THE EFFECT OF A SELF-INSTRUCTIONAL MODULE
ON THE LEVEL OF QUESTIONSPOSED
BY NURSING INSTRUCTORS DURING POST-CLINICAL CONFERENCES

by

JENNIFER CRAIG
B.Sc.N. University of British Columbia, 1976

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

in
THE FACULTY OF GRADUATE STUDIES
in the Department of Education

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA
May, 1979

© Jennifer Lynn Craig, 1979
In presenting this thesis in partial fulfilment of the requirements for an advanced degree at the University of British Columbia, I agree that the Library shall make it freely available for reference and study. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the Head of my Department or by his representatives. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Department of Science Education

The University of British Columbia
2075 Wesbrook Place
Vancouver, Canada
V6T 1W5

Date February 19, 1979
ABSTRACT

The effect of a self-instructional module on the level of questions posed by nursing instructors during post-clinical conferences.

The education of many clinical nursing instructors prepared them to nurse, not to teach. When conducting post-clinical conferences, the nursing instructor is expected to help students integrate their experiences and relate them to classroom teaching and nursing theory. One of the many skills required to do this, is the posing of thought-provoking questions.

The purpose of this study was to prepare, and evaluate the effectiveness of, educational materials for clinical nursing instructors in order that they may improve their questioning skills during post-clinical conferences.

A self-instructional learning module was designed to teach nursing instructors how to ask questions directed toward the higher levels of cognitive processes. A question classification scheme based on Bloom's Taxonomy was developed. Learning activities included reading, identification of questions, generation of questions, and analysis of questions asked during a recording of one of the learner's post-clinical conferences.

The question addressed in the experimental phase of this study was, "Can the level of questions asked by nursing instructors during post-
clinical conferences be raised by the study of a specific self-instructional module?"

The design of the study was a pretest - posttest control group design. The subjects were fourteen nursing instructors representing four faculties of nursing. Six instructors formed the experimental group and eight, the control group. The independent variable was the self-instructional module. The dependent variable was the percentage of high level questions asked by nursing instructors. High level questions were considered to be those that addressed the application level, or above, of Bloom's *Taxonomy*. Data were obtained on half-hour audiotapes of post-clinical conferences. All questions asked by both instructors and students were transcribed into written form and coded according to the classification scheme developed for this study.

When the gain scores of the experimental group were compared with those of the control group, a significant difference was found. It was concluded that the self-instructional module had been effective in raising the level of questions asked.

A second hypothesis to test the relation between the level of questions asked by instructors and the level of questions asked by their students, was abandoned due to an insufficient number of student questions.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.1 Statement of the Problem</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Background of the Problem</td>
<td>2</td>
</tr>
<tr>
<td>1.3 Justification for the Study</td>
<td>7</td>
</tr>
<tr>
<td>1.4 Definition of Terms</td>
<td>10</td>
</tr>
<tr>
<td>II. Review of Selected Related Literature</td>
<td>12</td>
</tr>
<tr>
<td>2.1 Clinical Conferences</td>
<td>12</td>
</tr>
<tr>
<td>2.2 Classification of Questions</td>
<td>15</td>
</tr>
<tr>
<td>2.3 Questioning Behavior of Teachers</td>
<td>18</td>
</tr>
<tr>
<td>2.4 Effect of Questioning on Student Behavior</td>
<td>21</td>
</tr>
<tr>
<td>2.5 Instruction in Questioning</td>
<td>27</td>
</tr>
<tr>
<td>Summary</td>
<td>29</td>
</tr>
<tr>
<td>III. Development of the Module</td>
<td>30</td>
</tr>
<tr>
<td>3.1 Preview</td>
<td>30</td>
</tr>
<tr>
<td>3.2 Definition of Objectives</td>
<td>32</td>
</tr>
<tr>
<td>3.3 Instructional Sequence</td>
<td>34</td>
</tr>
<tr>
<td>3.4 Content Validity</td>
<td>36</td>
</tr>
<tr>
<td>3.5 Field Test</td>
<td>39</td>
</tr>
<tr>
<td>Summary</td>
<td>39</td>
</tr>
<tr>
<td>IV. Field Test</td>
<td>41</td>
</tr>
<tr>
<td>4.1 Subjects</td>
<td>41</td>
</tr>
<tr>
<td>4.2 Design of the Study</td>
<td>43</td>
</tr>
<tr>
<td>4.3 Procedure</td>
<td>45</td>
</tr>
<tr>
<td>4.4 Data Collection</td>
<td>46</td>
</tr>
<tr>
<td>Summary</td>
<td>49</td>
</tr>
<tr>
<td>CHAPTER</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>V. Results</td>
<td>50</td>
</tr>
<tr>
<td>5.1 Data</td>
<td>50</td>
</tr>
<tr>
<td>5.2 Analysis</td>
<td>51</td>
</tr>
<tr>
<td>5.3 Discussion of Findings</td>
<td>53</td>
</tr>
<tr>
<td>Summary</td>
<td>57</td>
</tr>
<tr>
<td>VI. Summary, Conclusions and Recommendations</td>
<td>58</td>
</tr>
<tr>
<td>6.1 Summary</td>
<td>58</td>
</tr>
<tr>
<td>6.2 Conclusions</td>
<td>60</td>
</tr>
<tr>
<td>6.3 Recommendations</td>
<td>62</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>64</td>
</tr>
<tr>
<td>APPENDICES</td>
<td></td>
</tr>
<tr>
<td>Appendix A: Explanatory Letter to Prospective Volunteers</td>
<td>68</td>
</tr>
<tr>
<td>Appendix B: Transcribed Questions Sheets</td>
<td>74</td>
</tr>
<tr>
<td>Appendix C: The Self-Instructional Module</td>
<td>81</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Interrater Reliability</td>
<td>48</td>
</tr>
<tr>
<td>II. Total number of questions and percent of high level questions asked by instructors and their students</td>
<td>52</td>
</tr>
<tr>
<td>III. Pretest and posttest scores of the experimental and the control group</td>
<td>54</td>
</tr>
<tr>
<td>IV. Formulae used to calculate the variance and the t test</td>
<td>55</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES AND ILLUSTRATIONS

<table>
<thead>
<tr>
<th>FIGURE</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Letter to content validators</td>
<td>38</td>
</tr>
<tr>
<td>2. Directions to raters</td>
<td>47</td>
</tr>
</tbody>
</table>
ACKNOWLEDGEMENT

I wish to express my sincere thanks to Dr. Gordon Page for his invaluable guidance and patience in this, and other, endeavors. Thanks are also due to Dr. Walter Boldt and Dr. Marilyn Willman for their support and encouragement. I also extend my appreciation to the Faculties of Nursing in the colleges I approached for their interest and help.

Research requires assistance from a variety of sources outside the scope of the university. I am indebted to my nursing friends, Elizabeth Bregg, Norma Foster, Barbara Bradley, Valerie Sproule and Deborah Taylor for their frank appraisals; to Margaret McLeod for her hours of typing; and to my family for their endurance.
CHAPTER I

Introduction

Chapter I introduces the reader to the purpose of the study and the experimental hypotheses. The statement of the problem is followed by a discussion of effective clinical teaching, research undertaken in this area, and the delineation of one particular skill, questioning, on which the study focuses. The importance of this skill in a teacher, and the proven lack of it, are discussed, and finally pertinent terms are defined.

1.1 Statement of the Problem

The purpose of this study was to develop and evaluate a self-instructional module for clinical nursing instructors in order that they may improve their questioning skills during post-clinical conferences. Relative to this purpose, the experimental hypotheses were that:

1. There will be a significant increase in the percentage of high level questions asked during post-clinical conferences by instructors who have used a self-instructional module relative to instructors who have not.

2. There will be a significant correlation between the percentage of high level questions asked by instructors
during post-clinical conferences and the percentage of high level questions asked by their students during these conferences.

Inherent in the second hypothesis is a predicted secondary effect of the module, which is that if instructors raise the level of their questions as a result of the module, their students will also raise the level of their questions. Since the general objectives of post-clinical conferences are to assist students in analyzing, synthesizing and evaluating, this secondary effect is extremely pertinent to the assessment of the effectiveness of the module.

1.2 Background of the Problem

A continual problem faced by many nursing instructors who teach in two-year college programs is that their education prepared them to nurse, not to teach. The majority of these instructors within British Columbia are prepared to the baccalaureate level and their educational program did not always include courses in either classroom teaching or, and more significantly, in clinical teaching. Some instructors may have taken electives from a Faculty of Education. Undergraduate courses from this faculty, however, are designed to prepare teachers who work with children in a classroom setting. While many educational principles and teaching strategies may be transferred to the clinical setting, the nursing instructor is faced with obstacles that do not arise in a school
classroom. The classroom is a familiar domain to the teacher who
normally works there every day. Unpredictable crises are rare and the
learning "tools" are static and prearranged. The nursing instructor,
on the other hand, is a "guest" within the clinical setting which is a
notoriously unpredictable and changing environment. Patients become, in
a sense, learning "tools" which may be unknown to the instructor before
they are assigned to students. Patients are not static objects and may
not be used as pieces of inanimate equipment; their "use" is a heavy
responsibility for the instructor.

The teacher in the controlled environment of the classroom is
able to supervise students at work most of the time. Clinical nursing
instructors, however, are not able to provide this constant supervision.
After giving directions to the students, the clinical instructor is
engaged in supervising students in different areas, with different
patients and where each student is conceivably performing a different
task. During the post-clinical conference, the nursing instructor is
expected to help the students integrate their experiences and incidents
and relate them to classroom teaching and nursing theory. Faced with
these challenges, the nursing instructor may well ask, "What are the
characteristics of an effective clinical teacher, and how can I acquire
them?"

