large impersonal setting where even getting acquainted with one's peer group was a problem particularly for the quieter person. Although nursing instructors interviewed freshman students, this procedure seemed inadequate. Another method was tried. An instructor, acting as group leader, met weekly with a small group of students. Students' needs were anticipated and the sessions were planned to focus attention on those needs. Another question was then raised as to whether student needs could be more effectively met in group situations where the students, rather than the group leader, took responsibility for discussions. If a group-centered approach would be used, the anticipated change was that the students' attitudes would become more democratic than if the leader-centered approach were used.

PERSONAL GROWTH AS AN OBJECTIVE

The educational objective of personal growth is more ambiguous than the objectives of intellectual and professional development; therefore less certainty seems to exist about what the objective means and about how it would be met. Generally it is related to developing the ability of accepting responsibility for others as well as for oneself(1).

Creative behavior, a characteristic of someone who has met this objective, is also difficult to define, yet its relevance to nursing education is necessary when considering the complexity of encounters with colleagues and patients in establishing healing relationships. Definitions of creativity frequently imply an active process in which the result is in some way meaningful and useful. It is seen as being good and having a social worth(2).

DEMOCRATIC ATTITUDES IN GROUP LEADERSHIP

The concept of group-centered leadership is based on a set of attitudes dissimilar to leader-centered attitudes. Traditionally leadership is seen as a function carried out by one person, whereas in group-centered leadership the functions of leadership are the responsibility of all members of a group and the goals are democratic; hence greater member participation and responsibility is encouraged.

Research findings reported in the literature on the effectiveness of the group-centered approach in developing democratic attitudes and promoting personal growth were inconsistent and indicated the need for more investigation of the factors involved.

ATTITUDES AND NEEDS OF FRESHMAN NURSING STUDENTS

The needs of the adolescent are those which, if fulfilled, lead to her maturity. Erikson saw the basic needs of the adolescent as acquiring a sense of identity, the knowledge of who one is, what one is, and where one belongs(3). Considering that the entering student is in late adolescence struggling with these needs and recognizing that the freshman tends to have authoritarian attitudes, it becomes important to appreciate that the behavior of the beginning student may be designed to avoid disturbing a rather precarious balance.

The individual may have learned groups of attitudes which were appropriate to her earlier life situation and stage of development. In the new environment these attitudes may no longer fit. The group in contact with the student may facilitate the acquisition of an approach to living which makes for a more fully functioning student.

THE GROUP APPROACH IN MEETING NEEDS

A group of interacting individuals may function in such a way as to meet the needs of its individuals and consequently to promote their personal growth(4). In a group of effectively functioning members individuals can test others' responses to their behavior: thereby providing opportunity for growth as each person utilizes skills already learned and gains confidence in experimenting with new approaches.

As mentioned earlier, the faculty of the School of Nursing wished to consider ways of meeting the needs of first year students more satisfactorily than had been accomplished previously. Since the group-centered method had the potential for doing this, a plan was put into action to see whether, in the given setting, this could be accomplished.

GROUPS WERE ESTABLISHED

On the basis of scores from pre-testing, the eighty-three freshman students were divided into six matched groups. The six teachers who took part were selected on the basis of ability in teaching methods, availability for the project, and interest in experimentation. Three teachers agreed to use the group-centered approach while the other three, in order to provide a control group, used the leader-centered approach. While the teachers were aware that the results of these approaches would be tested, this had not been explained to the students.

Each group met for a total of sixteen fifty-minute sessions held once a week. They met in seminar rooms with chairs in a circular arrangement.

HYPOTHESES AND MEASUREMENT SCALES

Three hypotheses were to be tested with appropriate scales.

Hypothesis 1: The attitudes of student nurses exposed to group-centered leadership will become significantly less authoritarian than the attitudes of student nurses exposed to the leader-centered approach.

The scale used to test this hypothesis was the California F Scale(5), which is considered to a measure of authoritarian attitudes.

Hypothesis 2: The security level of student nurses exposed to group-centered leadership will become significantly greater than the security level of student nurses exposed to the leader-centered approach.

The Security-Insecurity Inventory developed by Maslow(6) was

used to measure the conscious feeling of security experienced by the subjects.

Hypothesis 3: The student nurses exposed to the group-centered approach will favor group-centered attitudes more so than will the students exposed to the leader-centered approach.

