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 "pitiably 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 concensus 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.
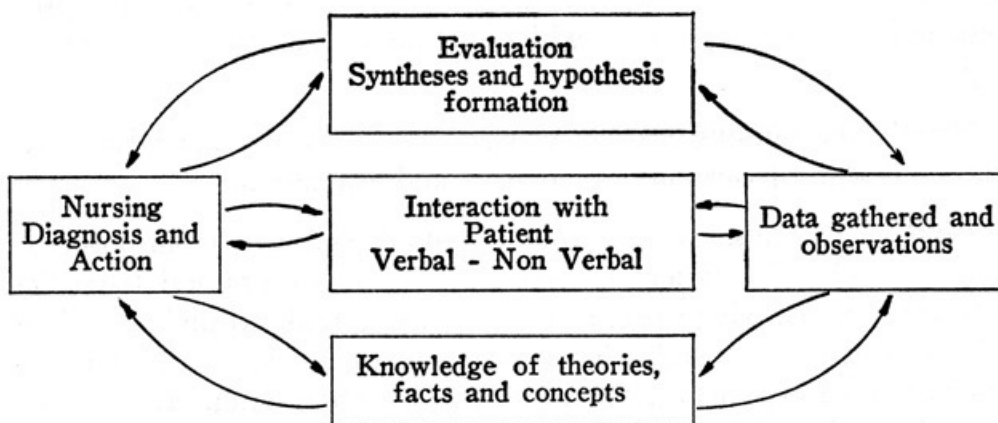
At this point the teacher has some further decisions to make. The goal of preparing a competent decision-maker has been accepted as the end-in-view of the teaching learning activity. Through what sequence of experiences will the student be most likely to achieve the desired learning? Critical thinking 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 psychmotor 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 in 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 mis-interpret 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 impos-sible to achieve in the time available. Her discouragement and appa-rent 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 ob-jective 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 ade-quate 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 sum-marize 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 per-formance 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 tech-niques 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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