Research on teacher effectiveness in the field of education
numbers more than 10,000 published studies. Following a review of this
research, Dunkin and Biddle (1974) concluded that "those who are seeking
simple answers to the problem of teacher effectiveness are only slightly 
better off today than they were twenty years ago" (p.16). McDonald (1972), 
in stressing the need to develop a taxonomy of teacher behaviors, was even 
more pessimistic in his belief that "the state of the art of measuring 
teaching behavior can only be described as dismal" (p.58).

Turning to education in the health sciences, Walker (1971), 
Mayberry (1973), Evans and Massler (1976) and Myers (1977) conducted 
studies to determine effective clinical teaching behaviors in dentistry. 
These investigators identified teacher behaviors that students considered 
to be effective in the clinical area. The characteristics of effective 
clinical teachers as determined by these studies are described in vague, 
equivocal terms; for example, "Able to communicate his knowledge of 
The specific behaviors that constitute these characteristics and how they 
may be acquired, were unfortunately not identified.

Nursing has been concerned with establishing criteria for 
effective teachers for many years. McCann (1959), Barham (1965) and 
Jacobson (1966) all used the critical incident technique to identify 
and distinguish between effective and ineffective teacher behaviors. 
A number of evaluation studies have yielded lists of desirable be-
haviors. Butler and Geitgley (1970), Lowery, Keane and Hyman (1976), 
Armington, Reinikka and Creighton (1972), Kiker (1973) and Dixon and 
Koerner (1976) asked faculty and/or students to rate nursing instructors, 
and, using various methods, produced lists of behaviors on which instruc-
tors could be evaluated. None of these studies have concentrated on clinical teaching as separate from classroom teaching.

The nursing instructor who asks, "What are the characteristics of an effective clinical teacher and how may I acquire them?" may be provided with lengthy lists of behaviors deemed desirable by nursing students and faculty from the above studies. Should she desire to "present her subject in an interesting fashion," or "convey excitement and enthusiasm," she would find no recommendations in the studies on how to achieve these ends. In examining these lists of behaviors, one asks, "Is there a common element; a behavior that has been identified in all the studies?" "Is there a common behavior that may be improved upon without requiring the nursing instructor to undergo a major personality change?" The following behaviors have been selected from the above studies in nursing as being similar.

1. "The effective teacher asked clear, direct, specific questions." (McCann 1959, p.109.)
2. "Stimulating and involving students." (Barham 1965.)
3. "Making students think and motivating them." (Jacobson 1966.)
5. "Encourages students to think for themselves." "Stimulates intellectual curiosity." (Lowery, Keane and Hyman 1971.)
6. "He inspires students to independent effort and desire for investigation." "His encouragement of student thinking was outstanding." (Armington, Reinikka and Creighton 1972.)
7. "Encourages independent thinking and learning." (Kiker 1973.)
How might the above behaviors be achieved? How might a nursing instructor ask thought-provoking questions, stimulate intellectual curiosity and encourage students to make discoveries? It is particularly important that the clinical instructor be able to achieve these behaviors as she is responsible for ensuring, not only that students obtain the required clinical experiences, but also that they are able to plan and execute increasingly complex nursing care. In order to nurse, the student, indeed any nurse, must be able to assess the patient, identify problems, set priorities, formulate objectives, implement nursing measures and evaluate the effectiveness of those measures. This series of operations is known as the nursing process. (Bower 1972; Yura and Walsh 1973.) The nursing process requires high levels of cognitive thought, namely analysis of the patient's problem, synthesis of a plan of care and evaluation of the care given.

During the post-clinical conference the instructor and students engage in a discussion, during which each student is expected to talk about her nursing problems. The group is encouraged to clarify issues and suggest possible solutions. The written assignment for the clinical experience is typically a nursing care plan and a "process." The latter is a written record of the steps the student took in providing care and her reasons for her actions. For a clinical instructor to effectively help students achieve the clinical objectives, she must be able to direct their thinking toward high cognitive levels.

In summary, the clinical nursing instructor is judged for effectiveness on several dimensions. One specific dimension is her ability to ask thought-provoking questions. In British Columbia, the majority of
clinical nursing instructors who teach in community colleges and whose job includes teaching students to think at high cognitive levels, earned baccalaureate degrees from programs which offered them little, if any, preparation for their instructional role.

1.3 Justification for the Study

Teachers have always posed questions. Perhaps the most famous questioning teacher is Socrates who extracted the theorem of Pythagoras from an illiterate boy. Only recently, however, have researchers attempted to study questioning techniques and the relationship between patterns and types of questions, and learning and cognitive thought. (Clegg 1971.) "Questions, when skillfully asked, assist students to see relationships and link the unknown to the known. In addition, questioning permits student and teacher to explore ideas together. The art of questioning, more than any other single teaching skill, can assist the teacher in conveying her interest, her enthusiasm, and her continued pursuit of her own learning." (de Tornyay 1971.)

Minor (1967) attempted to develop an art-science of questioning. She summarized her survey of the literature by the following:

1. Questions, in teaching, are strategically critical.

2. Questions direct and focus thinking; serving as stimuli - as clues. As avenues to all exploration, they can be limited, limiting or limitless.

3. Questions may determine the data which students will seek; whence their responses follow upon the kinds of questions. In essence, questions help determine the ways in which students will seek and organize data.
4. Questions serve as diagnostic tools enabling the teacher to assess the nature and size of the holes in the student's sieve of knowledge. (pp.53-54.)

These statements, together with those common elements extracted from the studies of student perceptions of effective teaching, provide considerable support for the notion that the acquisition of questioning skills is a desirable goal for nursing instructors.

Several studies have been conducted which show that teachers lack questioning skills. (Barnes 1976; Davis and Tinsley 1967; Scholdra and Quiring 1973.) The basic approach in these studies has been to classify questions in terms of the degree of cognitive activity they demand. As a measure of the level of cognitive activity, the Taxonomy of Educational Objectives, edited by Benjamin Bloom (1956), has proved to be a useful system. Bloom and his colleagues conceived the cognitive domain as possessing six divisions arranged in a hierarchy. The lowest division of the hierarchy is Knowledge, followed by Comprehension, Application, Analysis, Synthesis and ultimately, Evaluation. Using this system, the above researchers classified questions as "low level" if they addressed the students' ability to recall, comprehend or apply knowledge and "high level" if they required the cognitive skills of analysis, synthesis or evaluation to answer the question. Barnes (1976) found that 82.33% of questions posed by 40 college professors teaching in four institutions addressed the lowest cognitive level. Davis and Tinsley (1967) showed that both teachers and students asked more Knowledge questions than all other categories combined; furthermore, they found that the level of student questions directed toward the teacher correlated 0.9 with the level of questions asked by the teacher.
If the teacher posed questions at the analysis level, students would also ask questions at the analysis level.

If the purpose of post-clinical conferences is to help students implement the nursing process, then the type of questions asked should reflect the analysis, synthesis and evaluation skills required to do this. However, Scholdra and Quiring (1973) analysed 617 questions asked by instructors and students in a baccalaureate nursing program during post-clinical conferences and found that only six were directed toward the higher cognitive levels. Preliminary review of clinical conferences conducted by instructors who teach in community colleges in British Columbia has produced similar results.

There is substantial evidence, therefore, that clinical nursing instructors need training in questioning skills. How might this training be provided? The following alternatives may be considered:

1. Information could be distributed alerting the instructors to their need to develop questioning skills and an appropriate bibliography provided. Even assuming the presence of motivation, this method violates the learning principles of engaging the learner in an active way, and providing feedback -- two necessary conditions for the development of any skill.

2. Workshops could be offered in all community colleges. This method has merit, but cost, time and lack of personnel make it impractical.
3. A self-instructional module could be prepared and provided to all nursing instructors who express a desire to improve their questioning techniques. If the module motivated the instructor to improve, involved her actively in the learning process, provided her with feedback, and was relatively inexpensive, this method would clearly be the method of choice.

1.4 Definition of Terms

Clinical area: A hospital ward, community health clinic, doctor's office or any other area serving patients and in which nursing students practice skills learned in the classroom.

Clinical nursing instructor (instructor): A nursing instructor who teaches, observes and evaluates the student in the clinical area where the student is given a specific patient assignment to provide direct patient care.

Post-clinical conference: A discussion conducted by the instructor with all students for whom she has been responsible, following the experience in the clinical area.

Module: A self-contained, independent unit of a planned series of learning activities designed to help the instructor accomplish certain well-defined learning objectives.
High level questions: For the purpose of this study, high level questions are defined as those questions which address the upper four levels of Bloom's Taxonomy of educational objectives - application, analysis, synthesis and evaluation.

Low level questions: For the purpose of this study, low level questions are defined as those questions which address the lower two levels of Bloom's Taxonomy of educational objectives - knowledge and comprehension.

Student: A nursing student enrolled in a two-year college nursing program preparatory to earning a diploma in nursing and nurse registration.

Clinical objectives: Learning objectives to be achieved by the student in the clinical area.
CHAPTER II

Review of Selected Related Literature

Introduction

In this review of related literature the findings which are pertinent to this study are described. The review is presented under the headings Clinical Conferences, Classification of Questions, Questioning Behavior of Teachers, Effect of Questioning on Student Behavior and Instruction in Questioning.

2.1 Clinical Conferences

"The clinical nursing conference has come to be recognized as a pivotal component of the total teaching plan in clinical nursing." (Schweer and Gebbie 1976, p.118.) These authors see the purpose of the conference as a problem-solving activity during which students determine ways of providing nursing care. Although the discussions arise from the objectives of the clinical experience, the patients and the students, Schweer and Gebbie stress the need for spontaneity in allowing students to deal with "now problems" rather than a fixed plan of topics. Apparently, the creative clinical teacher is able to bridge this cleft between planning and spontaneity and provide "a learning environment that fosters opportunities for students to think through challenging and
worthwhile problems, allowing for their completion and evaluation while simultaneously learning new subject matter" (Schweer and Gebbie 1976, p. 119).