This hypothesis was tested by using Dimock's Y Opinion Questionnaire (7) to measure group-centered attitudes.

LEADER-CENTERED GROUP DESIGN

Using Maslow's theory of a hierarchy of needs as the conceptual model, the leader-centered sessions were planned according to the anticipated levels of needs the students would experience during the year. Also used as guidelines were responses from first year students who, in the preceding year, were asked periodically the nature of their greatest concerns. Basically, the leaders of these groups were authority figures who planned how the sessions would develop. Their role was to direct and control subject matter and discussions.

GROUP-CENTERED APPROACH

The plan for the group-centered approach was that the leader would not take the traditional role but would function in such a way that the students would accept responsibility for the sessions. The leader was to be accepting of the students' contributions and encouraging in a non-directive manner. The leaders were to encourage the group members to express feelings and to examine their behavior in the group.

FINAL TESTING AND RESULTS

At the conclusion of the sessions the students were retested and scores were calculated for individual students by finding the difference between their before and after scores. Then a mean difference score was calculated for each of the six groups. A one-way analysis of variance was used to determine whether the differences among the six means were statistically significant. This method of calculation was done for all three scales. The findings did not support any of the three hypotheses. There were no significant differences in authoritarian attitudes, security levels, nor in group-leadership attitudes as a result of the two different leadership methods.

FACTORS AFFECTING FRESHMAN BEHAVIOR IN GROUPS

Affecting the freshman nursing students may be a number of influences which account for the results of this study.

As indicated above, the freshman who is basically authoritarian understands his role in relation to an authoritarian structure. It may be then that when confronted with a group-centered leader whose role he does not understand, he feels insecure about his own position and so, rather than trying new behavior to meet the challenge, he repeats behavior which worked before. His need for security may best be met by giving some structure rather than by taking it away.

To illustrate how differently the student saw the leader from themselves, one of the leaders reported that when the students had the opportunity to decide on how they would address each other, the students wished to be called by their first names; however they did not feel comfortable enough to call the group leader by her first name.

Another factor to consider when trying to understand the results is that the sessions may have been too short and too few in number to have a significant impact on students. These limitations may have hindered the development of enough security to function democratically.

With regard to the effect of the total milieu on the student and consequently on her response to the group discussion, attention should be drawn to the fact that the university, if not most of society, functions on largely authoritarian terms. The student no doubt is aware that the teacher is also bound by the limits of the organization. As a result of the teachers' willing or unwilling lack of freedom, the student is under an authoritarian influence which allows her no say in her educational plans but expects that she conform to "the regulations". The obedient student is rewarded with high grades and eventually with a degree. It appears that the leader-centered values are the ones which will guide her to the successful accomplishment of her academic goal.

Even though the results did not support the hypotheses there were a number of positive outcomes for both teachers and students of both kinds of groups. Each, teacher and students, came to know the other better than they might have otherwise. While not getting to know all members of the class, at least knowing the members of the group and sharing similar concerns helped to lessen feelings of aloneness. Fortunately, another positive outcome was observed. Increased interest in the use of group-centered leadership became evident as more teachers began preparing themselves through credit and non-credit programs for this kind of role. Other designs varying the combinations of members and the amount of structure have been tried.

The use of the group-centered approach holds potential for actualizing the student's creativity through personal growth, and brings

challenges to the teacher's courage and professional development. For the innovator in nursing education the question of how this can happen still seeks an answer.

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THE IDENTIFICATION OF LEARNING NEEDS BY MEANS OF CRITICAL EVENTS

Phyllis E. Jones* and Nora I. Parker*

WITH the implementation of the revised curriculum of the Basic Degree Course(1), the month of March each year is used by students in the Fourth Year for independent experience in the practice of nursing. The purpose of this experience is "to give the student an opportunity to integrate and apply all or several aspects of the year's work or to further study and practise one aspect of nursing"(2). In what is intended as a highly individualized experience, each student develops objectives and plans in consultation with a faculty adviser; students are independent in the sense that they are not directly supervised by school staff.

Eleven students in the Fourth Year in 1972-73 requested placement with family physicians for their independent experience in March, 1973. To meet these requests, preliminary discussions were held with the Department of Family and Community Medicine, University of Toronto, and the City of Toronto Department of Public Health which seconds nursing staff to a number of private medical practices. From these discussions was developed a list of potential settings from which the assignments were arranged; these were negotiated directly with the doctors by the Faculty of Nursing, as are all clinical practice arrangements. Students then followed up the initial contact by making detailed arrangements with and interpreting their objectives to the doctors concerned(3).