Matheney (1969) is more specific. She lists the purposes of a post-clinical conference:

1. To analyze the clinical experience.
2. To clarify relationships between theory and practice.
3. To develop generalizations and guidelines in providing nursing care.
4. To clarify both thinking and feeling.
5. To keep the focus on patients as people.
6. To reinforce process learning.

In giving advice on how to direct a clinical conference, Matheney states that all student reports must be analysed, tested for applicability and evaluated; they must not be simple descriptive reports of what occurred. Questions must be continually asked by the instructor to help the student see meaning in her experiences.

Heidgerken (1965) differentiates between a "problem" and a "problem-solving" activity. Emphasis on the latter activity in nursing has resulted in students who recite "an encyclopaedic enumeration of data" (p. 442) and think they are engaged in the process of problem-solving. In her analysis of why students may appear to be using a problem-solving approach, when in fact they are merely listing data and describing
the tasks they performed, she stresses the need for questioning by the instructor in order to promote true problem-solving skills. These entail identifying, defining and analyzing a problem, considering alternative solutions, choosing a solution and evaluating its effect.

Hill (1967) investigated a number of clinical conferences in a baccalaureate nursing program. She said that the purpose of the clinical conference was to stimulate the student to: 1) seek the necessary knowledge from various sources; 2) examine the scientific basis on which she made her nursing diagnosis and planned appropriate interventions; 3) evaluate the response of the patient and family to nursing and medical care.

While nursing educators consider clinical conferences to be an essential component in the development of higher level objectives for students, Scholdra (1972, p.4) notes that "Factors in the clinical conference (and interview) which influence achievement of the objectives of clinical experience have not been investigated."

The purposes of post-clinical conferences have been described to show that students must use high levels of cognitive thinking if they are to meet the objectives of the clinical experience. The general conclusions are:

1. Questioning is a vital skill needed by instructors if they are to assist students to reach these high levels of thought.
2. Most authors of literature directed toward nursing instructors appear to assume that questioning skills are inherent in the instructor; an exhortation to "encourage critical thinking" will suffice.

The next section of this chapter will describe questions classification systems that have been developed during research on questioning.

2.2 Classification of Questions

Systematic observation of classroom behavior is a comparatively recent research activity (Dunkin and Biddle 1974). With the development of coding instruments such as the Flanders Interaction Analysis Category system (Flanders 1970), questions and responses become foci for inquiry. Paralleling this development was an interest in cognitive processes. The Bloom et al. (1956) Taxonomy of Educational Objectives became the basis, not only for stating objectives, but for classifying questions. Sanders (1966) took the first step from the Taxonomy to a classification scheme for questions designed to foster the increasing high order cognitive operations described in the Taxonomy.

In order to quantify research into the types of questions asked by teachers, many classification systems have been developed. Gall (1970) lists references for eleven such systems. Scholdra (1972, p.13) reviewed Gall's list plus an additional three systems and Riegle (1976) identifies
classification systems. However, as Riegle points out, most of these systems have been developed for specific subject matter and have limited general application. For example, Friedman (1974) adapted Bloom's hierarchical model into a system to allow teachers of geometry to code and analyse their questions. The rules and examples he gives are of little use to other than mathematicians.

Two classification schemes, both based on Bloom's *Taxonomy*, have general application. In a study designed to examine questions asked by teachers and their students, Davis and Tinsley (1967) developed the Teacher Pupil Question Inventory. The nine categories of the T.P.Q.I. are 1) memory, 2) interpretation, 3) translation, 4) application, 5) analysis, 6) synthesis, 7) evaluation, 8) affectivity, 9) procedure. The first eight categories describe the activity expected of the student in order to answer the question. For example, synthesis requires that "the one questioned suggests answers to a problem that is original, speculative, or creative." The procedure category codes questions related to classroom organization.

Manson and Clegg (1970) designed a form to enable teachers to tally the questions they asked. Based on Bloom's *Taxonomy*, it re-names the six categories as Remembering for Knowledge, Understanding for Comprehension, Solving for Application, Analyzing for Analysis, Creating for Synthesis, Judging for Evaluation. The form includes a summary of the expected cognitive activity required of the student at each level, and a list of key concepts for each level. In addition, samples of phrases and questions that address each level are given.
As Gall (1970) says, "It appears that Bloom's Taxonomy best represents the commonalities that exist among the systems." However, he identifies certain limitations when the Taxonomy is used exclusively:

1. Probing questions used to cue students to improve an initial weak response are worthwhile questions but are difficult to code using the six categories.

2. Bloom's system classifies questions which are directed at only a few of the educational objectives. Questions requiring an affective response are not included. For example, "What was your reaction when the patient told you he had gonorrhoea?" could not be coded in Bloom's system.

3. Procedural and rhetorical questions are not accounted for.

4. The cognitive processes in which the student engages are inferential constructs and cannot be observed directly. Thus, a question such as, "What are some similarities between the nursing care required for this child and that required for this 80-year-old man," may stimulate critical thinking, or, may elicit recall of similarities listed in a text.

In an effort to overcome these limitations, Riegle (1976) suggests a scheme based on John Wilson's Statement Classification System. This scheme divides all questions into two categories - interrogative questions and rhetorical questions. The interrogative question category has five major subdivisions - empirical, analytic, value, preference and metaphysical. The rhetorical question category is subdivided into imperative, declarative and exclamatory. Many advantages of this system are identified, particularly the fact that questions are categorized according to semantic cues within the question and not the cognitive activity required to answer them. This system is appealing but, as Riegle points out, it is an outline. Further conceptual refinement and
empirical testing for reliability and validity is required before it can be used.

This section of the review has described the development of systems designed to classify questions, particularly those based on Bloom's Taxonomy. The general conclusions are:

1. At present, a classification system based on Bloom's Taxonomy is the system of choice.

2. The limitations of using a system based on Bloom's Taxonomy must be taken into account when coding questions asked by instructors during the experimental phase of this study.

The next section of this chapter presents a review of research undertaken to describe the questioning behavior of teachers.

2.3 Questioning Behavior of Teachers

Although teachers agree that an educational goal is to foster critical thinking, research spanning more than fifty years demonstrates that the majority of teachers' questions require recall of facts as a response. An early study by Stevens (1912) showed that four-fifths of student-teacher interaction comprised question and answer dialogue and of the numerous questions asked, few prompted "thought." Although the days of recitations and drills are over, Davis and Tinsley (1967),
Godbold (1968), Scholdra and Quiring (1973) and Barnes (1976) have demonstrated that the level of questions posed is unchanged.

The study by Davis and Tinsley (1967) sought to determine the range of cognitive objectives evident in questions asked by student teachers and their pupils. Using the Teacher Pupil Question Inventory described earlier, observers analysed questions asked during alternate five minute segments of thirty minute periods of classroom teaching. Analysis of the data indicated that of 2,143 questions, 1,313 were at the memory level, 187 were translation, and 391 were interpretation. Questions in the application, analysis, synthesis and evaluation levels comprised only 11.76% of the total. The remaining questions dealt with affective or procedural issues. The authors concluded, "Specific understandings and skills of classroom questioning and the purposes of questions need major attention in the pre-service and in-service education of teachers."

Godbold (1968) designed a study to determine whether the level of questions asked varied with the organization setting and length of teaching experience. Sixteen elementary and sixteen secondary school teachers were selected and divided into groups according to length of teaching experience. Data were collected from fifty-five minute audiocassette recordings of discussions led by the subjects. Questions were classified according to a system based on Bloom's Taxonomy. The researcher concluded that though the more experienced teachers asked more questions, all groups asked more memory questions than any other level.
Scholdra and Quiring (1973) conducted a descriptive study to investigate the kinds of questions asked by nursing instructors and students during post-clinical conferences of a baccalaureate program. A total of 22 conferences averaging 63 minutes each was audiotaped. Questions were analysed using the classification system designed by Manson and Clegg (1970). Data analysis was based on 617 questions, 38% of which were asked by students. Nursing instructors and students asked 508 remembering, 59 comprehension and 44 solving questions compared with six higher level questions. (Higher level, in this study, was determined to be analysis, synthesis and evaluation.) As an issue, these researchers asked, "Are nursing instructors who ask low-level questions justified in expecting students to develop high-level skills such as those involved in the process of analyzing, synthesizing and evaluating?"

More recently, Barnes (1976) described the questioning behavior of 40 professors among four institutions. She audiotaped teachers and analysed several teaching behaviors including questioning. Using a classification system based on Bloom's Taxonomy she found that 82.33% of questions addressed the lowest cognitive level. Furthermore, professors in the mathematics, science and engineering disciplines asked more low level questions than those in the humanities, social sciences and arts.

Clegg et al. (1969) introduced the concept of the "grammar of the interrogative" as a variable contributing to the low level of questions asked by teachers. While analyzing tapes for a study, raters noticed a frequent repetition of those question words appropriate for the knowledge
and comprehension categories of questions but few of any other level. These words form the grammar of the interrogative and are common words in a teacher's vocabulary that provide cues to the student about the type of answer required. In the appendix to their paper they list typical question words that may be learned and used for each level.

This section has described research which shows that most questions asked by teachers require no more than recall of facts by students. The general conclusions are:

1. Teachers ask a considerable number of questions during their interchange with students.
2. Of the questions asked by teachers, the majority address the lowest levels of the cognitive domain.
3. One reason for the preponderance of low level questions asked by teachers may be that typical question words at the higher levels are not general stock in a teacher's vocabulary.

Accounts of studies describing the effects of questions on student behavior comprise the next division of this review.

2.4 Effect of Questioning on Student Behavior

A teacher's question, regardless of how well it is worded, is of little value if it has no effect on student behavior. Review of
research investigating the effect of questioning on students will be considered in terms of the effect of teacher questions on:

1. student response,
2. the level of student questions,
3. other student outcomes.

Cole and Williams (1973) examined a cross section of classroom verbal interaction in order to explore the relationships between teacher questions and pupil responses. Data were gathered by audiotape during portions of lessons conducted by eight elementary school teachers. In all, 129 paired observations of question and response were collected and analysed for the cognitive level, length and syntax of pupil responses and for the cognitive level of teacher questions. The findings suggested that the cognitive level, length and syntax of pupil responses were contingent upon the cognitive level of questions asked. For example, a question directed toward the memory level elicited a response of one to three words in the form of a word or phrase, whereas a question demanding divergent thinking elicited ten or more words in the form of a compound sentence or multiple sentences.

Arnold, Atwood, and Rogers (1973) conducted a similar study to the one above but included the variable "lapse time," i.e., the time lasing between question and response. They found a significant relationship between the level of question posed and the level of response and no relationship between lapse time and question level or response level. The mean lapse time was 1.9 seconds. These findings show that, despite
the more sophisticated cognitive processes required to answer a high level question, pupils were not allowed a corresponding increase in time to answer a high level question. Perhaps students would demonstrate higher cognitive thinking if they were given time to complete the process before the teacher interjected with the answer or a probing question.

Davis and Tinsley (1967) analysed the level of questions asked by student teachers and the level of questions asked by their pupils in a study designed to determine the cognitive objectives manifest in secondary school social studies classrooms. Using the T.P.Q.I. described earlier, they obtained the medians for each level of question asked by teachers and by students. Correlation between those medians was significantly high; $r = 0.9$. These results were supported by Johns (1968). Using Flanders Interaction Analysis Category system (Flanders 1970), student-teacher interactions were coded in matched high-school English classes. The purpose of the study was to determine the relationship between the incidence of thought-provoking questions by students and the incidence of thought-provoking questions and statements by teachers.

The findings of the two experiments above had implications for this study which investigated the relationship between the level of questions asked by nursing instructors and the level of questions posed by their students.

A much cited study is one conducted by Hunkins (1968). Students read a social studies text supplemented by question sheets employing
analysis and evaluation questions for the experimental group and knowledge questions for the control group. Achievement was measured by a 42-item multiple-choice test with items representing each level of Bloom's Taxonomy. Those pupils who had used the high level question sheets scored significantly higher than those who had received knowledge level question sheets. However, better readers achieved higher on all scores than did poorer readers and Hunkins concludes that "whether one can handle high level questions is related to how well one can read. The higher level questions usually were more involved with regard to wording than were the knowledge questions." This finding has implications for nursing instructors in British Columbia who are frequently required to teach students whose first language is not English.

Results of a study by Quiring (1971) differ from those of Hunkins (1968). Quiring designed auto-tutorial learning packages incorporating either high or low level questions for 72 sophomore nursing students in a baccalaureate program. High level questions were defined as application and above using Bloom's classification system. Other independent variables studied were G.P.A., critical thinking measured by the Watson-Glaser Critical Thinking Appraisal Score, and immediate or delayed feedback. The dependent variables were tests addressing the cognitive and psychomotor domains based on the learning packages. The researcher found no significant differences for the effect of high and low level questions on the achievement scores. The effects of G.P.A. and critical thinking were significant on some of the dependent measures.
The studies by Hunkins (1968) and Quiring (1971) described above used written questions in their treatments. Scholdra (1973) investigated the effect of high level oral questions asked by nursing instructors during clinical and individual conferences on performance in nursing. The dependent variables were: 1) proportion of effective critical incidents, 2) scores on paper and pencil tests, and 3) scores on two situation tests. Scholdra trained two instructors, both with baccalaureate degrees, teaching in a college program in Canada, to ask high level questions. They practiced posing questions until they maintained the criterion level set at 50% high level questions. High level was defined to be comprehension and above. The classification system used was that developed by Manson and Clegg (1970). A third instructor was given no training but was requested to increase the number of knowledge questions she posed. All conferences were audiotaped and random checks made on the level of questions asked. The untrained instructor asked 20% high level questions and the trained instructors maintained an average of over 50% high level questions. Had the researcher defined high level questions as analysis and above, the percentage of high level questions asked by her trained instructors was an average of 22% and by her control instructor, 4.5% during clinical conferences.

Analysis of the data revealed that students who were asked predominantly high level questions scored significantly higher on a paper and pencil test than those who were asked low level questions. There were no significant differences between the groups on the other dependent variables.
One important limitation in this study was the fact that the two experimental instructors had two years and ten years of teaching experience respectively. The control instructor did not have teaching experience prior to the study. This variance in experience may have been a contributing factor to the results.

This section of the review of the literature has presented investigations of the effect of teacher questions on student response, student questions, and various measures of student achievement. The general conclusions drawn from these studies are:

1. High level questions elicit more carefully phrased and longer replies than do low level questions.

2. Additional time is required by students if they are to adequately answer a high level question. Instructors must be weaned away from their habit of expecting an instant answer to a question.

3. Where teachers ask high level questions, students follow suit.

4. The effect of high level questions on student achievement is equivocal.

The final section reviews programs that were designed to alter teacher questioning behavior.
2.5 Instruction in Questioning

Research into teacher behavior has been greatly influenced by the work of Ned Flanders.

"Flanders' contribution to research in classrooms has been important and pervasive. Not only did he develop the single most-often-used instrument for observing classroom behavior, but he has also made important attempts to utilize research findings to improve teaching through teacher education." (Dunkin and Biddle 1974, p.100.)

The instrument referred to in this quotation is the Flanders' Interaction Analysis Categories (F.I.A.C.). How it may be used and its application to teacher self-development is described in Analyzing Teaching Behavior (Flanders 1970). Ten common behaviors of teachers and students are coded 1 through 10. An observer watching a teacher-student interaction would tally these behaviors every three seconds. Items on the tally sheet are transcribed to a 10 x 10 matrix which is then assessed and compared to performance criteria. One of the ten categories concerns teacher questions.

Using a similar coding system but with six categories is the Guided Self-Analysis System for Professional Development Education Series - Teaching for Inquiry (Parsons 1968). This system is designed for teachers to analyze their own behavior. Each category, one of which is questioning, is examined separately and the results are plotted into an individual profile. The profile is then compared with an "ideal" profile chosen by the teacher. Should his profile not match that of the ideal, cognitive dissonance is aroused and behavior change effected. Birch has found this
A number of researchers have studied the effects of self-instructional modules on the questioning skills of pre-service teachers. (Lamb 1977, Welch 1976, Mervin and Schneider 1973, Zigler 1972.) Each study used audiotaped discussions and pre- and post-tests and each obtained significant increases in the cognitive level of questions asked. In addition, Zigler compared the effectiveness of two learning packages, one based on Bloom's (1956) classification system and the other on Gallagher's (1965) system. The package based on Bloom's system was found to be more effective.

In his review of research on teacher training in questioning, Lamb (1977) suggested that a module combining the elements of protocol materials, interaction analysis training materials and self-analysis training materials would be most effective. His module, which took a mean of 6.5 hours to complete, comprised 1) a short essay explaining the importance of questions, 2) a description of a question classification system, 3) a 120 frame programmed instruction on using the classification system, 4) an analysis of a transcript, and 5) an audiotaped program including live classroom behavior.

This section of the review of the literature has described attempts to instruct teachers in questioning skills. The general conclusions are:

* Daniel Birch 1978; personal conversation.
1. Behavior change is effected where teachers analyse their own behavior during student-teacher interactions and compare the results with an "ideal" behavior.

2. Self-instructional packages are an effective mode of instruction.

3. A classification system based on Bloom's Taxonomy was found to be superior.

4. Questioning skills can be learned in under seven hours.

**Summary**

Literature related to the purpose of this study has been reviewed and pertinent findings identified. Post-clinical conferences were described in order to demonstrate that nursing students need to use high levels of cognitive thought if they are to effect the nursing process. Existing question classification schemes and their merits and limitations were discussed. Experiments designed to study the questioning behavior of teachers and the effects of questions on student behavior were then described and finally, a selection of programs intended to teach questioning skills was reviewed.

The next chapter gives an account of the steps taken in preparing the self-instructional module and the decisions made based on the findings described in this chapter.
CHAPTER III

Development of the Module

Chapter I explored the background of the problem in lack of questioning skills, and offered justification for this study. Chapter II reviewed literature related to studies in questioning. Each section of the review ended with general conclusions drawn from the studies described. These conclusions formed the basis for decisions made regarding the development of the module. A delineation of the steps taken to develop the module is presented in this chapter under the headings Preview, Definition of Objectives, Instructional Sequence, Content Validity and Field Test.

3.1 Preview

The preview was conducted to test the feasibility of requesting instructors to tape-record their clinical conferences so that the level of questions could be analysed. The queries raised were: Does the presence of a tape recorder hinder the conference proceedings or cause embarrassment? Can everyone be heard on the tape? Are tape recorders available to instructors? Is it likely that instructors will participate in this study?
Three instructors, each teaching in a different college were asked to tape sample conferences. The purpose of the recordings was explained to their students and it was generally agreed that the tape recorder was not a hindrance. Tape recorders are now a commonly used piece of equipment in educational settings and in clinical areas. The instructors and their students denied feelings of embarrassment on being recorded. As tape recorders are common, they are readily available for loan to instructors. General inquiry by those three instructors produced a favorable response from their peers regarding future participation in this study.

The preview stage also included a verification of performance deficit in questioning skills. A preliminary analysis of the sample conference tapes revealed questioning levels that supported the findings of the studies discussed in Chapter II.

The number of questions asked during fifteen minute, thirty minute and forty-five minute periods was assessed. For the purpose of this study, a thirty minute recording of a post-clinical conference was selected on the following grounds:

a. Thirty minute trial tapes yielded an average of 35 questions which was considered to be a sufficient number for analysis.

b. Self-analysis of a thirty minute segment of conference was judged to be a reasonable and acceptable demand of an instructor.
3.2 Definition of Objectives

A number of factors was considered prior to defining the objectives for the module. The major factor was the time commitment asked of the instructors. A request for a heavy investment of time would invite failure of the field test of the module, though not necessarily failure of its ultimate use. Previous self-instruction in questioning had been accomplished in a mean of 6.5 hours. (Lamb 1977.) Modest objectives were therefore generated with the time required to meet them estimated to be under six hours.