This development was seen by faculty as one which might provide information regarding the effective preparation of graduates to practise in one type of primary health care(4) setting. Two of the expectations of the graduate of the Basic Course upon which the curriculum is built are that she "has an educational base from which she may develop further as a practitioner..." and that she "collaborates with others on the health team to plan and deliver health care to patients, families and the community"(5). Since in the March inde-

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pendent experience students are presumably practising very nearly at the graduate nurse level, this seemed to offer an opportunity to evaluate the effectiveness of the curriculum, at least in this area of functioning. Further reasons for undertaking this project were:

1. this was the first year in which so many Fourth-Year students had requested independent experience in physicians' offices;(6).
2. current widespread interest in increasing the nursing component in ambulatory patient care services has raised the question as to whether baccalaureate nurses are prepared to function as co-practitioners with physicians in these settings.

The students involved agreed to participate in the identification of gaps in the knowledge required to function in primary medical care settings. A plan was developed based on the recording by students of the situation surrounding each incident in which their knowledge or skill was inadequate. This was a modification of the methods used by Lewis, Resnik, *et al*(7) and that described by White(8).

The proposed plan was outlined to the group of eleven students a month prior to the experience and all volunteered to participate. Instructions, critical event cards and questionnaires were distributed to all participating students in late February.

The purpose of this investigation was to identify gaps in knowledge and skills required for practice in primary care settings.

METHOD

SAMPLE

The sample consisted of eleven Fourth-Year Basic Course students who requested family practice units or private physicians' offices as the setting for their independent practice in March, 1973.

SETTING

Eleven settings were involved: three family practice units and eight private physicians' offices, ranging from solo practitioners to large multi-specialty clinics. Nine of these practices are in or adjacent to Metropolitan Toronto; two are 40-75 miles from Toronto. Eight of the practices are designated teaching practices for the Department of Family and Community Medicine, University of Toronto.

PROCEDURE

Students were asked to complete a critical event record card (Figure 1) each time a situation arose in which they considered their

CRITICAL EVENT RECORD CARD

Student —

Health Prob:

Diagnosis —

Phase of patient care —

Nature of decision-making situation —

Category of learning need — Cognitive _____ or
Psychomotor _____

Identify preparation needed —

How was the situation disposed of:

- (a) Were the needed skills acquired at the time?
- (b) If acquired at the time — How? (e.g. teaching from doctor)
- (c) Was other help sought? (e.g. literature)

Your interpretation —

Figure 1

performance ineffective because of lack of knowledge or skill. Situations occurring in any phase of patient care (assessing, planning, giving or evaluating) were to be included. Collection of this data took place during the second and third week of the March experience.

Students were also asked to complete a brief questionnaire at the end of the experience to identify situational factors which may have affected performance.

TOOLS

A critical event record card was devised for the purpose of identifying learning objectives which were considered by students as critical to effective performance in these settings. Use of the critical event records was based on three assumptions:

1. That the student had had sufficient practice in self-evaluations to perceive her own gaps in knowledge.
2. That reporting would be accurate.
3. That gaps in knowledge identified were due to lacks in the curriculum.

To underline the necessity for accuracy and completeness, students were given the following instructions:

1. Describe the incident as soon as possible after it occurs.
2. Include only those situations in which performance is considered ineffective because of lack of knowledge or skills due to deficiencies in the curriculum.
3. Record completely all information requested.
4. Do not record events in which performance is ineffective because of situational factors or factors such as "lack of retention".

The questionnaire was designed to elicit information regarding the role which students were expected to fill. Its purpose was to provide information which is the reverse of that provided by the cards, that is, the extent of use of knowledge and skills. In addition, the information would be used in assessing the data obtained from the critical event record cards.

ANALYSIS OF DATA

Data from the critical event record cards were sorted into the four categories corresponding to the phases of the nursing process: assessing, planning, giving, evaluating.

In order to further group data as a basis for later definition of educational objectives, for each of these categories, learning needs were to be further subdivided into cognitive and psychomotor domains(9). Since in many instances respondents checked both categories for a particular event, a third category was added in analyzing the data. This category is simply referred to as 'both'.

Percentages of the total of critical events were derived for each category. Ten per cent was arbitrarily determined as the indication that the knowledge or skill should be included in the curriculum. The recorded descriptions of the nature of the situations and preparation needed were then grouped and tabulated by frequency.

Responses to other questions on the critical event record card were tabulated by hand, as were the responses to the questionnaire.

FINDINGS

Of the eleven students who initially volunteered, ten responded to the questionnaire and submitted critical event records; one student decided not to participate and therefore did not contribute to the data. A total of 63 critical event record cards were returned; of these, one was discarded as incomplete, leaving a total of 62 usable cards.

TABLE 1
ROLE DESCRIPTIONS

Descriptive Term	Number
Public Health Nurse	2
Patient assessor/home visitor	1
Office Nurse/Nurse Practitioner	1
Office Nurse/Receptionist	1
Nurse Practitioner	1
Family Practice Nurse/Nurse Practitioner	1
Extended Role of a nurse	1
Knowledgeable Nurse	1
Receptionist/File clerk	1
Total	10

PERCEPTION OF ROLES AND FUNCTIONS

From the responses to the question "How would you describe your role?" the descriptive phrase was extracted; these are displayed in Table 1.

No clear relationship emerged between the students' perceptions of role/level of skill utilization and the types of setting in which they were practising. The students who described their role as that of a public health nurse (two) and a patient assessor/home visitor (one), (See Table 1) were working in non-teaching practices.

Three students thought that their nursing knowledge and skills were fully utilized; two of these students were assigned to teaching practices, one to non-teaching. Seven thought their skills had not been fully utilized; of these, three indicated that they could have done more history-taking and assessment; typical of these responses was the following comment from one student, "I could have been more involved in history taking and assessment of individual and family health needs and actual planning of the care." In addition, three students indicated that they could have done more teaching and counselling.

The obstacle to fuller use of skills most frequently mentioned was insufficient office space and time (by four students). For example one student reported that "I feel I could have done more in the areas of interviewing, counselling and history-taking, but this was not really possible due to physical set-up and busyness of practice." Limited perception by the doctor of nursing functions was also reported by two students as an obstacle to fuller use of nursing skills:

TABLE 2
NUMBER OF CARDS COMPLETED

No. of Cards	No. of Students	Total
14	1	14
12	1	12
11	1	11
6	1	6
5	2	10
3	3	9
1*	1*	
Total	10	62 X=62

*one card from one student discarded as incomplete

"much time was spent defining and making known skills of professional nurse, also explaining role she can take in family practice," and "doctors are very established in routines and delegate little responsibility to nurses, *except* PHN whom they've begun to accept as a colleague health worker."

CRITICAL EVENTS

The number of critical events encountered by students during the two-week period under study (as indicated by completed cards) ranged from three to fourteen (see Table 2) and averaged about six per student.

The critical events reported by students were in three of the four phases of care: assessment, planning and giving; there were no responses in the evaluation phase. As shown in Table 3, the assessment phase presented the highest proportion of critical events — almost 60 per cent of the total; and of these more than one-third revealed both cognitive and psychomotor learning needs.

LEARNING NEEDS

Further understanding of these critical events is gained through examination of the descriptions of the nature of the decision-making situations and the students' perceptions of the preparation needed to deal with them. The tables resulting from this examination are characterized by lengthy lists of descriptive terms, reflecting the variety of situations reported and the resulting difficulty of developing meaningful categories.* The result of the classification process

* Tables are available from the authors.

TABLE 3
CRITICAL EVENTS, BY PHASE OF CARE
AND CATEGORY OF LEARNING NEED

Phase of Care	Cognitive		Psychomotor		Both		Total	
	No.	%	No.	%	No.	%	No.	%
Assessment	12	19.35	11	17.74	13	20.97	36	58.06
Planning	2	3.23	—	—	1	1.61	3	4.84
Giving	12	19.35	6	9.68	5	8.07	23	37.10
Evaluation	—	—	—	—	—	—	—	—
Total	26	41.93	17	27.42	19	30.65	62	100

was that no category reached the level of ten per cent of the total of situations described. However, three categories reached eight per cent: preparation of slides, use of microscope, etc; immunization dosage, schedule and administration; pelvic examination, etc.