Economic considerations also influenced the scope of the objectives. The module was developed on a limited budget. Printing costs prohibited the production of a tome to meet objectives regarding all aspects of questioning.

The choice of a classification system for questions guided the definition of objectives. After considering the studies described in Section 2.2 the question classification system, shown on pages 131 and 132 of Appendix C, was devised. This scheme combines the work of Bloom et al. (1956), Clegg et al. (1969), Manson and Clegg (1970) and Hunkins (1976) with modifications by the author. It was devised with two purposes in mind:

1. To serve as a guide in the instructional module.
2. To serve as a guide in coding questions during the experimental phase.
The classification system has the following features:

1. The first column lists the major categories of Bloom's Taxonomy (1956), namely knowledge, comprehension, application, analysis, synthesis and evaluation. The selection of this taxonomy precludes the coding of affective, procedural, rhetorical and probing questions.

2. The cognitive activity required by the student to answer questions at each level comprises the second column. The major headings, recall, understanding, solving, exploration of reasoning, creating, judging - are taken from Manson and Clegg (1970) and the descriptions following each heading are taken from Clegg et al. (1969).

3. The third column lists the key concepts underlying each level. These were adapted from Manson and Clegg (1970).

4. The fourth column lists sample words that may be used to begin a question directed to each level. The findings described as the "grammar of the interrogative" (Clegg et al. 1969) and discussed in Section 2.3, dictated the inclusion of this column. The sample question words are taken from Clegg et al. (1969), Hunkins (1970), with a few additions by the author. This classification scheme formed the basis of the instructional module.

The general purpose of the module was to improve the questioning skills of clinical nursing instructors during post-clinical conferences by providing the information and practice necessary for them to be able to:

1. Classify questions in terms of the levels of Bloom's Taxonomy of intellectual processes.

2. Generate questions at each level of Bloom's Taxonomy.
3. Evaluate questions asked during post-clinical conferences.

These objectives guided the instructional design of the module.

3.3 Instructional Sequence

On the basis of the major objectives, the module was divided into three units. Instructional objectives were then developed for each unit. Learning activities were designed to meet the instructional objectives with the following learning principles in mind. Naturally, these points do not cover the whole spectrum of learning, but they were judged to be pertinent to this study.

1. "In many cases, the vocabulary of terms used by the instructor may be entirely unfamiliar to the learner, and this may block the learning process." (Dickinson 1973, p.11).

2. Adults are interested in the immediate usefulness of new knowledge. Learning is enhanced if content relates to problems learners encounter in their work setting.

3. Learning is an active process; adults prefer to participate in the process rather than play a passive role.

4. Immediate feedback reinforces learning.

5. Self-analysis of performance encourages behavior change due to arousal of cognitive dissonance (Parsons 1968).

A copy of the completed module is shown in Appendix C.
The introductory pages inform the reader of the module's purpose, content, audiotaping procedure, objectives and organization. Each of the three units begins by presenting the instructional objectives of the unit, a list of required materials, a prospect of the unit and an estimate of the time required to complete the unit. This preliminary information is followed by the learning activities themselves. Each unit closes with a summary.

Unit I defines a taxonomy prior to describing the levels of Bloom's Taxonomy. Each sub-level of each category of the taxonomy is described and two questions are given as examples of questions that may elicit the type of thinking required of each sub-level. The sub-levels are described in order to present the instructor with a selection of alternative questions that may be posed within one major category. For example, the Comprehension category has three sub-levels. Questions directed to each of those sub-levels all comprise Comprehension questions. Following the description of the taxonomy, four sets of thirteen questions related to the content of a basic nursing program are presented. These may be seen on pages 122-28 of Appendix C. The learner must identify, not only the category, but the sub-level of each sample question. Answers are provided immediately following each set. The question classification scheme forms the summary of Unit I.

In Unit II, the learner is presented with sets of three diagrams related to nursing, three objectives for students in a clinical area and three written simulations of a student's clinical experience. For each set, the learner is asked to generate questions directed toward each
major level of Bloom's Taxonomy; questions that the diagram, objective or simulation suggest. Sample responses are provided immediately following each set.

In Unit III, the learner analyses the tape of her clinical conference. She is asked to write out the questions asked by both herself and her students. She then assigns each question to a level of Bloom's Taxonomy. She is requested to ignore procedural and affective questions. A question profile is then completed by calculating the relative percentage of questions asked at each level by both the instructor and the students. The learner is directed to consider the profile and the effect her questions might have on student thinking on pages 180-83 (Appendix C). An annotated bibliography completes the module.

An initial draft of the module was compiled and copies made for the purpose of testing its content validity.

3.4 Content Validity

Two groups of people were asked to validate the module. The first group comprised university professors, four from the School of Nursing and two from the Faculty of Education. Four nursing instructors teaching in local colleges formed the second group.
All validators were asked to read and complete the module. The directions shown in Figure 1 accompanied each module to serve as a guide as to the type of feedback required.

The following comments and suggestions were made in reply to each of these questions.

1. The content was considered to be theoretically sound. Some minor changes were suggested in the descriptions of the levels of Bloom's Taxonomy in order to achieve greater simplicity. An error of omission was detected in the description of the Analysis of Relationships level.

2. The instructional methods were judged to be sound.

3. The nursing instructors suggested changes in the wording of some questions to reflect a more realistic approach to clinical teaching. For example, one question originally read, "What might happen if you gave an intramuscular injection in a place other than those I've described?" This was altered to read, "What might happen if you gave an intramuscular injection in the lower outer quadrant of the buttock?"

4. Opinion about the length and ambiguity of the learning activities varied. Those who were familiar with Bloom's Taxonomy thought the number of "Question sets" could be reduced; however, those who were unfamiliar with the Taxonomy, thought there was a sufficient number of "Question sets." As the module was produced for a population who were unlikely to be conversant with Bloom's Taxonomy, the number of sets was not changed. Some ambiguities in wording were detected and removed.

5. The language was not considered to be either too formal or too informal. Some original abbreviations were written out in full at
You have been given this module so that I may benefit from your consideration of the following:

1. Content validity. Is the content theoretically sound?
2. Instructional validity. Is the module based on sound instructional methods?
3. Realism. Are the examples of questions ones that are likely to be asked by nursing instructors teaching in two year college programs? Are the simulated student experiences realistic?
5. Language. Is the language too formal? Too informal? Too erudite? Too full of jargon?

Please feel free to write comments as they occur to you, make alterations in the script, make suggestions, etc. Please query any of my 'answers.'

PLEASE make a note of the time (or estimate of) it took you to complete each unit. Record that time where it says "Estimated time to complete" on the objectives pages of each unit.

Figure 1. Letter to Content Validators
the suggestion of the validators.

6. Each validator proffered an estimate of the time taken to complete each unit of the module. On the basis of these estimations, the "Estimated time to complete" sections were printed.

Following the adaptations described above, the module was re-typed and prepared for printing. A professional artist designed the cover which displays the title, "Questioning for Clinical Nursing Instructors" flanked by large question marks. A sufficient number of copies was printed to complete the final stage of the instructional process, the evaluation of the module.

3.5 Field Test

The field test conducted to evaluate the effectiveness of the module formed a major part of this study. It is, therefore, described in a separate chapter, Chapter IV.

Summary

This chapter has described the steps taken in the development of a self-instructional module entitled "Questioning for Clinical Nursing Instructors" (Appendix C). These steps were:

1. A preview to determine the feasibility of, and possible
difficulties in obtaining audiotapes of post-clinical conferences.

2. The design of a classification system as the theory base of the module.

3. The definition of the major and the instructional objectives of the module.

4. The design of the instructional sequence and the development of learning activities to meet the objectives.

5. The request for 'expert' opinion as a basis for determining the content validity of the module.

6. Revisions of the module following suggestions obtained in Step 5.

The final step, the field test to evaluate the effectiveness of the module, is described in Chapter IV.
CHAPTER IV

Field Test

This chapter describes the field test to evaluate the effectiveness of the self-instructional module. Topics are considered under the headings Subjects, Design of the Study, Procedure and Data Collection.

4.1 Subjects

The population for this study was defined as "nursing instructors who teach in two-year college programs, whose primary responsibility is the supervision of students within clinical areas and who wish to improve their questioning skills." Subjects were those nursing instructors, from the above population, who were willing to volunteer the time required to work through the module.

Four colleges in British Columbia were approached in order to seek volunteers who would be willing to test the module. These colleges were the British Columbia Institute of Technology, Vancouver City College, Douglas College and Cariboo College. The British Columbia Institute of Technology offers two programs in nursing, one leading to general nurse registration, and one leading to psychiatric nurse registration. Although housed on the same campus, the two programs have a separate faculty and
curriculum. Therefore, these programs were considered to be two institutions for the purpose of this study. In addition, the second year team of the baccalaureate program at the University of British Columbia was asked to participate, as the content of the second year program is similar to that of a college. Thus, a total of six nursing faculties was approached.

Initial contact with the schools was made by telephone conversation with the Directors. Following the explanatory conversation, a letter was sent to the Director requesting time during a faculty meeting for the experimenter to explain the study to faculty and to call for volunteers. The five schools in the Vancouver region were visited. The remaining school was not in the Vancouver area and all contact was by telephone or letter.