Tables 4 and 5 summarize the responses to the questions about how the needed skills were acquired in order to deal with the presenting situation. In 75 per cent of the incidents the needed skills were reported to be partially or fully acquired at the time (see Table 4); and, as Table 5 shows, the doctor was most frequently the source of teaching, with literature being the most frequent supplementary source.

Table 4 shows seven responses indicating that needed skills were not acquired at the time of the incident. Further examination reveals that these responses came from five students who identified the preparation needed as follows: more practice in interviewing (2 from 1 student), technique of giving injections to infants, knowledge of developmental level of infants, knowledge re normal ECG reading,

TABLE 4
NEEDED SKILLS ACQUIRED
AT THE TIME

Yes	39	62.90%
Partially	14	22.58%
No	7	11.29%
No Response	2	3.23%
Total	62	100.00%

TABLE 5
SOURCE OF SKILL ACQUISITION

Initial Source of Teaching	No. of Responses	Additional Source	No. of Responses
Doctor	33	Literature:	
Nurse	11	Unspecified	22
Doctor and Nurse	8	Texts	8
Community Nurse	2	Accompanying Instructions	4
Technician	1	Other Reference Material	4
Medical Student	1	Welfare Office	1
Common Sense	1	Visiting Homemakers Ass.	1
No response	5	None	20
		No Response	2
Total	62	Total	62

knowledge of when a woman is ready to deliver and knowledge re "Parent-adult-child" concept. A review of all additional recorded comments suggests that the situations were dealt with in a satisfactory manner, i.e. no untoward effects of gaps in preparation were recorded.

DISCUSSION

A number of points are worthy of note. The variety in the reported perceptions of the roles, in Table 1, is of interest. This likely results partly from the variation in the objectives defined by students and partly from the variation in the settings. No relationship can be seen between the stated role perception and the type of medical practice; nor can any relationship be seen between reported level of utilization of knowledge/skills and frequency of critical events. It is quite possible that the presently evolving nature of nursing in physicians' offices leads to this variety of perceptions and descriptions of roles and level of functioning.

The number of critical events reported, 62, was somewhat surprising. It was not possible to predict the frequency with which such events would be encountered; however, each student was supplied with 50 cards and returns were much less than this — an average of little more than six per student, representing an average of less than one per study day. Assuming that this is a reliable indicator of critical events actually encountered, this should be seen as reassuring. Coupled with the finding that in 75 per cent of the reported incidents

required skills were fully or partially acquired through consultation with team members and recourse to literature (Table 4, 5), this finding suggests that for these students the educational base was laid for practice in these settings (10). Fifty-eight per cent of critical events were reported to be encountered in the assessment phase, while none were reported in the evaluation phase. The latter finding is not unexpected; a practice period of four weeks in a non-acute setting is not long enough to provide much opportunity for evaluating the results of nursing care. The high proportion of critical events in the assessment phase of care suggests that this area in the curriculum needs strengthening. The view which this finding supports had, in fact, already been expressed by faculty, and as a result, a staff committee has devised a tool which can be used in the development of students' assessment skills.

The preparation judged by respondents to be necessary for each critical event was so varied that classification was very difficult; no category reached the level of ten per cent of the total of critical events required by the study design as indication that the knowledge or skill should be included in the curriculum. Despite this fact, the information provided in these responses will be of assistance in defining behavioural objectives related to the content of the critical events encountered. A larger sample would provide data which might be more reliable. It has therefore been recommended that this project be repeated when possible in order to increase the data base. Meanwhile, the leading categories of identified learning needs should be reviewed by the appropriate committee to consider possible inclusion in the curriculum. In addition, these findings should be shared with those responsible for teaching as it seems likely that some categories are thought to be already included.

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CONCEPT TEACHING IN NURSING

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ONE difficulty encountered by nurses is that of developing a theoretical framework upon which nursing can be based. A concomitant problem is operationalizing the theoretical model. This paper describes how one college programme dealt with the problem. As explained by Schumacher the programme assumed a core of nursing applicable to all clinical areas. The goal was to recognize relationships among general concepts of the phenomenal field, specific concepts within a phenomenal field, and the symptoms of illness(1). How could learning experiences be provided that would result in concept learning and recognition of relationships among concepts? Bruner states:

To learn structure, in short is to learn how things are related. Grasping the structure of a subject is understanding it in a way that permits many other things to be related to it meaningfully(2).

The Webster dictionary defines structure as the arrangement of parts or elements; it defines concept as a mental image or impression of an object, person or event, an abstract notion (3). If the learner was provided with experiences representing a variety of parts (structure) of an abstract notion (concept), then relationships should be recognized among general concepts of the phenomenal field and specific concepts within that field. This became the rationale for the organization of nursing courses.

PROGRAM DEVELOPMENT

Three of the learning principles basic to teaching in the programme were that learning takes place within the environment of a relationship, learning is discovery, and learning is more useful when generalized into principles or concepts(4).

Teaching methods and course content were organized with the foregoing principles in mind. The environment of one relationship to be fostered was a climate of trust between learner and teacher.

Toward this end Maslow's belief that the teacher should be a pleasant collaborator, with natural simplicity replacing authority, became the model(5). Interaction among learners and teachers was encouraged on an informal footing. Little of the course content was presented by lecture; small-group work with the teachers as resource persons became the method of choice.

Techniques designed to develop the total learning-teaching environment into one conducive to learning were practiced. For example, there was seldom opportunity to reflect upon the subject matter before a class commenced, in a setting where learners must move from class to class at allotted times. To overcome this problem the first five or ten minutes of a session were frequently spent in listening to music or just sitting quietly. Another question regarding environment related to what kind of learning was to occur? The aim was to stimulate learners toward independent thought. What kinds of questions were being asked? In order to guide learners in the direction of convergent thinking the technique of probe questioning was used. An example of this method is described by Griffin in the use of "what if" questions(6).

Experiential learning was a focus of the programme. The importance of an experiential continuum is explained by Dewey,

Only by extracting, at each present time, the full meaning of an experience are we prepared for doing the same thing in the future(7).

The mode of expression used by students to test out their ideas about a concept took many forms. Since some individuals can express themselves more readily in one medium than another, learners were encouraged to use music, poetry, sequencing of pictures or story telling, in order to grasp the concept under study.

The principle that learning is discovery was projected through the provision of discovery-skill-laboratories. Small groups of learners explored equipment, used audio-visual aids, as well as reference books, and discussed their findings with peers and teachers. The students were free to plan and proceed with their activities as they wished. The requirements were that each team would identify the underlying principles, collect the necessary equipment, and demonstrate nursing intervention related to the concept under study.

The third principle was that learning is more useful when generalized into principles or concepts. Learning experiences were arranged on the basis of Kagan's belief that, concepts are developed by means of building a mental image from exposure to a variety of different dimensions of the object, person, or event to be conceptualized(8). To

achieve this goal a series of classes was organized around the concept under study. The first class would deal with theory in relation to the concept, from within the framework of a real-life situation. The second class focused on a case study which reflected the concept in relation to factors which influence the individual, such as age, culture, social status, and position on the health-illness continuum. Drug use and administration was also included in this class. The third session took the form of a discovery-skill-laboratory as previously described.

The social climate during classes was one of learner dominance. The students worked in teams of two or three members, often becoming so absorbed in their activities that the team of teachers was forgotten, until required as resource persons. Groups of learners frequently worked on different facets of the concept under study, than did their peers. Courage to play music during classes, to permit learners freedom of activities, and in general to attempt a different way of teaching was, in part, gained from a stimulating workshop(9). Perhaps one of the most difficult lessons is to learn to give up some of the content and methods adhered to so strongly in nursing.

A MODEL FOR STUDYING A CONCEPT

The model used to study each concept is exemplified as follows(10) :

The concept of pain: Pain is one of the common life experiences of many which gives rise to physiological and emotional responses.

Pain:

- cause — organic — disease — pathology
 - inflammatory process
- functional
- character
- anatomical and physiological pathways
- response to pain — age
 - culture
 - severity
- how is pain perceived and experienced
- consequences of pain — birth — love — joy
 - distortion of body image — adaptation
 - death — grief
- effects of pain — anorexia, nausea, vomiting
 - physiological
 - psychological
 - the meaning of pain

How to evaluate the learning outcomes was influenced by the work of Hullfish and Smith, which suggests a concept has been developed if the learner is able to explain or use the concept in a setting other than that in which the learning occurred(11). The clinical laboratory provided a setting which would reflect the student's grasp of a concept. Observations were made by teachers to identify the extent to which elements of the above model were applied in the learner's implementation of the nursing process. The following is an example of concept learning as reflected in health care provided by a team of two nursing students, in the second term of the first year of a two year programme.