At the faculty meetings, the explanatory letter, instructions for taping, and a 'consent' form, shown in Appendix A, were distributed. The experimenter briefly displayed the module, described its purpose and stated that the aim of the field test was to evaluate the effectiveness of the module, not the teaching practices of the instructors. A request was made for volunteers who would be willing to supply the experimenter with two recordings of post-clinical conferences and who were prepared to spend the time required to study the module. Assurance was given that the tapes would be heard by the experimenter only.
Volunteers were asked to complete the 'consent' form. The instructions for taping were explained and a blank audiotape provided for the recording of the first conference. Due to the variation in clinical assignment hours, schedules and rotations, it was impossible to specify dates for the recordings. Nor was it possible to prescribe a specific time interval between the two conferences recorded.

4.2 Design of the Study

The experimental design for this study was a pretest-posttest control group design, (Campbell and Stanley 1963, p.13).

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>RO₁ X O₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group</td>
<td>RO₃ X O₄</td>
</tr>
</tbody>
</table>

The dependent variable was the percentage of high level questions asked by instructors during a thirty minute segment of a post-clinical conference. The independent variable was the self-instructional module on questioning.

The first null hypothesis was that there will be no significant increase in the percentage of high level questions asked during post-clinical conferences by instructors who used the module relative to instructors who did not.

A second experimental issue pertained to the relationship between the level of questions asked by faculty and those asked by students.
Relative to this relationship the null hypothesis was that there will be no significant correlation between the percentage of high level questions asked by instructors during post-clinical conferences and the percentage of high level questions asked by their students during these conferences.

The following points were considered during the design of this study:

1. Although subjects were volunteers, they nevertheless represented a sample of the population for whom the module was intended, i.e., instructors who express an interest in improving their questioning skills.

2. The random division of subjects within each college should control for institutional effects.

3. Treatment contamination was a possibility as it was conceivable that instructors who shared an office could be assigned to different groups. Requests for confidentiality were made. Errors resulting from such contamination would tend to reduce the apparent effect of the module.

4. The effect of 'testing' (Campbell and Stanley 1963) was negligible as subjects in the control group were asked to audiotape a conference and after a period of time, audiotape a second conference. During the intervening time they were given no feedback on the first audiotape.

5. The asking of more questions than usual by subjects because of their participation in the study was not a threat to internal validity, as it was the level of questions that was measured, not the number.
4.3 Procedure

The first contact with subjects was at the faculty meetings where volunteers for the study were enlisted. Communication with subjects after the faculty meetings was on an individual basis. Handwritten notes or telephone calls were used in an effort to maintain initial enthusiasm. The success of the field test rested on the motivation of the subjects to invest the time required to complete the module.

All subjects were asked to record a thirty minute segment of a post-clinical conference. The instructions for recording these conferences were written out. A sample of the direction sheet is shown in Appendix A.

As the pretest tapes were received, subjects were assigned to either the experimental group, (Group E), or the control group, (Group C). The first subject within one college to provide a tape was assigned to Group E, the second subject within the same college, to Group C, and so on. This method of random assignment was chosen because the attrition rate was expected to be high. Had subjects been assigned to a group prior to the receipt of a tape, it is conceivable that all 'drop-outs' could have been from the same group.

After the pretest tape was made, Group E received the module plus a copy of the pretest tape. Subjects were requested to return the module to the experimenter as soon as it was completed. On receipt of
the completed module, a blank audiotape was given to the subject so that a second post-clinical conference could be recorded. The exercises in the modules were checked to ensure that the members of the experimental group had, in fact, worked through the booklet. When the posttest tape was received, the module was returned to the subject with a letter thanking her for her participation.

Subjects in Group C, after recording the pretest tape, were told that they would not receive a module at that time. They were given a blank audiotape and asked to record a second post-clinical conference approximately six weeks after the first. Following receipt of the posttest tape, a module plus a copy of the posttest tape was given to each subject. A letter of thanks accompanied the module.

4.4 Data Collection

Each tape of a post-clinical conference was listened to by the experimenter. All questions asked by both instructor and students were transcribed onto paper. Selected examples of transcribed questions sheets are shown in Appendix B. These sheets were selected as representative of pre- and post-tapes, and of the variety and style of the questions asked.

Prior to the experimenter assigning questions to a level of Bloom's Taxonomy, interrater reliability was established. Two persons
who had tested the module in its developmental stage and who were, there­
fore, familiar with the classification system, met with the experimenter. These individuals were read the "Directions to Raters" shown in Figure 2.

<table>
<thead>
<tr>
<th>Directions to Raters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Briefly review the descriptions of Bloom's Taxonomy in the module.</td>
</tr>
<tr>
<td>2. Study the question classification chart.</td>
</tr>
<tr>
<td>3. Assign each question on the question sheet to a level. Write beside each K, C, Ap, An, S, or E.</td>
</tr>
<tr>
<td>4. Questions that are difficult to code.</td>
</tr>
<tr>
<td>a) Procedural questions such as, &quot;Do you have a copy?&quot; &quot;Who would like to speak first?&quot; - mark P. Include in this category questions that draw students into the discussion.</td>
</tr>
<tr>
<td>b) Rhetorical questions such as, &quot;She was anxious about the treatments wasn't she?&quot; - mark Rh.</td>
</tr>
<tr>
<td>c) Questions directed toward the affective domain such as, &quot;How did knowing her personally affect your care?&quot; - mark Af.</td>
</tr>
</tbody>
</table>

Figure 2. Directions to Raters
Following a brief training session, fifty questions from the transcribed sheets were selected at random and independently coded by each rater. The percentage of agreement between each pair of raters and the average percent agreement, were calculated. The average percent agreement was 86.7%. Results are shown in Table I.

Having established a satisfactory interrater reliability coefficient, the remaining question sheets were coded by the experimenter alone. A total of 659 questions was analysed.

Table I. Interrater Reliability

Total questions analysed = 50

<table>
<thead>
<tr>
<th>Reliability between</th>
<th># differences</th>
<th>% agreement*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A and B</td>
<td>8</td>
<td>84</td>
</tr>
<tr>
<td>A and C</td>
<td>3</td>
<td>94</td>
</tr>
<tr>
<td>B and C</td>
<td>9</td>
<td>82</td>
</tr>
</tbody>
</table>

Average % agreement = 86.7

* Calculated by this formula:

\[
\% \text{ agreement} = 100 - \left[ \frac{\# \text{ differences}}{50} \times 100 \right]
\]
Summary

This chapter has described the field test that was conducted to evaluate the effectiveness of a self-instructional module on questioning skills for nursing instructors.

Five nursing faculties from colleges and one from a university within British Columbia were approached in order to seek volunteer instructors for the study. Data were collected on taped recordings of post-clinical conferences. The design for the study was a pretest-posttest control group design.

Questions asked by both instructor and students during the post-clinical conferences were transcribed onto paper. Following a training session, fifty randomly selected questions were coded independently by three raters. The average percent agreement between the three raters was 86.7%. The remaining questions were coded by the experimenter alone. A total of 659 questions was analysed.

The next chapter describes the results of the field test and the conclusions drawn from the results.
CHAPTER V

Results

The results of the analysis of the data are discussed in this chapter under the headings Data, Analysis, and Discussion of the Findings.

5.1 Data

Considerable difficulty was encountered in obtaining and keeping volunteers for this study. Initially 26 instructors from six schools volunteered. One instructor from one college volunteered and did not produce a pretest tape. Four instructors from the university school volunteered and of those, one produced a pretest tape but not a posttest tape. Of the remaining 24 instructors, six did not produce a pretest tape and four did not produce a posttest tape. The final number of instructors was 14, representing four faculties of nursing. Of the 14 subjects, six were in the experimental group and eight in the control group.

During 28 thirty minute tapes of post-clinical conferences, the total number of questions asked by instructors was 513. Of these, 56 were procedural, rhetorical or affective questions. The remaining 457 questions related to cognitive issues and were used for the analysis.
The total number of questions asked by students was 146. Of these, 32 were procedural, rhetorical or affective questions. The remaining 114 questions related to cognitive issues and were used for the analysis.

5.2 Analysis

The analysis of the questions consisted first of assigning each question to a level of Bloom's Taxonomy. High level questions were considered to be those assigned to the application level or above. The second step in the analysis of the questions was to calculate the number and the percentage of high level questions for each instructor and student group. Results are displayed in Table II.

The field test to evaluate the effectiveness of the self-instructional module was conducted to ascertain whether the module significantly increased the level of questions asked by instructors who studied it, relative to those who had not. A secondary consideration was whether there was a correlation between the level of questions asked by students and the level of questions asked by their instructor.

Findings in Relation to Hypothesis One

The first hypothesis tested was that,

There will be no significant increase in the percentage of high level questions asked during post-clinical conferences by instructors who have used a self-instructional module relative to instructors who have not.
Table II. Total Number of Questions and Percent of High Level Questions asked by Instructors and their Students

<table>
<thead>
<tr>
<th>College Group</th>
<th>Subject</th>
<th>Total Questions</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Total Questions</th>
<th>Pretest</th>
<th>Posttest</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

-52-
The difference in pretest and posttest percentage of high level questions for the experimental group and the control group was calculated and the results are shown in Table III. The difference in these percentages between the two groups was compared using a t test as shown in Table IV. A "t" value of 2.01 was found, which, with 12 degrees of freedom in a two-tailed test is significant at the 0.05 level. Hypothesis one was rejected.

Findings in Relation to Hypothesis Two

The second hypothesis was that,

There will be no significant correlation between the percentage of high level questions asked by instructors during post-clinical conferences and the percentage of high level questions asked by their students during these conferences.

The number of questions, suitable for analysis, asked by students was 114 over 28 conferences, giving an average of four questions per conference. In many cases, the questions asked by students, could not be heard on the tape. Due to the lack of sufficient data, hypothesis two was abandoned.