EVALUATION OF CONCEPT LEARNING

Data for this section were gathered through observation of and discussion with the nursing student team, as well as study of their nursing care plan, as they explored the nursing process. The concept under study during the clinical laboratory experience was the concept of pain. The situation involved a muscular young man who had recently undergone an open reduction and application of a cast, for a fracture of his right elbow.

In assessing the situation the learners discovered that the patient experienced pain upon the slightest movement of his damaged arm. He responded to pain with facial grimaces, pallor, perspiration and verbal expression of discomfort. They also discovered the patient felt something besides the physical pain. Immobilization due to the heavy cast, on the arm he normally used most, resulted in a feeling of frustration. The weight was more than his injured arm could tolerate but it was almost impossible to keep the limb free from movement during even the mildest activity of daily living. Furthermore, observation revealed profuse perspiration followed administration of the prescribed analgesic, leaving the patient uncomfortable and in a state he described with disgust as "weak".

The students also noticed tattoos of varying depth of colour on both arms. The patient stated he was having "the dumb things removed". Verbalization about night courses to "make something of myself — do you think that's possible?", about a marriage ending in separation, and about "that crazy fool motor bike" led to a change of the students' plan of action. They decided to focus on the patient's need for self esteem and a strengthened self image, as well as on the pain he was experiencing.

Their plan was to find ways of immobilizing the arm more securely during ambulation in order to reduce pain upon movement and alleviate the fear of pain. They wanted to increase his independence

and to consult with other members of the health team about the side effects of the analgesic. Conversations vacillating between bravado and serious plans for the future, resulted in the nursing students' decision that the patient was trying to change his style of life and re-thinking his personal values. The high priority needs were identified by the learners to be need for pain reduction, for mobilization and for a strengthened self image.

Implementation of their plan included a change of analgesic, support of the injured arm in a sling hung from an intravenous pole, placing of a chair before the bathroom sink to make personal hygiene possible with privacy and independence. To help him meet his need regarding self image the students decided to take their cues from the patient's behaviour suggestive of his "wants". They offered themselves as interested listeners whenever he indicated a wish to share his ideas and plans, with the goal of being as honest and supportive as possible.

In evaluating the effectiveness of their nursing the student team believed that this young man had been helped to meet his needs regarding pain, mobility and self image. This decision was reached through observation, discussion with the patient and health team members, and notations in the medical record of the patient's behaviour.

THE SETTING

Clinical laboratory experiences were selected in relation to the concept under study; in this example the setting was a hospital. A multiple student assignment method was employed incorporating the roles of participant, information gatherer and observer. Value of each role in the learning process has been described by Schumacher(12) ; in the above example observer and information gatherer roles were taken by one learner and the other student assumed the participant role.

Four or five teams of two or three nursing students contributed to nursing care of the elderly, children, adults with medical or surgical health problems and women with new born infants. The purpose of the laboratory experiences was to develop specific concepts further.

This kind of selective learning experience requires a colleague relationship among nurses in the clinical setting, students and teachers. Contributing to nursing care, while focusing on the particular concept under study, seemed to assist in establishing the nursing student role as that of a learner. It also seemed to strengthen the graduate nurse participation with the student in the learning process,

and fostered acceptance of a different kind of nursing programme. Learners were accepted by members of the health team in complex situations of recovery, labour and delivery rooms, admission, post surgical units and other critical situations. Following clinical laboratory experiences the students met in conference to discuss similarities and differences observed about the concept being studied. The conference groups were small and included members from each area in which the students had been working, the purpose was to foster the belief that there exists a core of nursing applicable to any setting.

SUMMARY

This paper described how a two year college nursing programme dealt with the problem of teaching concepts. The goal was to provide learning experiences that would identify the structure or parts of concepts under study, in order to learn the wholeness of and relationships among concepts. Structure was presented by means of a series of classes representing a variety of dimensions of the concept. The series included theory about the concept, factors influencing the individual, and nursing intervention. To create a climate conducive to learning, efforts were made to encourage independent thought and a relationship of trust between learners and teachers. Evaluation of learning outcomes was based on use of the concepts away from the original situation. The clinical laboratory provided a setting which could reflect concept learning in nursing action. An example of care provided for a particular person was included.

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