5.3 Discussion of the Findings

The first null hypothesis was rejected at the 0.05 level of significance. The results indicated that instructors who used the self-instructional module asked a higher percentage of high level questions than those instructors who did not. It was concluded that the self-instructional module was an effective method of teaching nursing instructors how to improve one aspect of their questioning skills.
Table III. Pretest and Posttest Scores of the Experimental and the Control Group

**Group E**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pretest %</th>
<th>Posttest %</th>
<th>Difference % *</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>40.9</td>
<td>53.6</td>
<td>12.7</td>
</tr>
<tr>
<td>02</td>
<td>8.1</td>
<td>62.5</td>
<td>54.4</td>
</tr>
<tr>
<td>09</td>
<td>16.7</td>
<td>50.0</td>
<td>33.3</td>
</tr>
<tr>
<td>13</td>
<td>20.0</td>
<td>31.6</td>
<td>11.6</td>
</tr>
<tr>
<td>14</td>
<td>7.1</td>
<td>7.5</td>
<td>0.4</td>
</tr>
<tr>
<td>15</td>
<td>14.3</td>
<td>5.3</td>
<td>-9.0</td>
</tr>
</tbody>
</table>

n = 6  
\( \bar{x} = 17.23\% \)  
\( s^2 = 532.66 \)

* The symbol X denotes the dependent variable "percent difference" in the right hand column of these tables.

**Group C**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Pretest %</th>
<th>Posttest %</th>
<th>Difference % *</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>6.7</td>
<td>5.0</td>
<td>-1.7</td>
</tr>
<tr>
<td>06</td>
<td>81.8</td>
<td>83.3</td>
<td>1.5</td>
</tr>
<tr>
<td>07</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>30.0</td>
<td>16.7</td>
<td>-13.3</td>
</tr>
<tr>
<td>16</td>
<td>13.3</td>
<td>20.0</td>
<td>6.9</td>
</tr>
<tr>
<td>18</td>
<td>11.8</td>
<td>10.0</td>
<td>-1.8</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>5.9</td>
<td>5.9</td>
</tr>
<tr>
<td>23</td>
<td>16.7</td>
<td>21.4</td>
<td>4.7</td>
</tr>
</tbody>
</table>

n = 8  
\( \bar{x} = 0.28\% \)  
\( s^2 = 289.78 \)
Table IV. Formulae used to Calculate the Variance and the t Test

\[ S_x = \sqrt{\frac{\sum x^2 - (\sum x)^2}{n-1}} \]

\[ \sum x_1^2 = 4445.26 \]
\[ (\sum x_1)^2 = 10691.56 \]
\[ \sum x_2^2 = 289.78 \]
\[ (\sum x_2)^2 = 4.84 \]

\[ t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n-1)s_1^2 + (n_2-1)s_2^2}{n_1 + n_2 - 2}}} \left(\frac{1}{n_1} + \frac{1}{n_2}\right) \]

\[ \bar{x}_1 = 17.23 \]
\[ \bar{x}_2 = 0.28 \]
\[ n_1 = 6 \]
\[ n_2 = 8 \]
\[ t = 2.01 \]
\[ t_{12}^{0.95} = 1.78 \]

The second null hypothesis was abandoned due to insufficient data for analysis. The second hypothesis was formulated to add further support to the findings of Davis and Tinsley (1967), and Johns (1968), which showed a significant correlation between the incidence of thought-provoking questions asked by students and the incidence of thought-provoking questions asked by teachers. The failure of this study to be able to test the second hypothesis was unfortunate, since no inferences can now be made about the indirect effects of the module in influencing the level of questions asked by those students whose instructor had completed the module.
Limitations of the Study

Recognized limitations of the study were:

1. The use of percentage as a score had limitations in cases where a small total number of questions was asked. A difference of one or two high or low level questions in a small sample of questions, e.g., six, would make a considerable difference in the percentage score describing the proportion of high level questions asked.

2. The use of a classification system based on Bloom's Taxonomy revealed the limitations identified by Gall (1970) and discussed in Section 2.2. For example, questions to cue students to improve a response were difficult to code. Where the initial question was classified as an analysis question and the following probing question suggested the answer, the rater found difficulty in deciding if the probing question should be coded as analysis like the first, or coded at a lower level. An additional problem related to questions directed to the affective domain. These were readily coded as such, but were not included in the analysis. The subjects in this study were requested to conduct their conferences in the usual fashion. In these conferences, nursing instructors frequently address the affective domain of students who find themselves in unusual, and often emotionally charged, situations. Affective questions are not without value, but within this study, they became a hindrance when they reduced the number of questions available for analysis. For example, one conference, not used in the analysis, yielded fourteen instructor questions, of which seven were affective.

3. Four nursing faculties were represented, with at least one subject in both the control and the experimental group. However, due to the
small sample size, it was impossible to study possible institutional effects.

Summary

The number of subjects in this study was 14 representing four nursing faculties. Of these subjects, six were in the experimental group and eight in the control group. From 28 thirty minute conferences, 457 instructor questions and 114 student questions were analysed. This chapter has described the results of the analysis of these questions which showed that there was a significant increase in the percentage of high level questions asked during post-clinical conferences by instructors who had used a self-instructional module relative to instructors who had not. Due to insufficient data it was not possible to test the second experimental hypothesis of this study pertaining to the relationship between the percentage of high level questions asked by instructors during post-clinical conferences and the percentage of high level questions asked by their students.

Chapter VI summarizes this study, discusses the conclusions drawn from the results and suggests ideas for further study.
CHAPTER VI

Summary, Conclusions and Recommendations

6.1 Summary

The primary purpose of this study was to develop a self-instructional module for nursing instructors to help them improve their questioning skills. A 112 page manual was designed to meet the following objectives.

On completion of the module the learner will be able to:
1. classify questions in terms of the levels of Bloom's Taxonomy of intellectual processes.
2. generate questions at each level of Bloom's Taxonomy.
3. evaluate questions asked during post-clinical conferences.

A question classification scheme based on Bloom's Taxonomy, which combined and adapted the work of three previous researchers, served as the theoretical base for the module and for the coding of questions in the experimental phase.

Learning activities included reading, identification of questions, generation of questions and analysis of the questions asked during a recording of one of the learner's post-clinical conferences.
A study was conducted to test the effectiveness of the module. The design of the study was a pretest - posttest control group design. Fourteen volunteer nursing instructors representing four nursing faculties constituted the sample. Of these, six formed the experimental group and eight the control group.

Two null hypotheses were tested.
1. There will be no significant increase in the percentage of high level questions asked during post-clinical conferences by instructors who have used a self-instructional module relative to instructors who have not.
2. There will be no significant correlation between the percentage of high level questions asked by instructors during post-clinical conferences and the percentage of high level questions asked by their students during these conferences.

From 28 thirty minute taped conferences, 457 instructor questions and 114 student questions were assigned to a level of Bloom's Taxonomy. High level questions were considered to be at the application level or above. The percentage of high level questions asked by the instructor and by the student group was calculated for each conference. Gain scores for the instructors were calculated. The difference in gain scores between the experimental and control group was compared using a t test. The t test indicated a value of 2.01 which is significant at the 0.05 level. The first hypothesis was rejected.
The second hypothesis was abandoned due to insufficient data. One hundred and fourteen student questions over 28 conferences yielded an average of four questions per conference which was not considered a sufficient number for analysis. Of the 28 conferences, 19 elicited under five student questions.

6.2 Conclusions

This study found that a self-instructional module entitled "Questioning for Clinical Nursing Instructors" was effective in raising the percentage of high level questions asked by nursing instructors during post-clinical conferences. It may be concluded that the design of the module did help the learner accomplish the stated objectives. It seems, therefore, that self-instruction via a planned series of learning activities can be an effective way to learn.

The study sample represented four nursing faculties from three colleges; two colleges situated within the Greater Vancouver area of British Columbia, and one regional college. Although the study sample was small (n=14), the study does support the conclusions that the module would be an effective learning tool for nursing instructors teaching in British Columbia colleges.

The research reviewed in Section 1.1 showed that questioning skill is perceived by students as an effective teacher behavior.
Section 2.1 described the purposes of post-clinical conferences and reasoned that students require the use of high cognitive processes if they are to nurse. High level questioning fosters these processes. It seems reasonable to assume, therefore, that raising the level of questions asked by instructors is a desirable goal. The average percent of high level questions asked by instructors in both groups on the pretest was 19.7%. The average percent of high level questions asked by instructors in the experimental group on the posttest was 35%. It may be concluded that instruction in questioning is needed by nursing instructors and that the self-instructional module meets this need.

Unfortunately, the second hypothesis of this study, designed to test the effect of high level questions on the level of questions asked by students, was abandoned due to insufficient data. Therefore, no conclusions can be drawn regarding the effect of the increased level of instructor's questions on students.

The question classification scheme devised for this study and shown in Appendix C, pages 131-32, formed the theoretical base of the module, and provided the referent for the coding of questions. The inter-rater reliability was 86.7% agreement. It may be concluded that the classification scheme is an effective framework for the study of questions, and for the analysis of questions directed toward the cognitive domain.
6.3 Recommendations

A major problem in this study was the difficulty in obtaining a sample of nursing instructors who were willing to invest the time required to study the module. A heavy investment of time is needed in any learning endeavour, and the number of hours required of the subjects, over and above a normal work day, was a deterrent. Although the possible reward was the acquisition of a teaching skill, the nursing instructors approached, tended to view the study as a student project which offered little benefit to them. A future researcher, desirous of obtaining a sample of nursing instructors in order to offer in-service education, would be well-advised to seek official sanction for the project, and conduct such in-service education during the instructor's working hours. Should the educational activity be self-instructional in nature, as it was in this study, the researcher should seek time off for the nursing instructors to permit their independent pursuit of the learning activities.

It is clear, after analysis of 40 tapes, that in-service education in the leadership of post-clinical conferences is needed. Section 1.1 opens with the statement that the education of many nursing instructors prepared them to nurse, not to teach. While the nursing knowledge and expertise of the instructors was evident, many conferences consisted of a student recital of tasks performed and a description of a patient's diagnosis, medications or treatment. Such enumeration of data does little to foster the cognitive processes required to nurse. In some cases, student discussion was little more than a social chat. Any study whose goal is to
assist nursing instructors identify and then display effective teaching behaviors in post-clinical conferences would be worthwhile.

This study has shown that the self-instructional module was effective in raising the percentage of high level questions asked by instructors during post-clinical conferences. Further study is needed to explore whether,

a) the level of questions is maintained over a period of time,

b) the level of questions has an effect on student's level of questions,

c) the level of questions is a factor in the student's assessment of an instructor's effectiveness,

d) the level of questions has an effect on various student behaviors, such as performance in the clinical area,

e) the level of questions varies with the institution in which instructors work,

f) the level of questions varies with the educational preparation of instructors.

Finally, it would be advantageous to extend this study to instruction in other aspects of questioning, such as writing examination questions, planning questioning strategies, and questions directed toward the affective domain.
Bibliography

Armington, Catherine; Evodia Reinikka and Helen Creighton. 1972. "Student evaluation - threat or incentive?" Nursing Outlook 20:789-792.


Dixon, Jane and Beverly Koerner. 1976. "Faculty and student perceptions of effective classroom teaching in nursing." *Nursing Research* 25:300-305


——— 1976. *Involving Students in Questioning*. Boston: Allyn and Bacon Inc.


APPENDIX A

Explanatory Letter to
Prospective Volunteers
Dear

I am a nurse and currently a graduate student in education at the University of British Columbia. For my thesis I am designing a self-instructional module to assist nursing instructors to enhance their questioning skills during post-clinical conferences. I believe that this module will help instructors in their difficult task of teaching students to integrate their clinical experiences and relate them to classroom teaching and theory.

Eventually the module will be available to nursing instructors throughout the province. While similar modules have been developed for teachers in other fields and have proven to be effective, the module in question for nursing instructors is still in the developmental stage and its effectiveness must be tested. It is in order to conduct this test that I am requesting your participation. The benefits to you will relate to your skills as an effective questioner; the benefits to myself will be the completion of my thesis and the module. Below is a description of the commitment I am asking of you.

1. You will be asked to supply me with an audiotape of a post-clinical conference on two occasions; the first time following your acknowledgement of this letter and the second time about two months later. Blank tapes will be provided.

2. You will receive the module after one of your recordings, either the first one or the second one. Completion of the module will require approximately five hours of your time. It may be studied
Instructions for Taping

In order to test the effectiveness of the module, I require two audio­
tapes of post-clinical conferences conducted by yourself. You will receive the module after one recording - either the first or the second.

What to Record
1. The post-clinical conference should be one designed for students to present nursing care plans or processes, or to relate clinical experiences to classroom teaching and nursing theory. It should not be one in which new students are being oriented, or one following an unusual experience.
2. Be prepared to conduct the discussion and ask questions in your usual way.

Taping Procedure
1. Explain to the students that you will be recording the discussion and that the tape will be used to help you to improve your teaching.
2. Make sure the tape recorder is working and that everyone can be heard.
3. Record at least thirty minutes of instructor directed discussion.
4. The desired tape should contain both instructor and student's talk.
NAME: ___________________________ AGE: ________

EMPLOYING AGENCY: ___________________________

HOME ADDRESS: ___________________________ POSTAL CODE: ______

PHONE: WORK ___________ HOME ___________

CLINICAL AREA: ____________________________________________

AGENCY: ____________________________________________

EDUCATIONAL BACKGROUND: ____________________________________________

RN - YEAR OBTAINED: ______ INSTITUTION: ____________________________

BSN - YEAR OBTAINED: ______ INSTITUTION: ____________________________

OTHER QUALIFICATIONS: ____________________________________________

WORK EXPERIENCE: CLINICAL _____ YEARS

TEACHING _____ YEARS

PLEASE LIST THE NAME OF ANY COURSES YOU MAY HAVE TAKEN FROM THE FACULTY
OF EDUCATION:

-------------------------------------------------------------------------------------------------------------------

I am willing to participate in the testing of a self-instructional
module for nursing instructors. I am prepared to record two of my
post-clinical conferences with students and give the tapes to Jenny
Craig. I understand that the study of the module will require five
hours of my time. I have been assured that my name will not appear
in any written report.

Signed: ____________________________

Return to: Jenny Craig
c/o Division of Educational Support & Development
Office of the Co-ordinator of Health Sciences
Room 408, Instructional Resources Centre
University of British Columbia
Vancouver, B. C.
APPENDIX B

Examples of
Transcribed Question Sheets
Subject 01 Posttape

T = Teacher
S = Student

T What do we mean by sensory stimulation?

T What are your senses?

T When we're talking about sensory stimulation, what do we mean?

S How the environment is affected or how it affects?

T Have you had a patient whose senses have been affected? Can you give me an example?

T Anyone else got an example?

T Have you had any examples of how the environment with such things as noise and odour have affected your patient?

T Did anyone have a patient who was affected by the space or the room equipment around them?

T What kinds of things can you do to stimulate these senses?

T Did you do anything specific to stimulate the sense of smell?

T Thinking back to doing your assessment, what kind of things did you look for or ask about so that you could assess the senses accurately?

T Any other things like that?

T What about checking out their sense of touch?

T Did anyone have a client who had a problem with sense of touch?

T Did anyone have someone who couldn't feel?

S Did your lady, Mrs. R., could she feel?

T Was she able to feel or touch?

S Medications would affect how they are able to touch wouldn't they?

S Wouldn't it affect more the way they respond to what they feel?

T Were any of you conscious of changing your patient's unit in order to accommodate these senses? What did you do?
Subject 08 Pretape

T = Teacher
S = Student

S Do you know what manic-depression is?
T Do people understand what C. is talking about?
S Has she improved? What changes have you seen?
S What is she going home to now?
S Her husband will be there, and her children?
S So she's not stacking things in places?
S Will she be on medications when she returns home?
S You mentioned she's been disorganized. Has she been like that ever since she came to the ward?
S How do you feel she'll view home now C.?
S What's the relation between disorganization and her diagnosis?
T Have people got a clear idea from C. what she was like when she came into hospital?
T Who knows some other typical behaviors?
T Do you want to get into some nursing care?
S In the doctor's notes, they mentioned schizophrenia. I just wondered why they threw that in?
S No examples?
T How do you deal with someone who's delusional?
T How do you do that? (Reduce anxiety.)
S What about reducing the sensory input?
T Key word. Low stimulation. What does that mean?
T How do you lower stimulation?
T What are your senses?
Subject 09 Pretape

T = Teacher
S = Student

T N. do you want to explain what your long term goal is for Bill?

T D. your patient has Kasakoff's too so you're familiar with these patterns too?

T Where is his mother now?

T How did you break that down into a short term goal for your care plan? Talk a little about that.

T How did he respond to the idea of having his picture taken?

T Do you think it fits his needs from what she said?

T S. do you want to give M. any feedback about her long term goal?

T How about the short term goal, does that meet the requirements for being measurable and specific?

T What about the measurability, does that sound okay?

T What does that do - planning time like that - in terms of what you know about changing behaviors?

T (Long term goal.) Does that sound realistic?

S Has Bill ever gone to music therapy?

S And you can get him to join in things?

S Does he remember, week by week, in order to anticipate it?

T Why would you ask him to go to the pool room without telling him where he was going?

T Have you noticed that when he's been away from the area and brought back to the day room that he tends to be more disoriented?

T Do you think he would remember if someone were to show him? Is it because he hasn't played for so long or is it because his memory is failing?
Subject 17 Pretape

T = Teacher
S = Student

T What is respiratory failure?
T What has usually gone on?
T What's another disease that causes that?
T Chronic bronchitis. What happens there?
T The word (bronchitis) tells you what?
T What else do you get because of inflammation?
T You've got a narrow airway and what happens?
T What's the third condition that makes up C.O.L.D.?
T Asthma. And what characterises that?
T There's one predominant problem in respiratory failure? You've said hypoxia. What else?
T Mr. Z. is in respiratory acidosis almost all of the time. What then would you expect his blood gases to show?
T Did anyone pick up the very lowest pH he showed?
S How low can a pH go?
T What about PCO₂?
T What did you see as a number?
T What was his O₂ doing all this time?
S Why did they take a venous sample?
T What would that suggest?
T T. remind us about the oxygen dissociation curve?
S How would that affect the O₂ dissociation curve?
S There wouldn't be a chance of (couldn't hear)?
S Does polycythemia always refer to mature red blood cells?
T The normal bicarbonate is?
T Why wouldn't it go up?

T It didn't go up as much as the PCO₂. Why not?

T If you had a high PCO₂ level how would you respond?

T You'd be depressed. What else would you be?

T He doesn't show these signs. Why not?
Subject 22 Posttape

T = Teacher  
S = Student

T  C. do you know anything about this patient's past history?
T  What is the purpose of the pacemaker?
T  What is nitro-glycerine?
T  What is it given for?
T  Does it dilate any particular artery?
T  What kinds of medication does he get?
T  Why is he given these medications?
T  Has he got any edema?
T  He's not on digoxin is he?
S  Doesn't it decrease the volume?
T  Have you noticed any edema on him?
T  What are the nursing responsibilities when a patient is on Lasix?
T  What other drug is given with Lasix?
T  Give me examples of potassium rich foods?
S  What are the signs of hypokalemia?
T  What's the normal serum potassium?
T  What's the patient's educational level?
S  You wouldn't let a patient who hadn't had a heart attack hear the tapes would you?
T  Has anyone listened to that tape?
T  How would you use those books for your patient?
T  Can you recall risk factors?
S  Which number is that?
S  On this floor do they just have tapes for heart attack?
S  Is there a copy of that at the college?
APPENDIX C

The Self-Instructional Module
Questioning for clinical nursing instructors
QUESTIONING

FOR CLINICAL NURSING INSTRUCTORS
1978 J. Craig

For research purposes only.
Questioning
for Clinical Nursing Instructors

Produced by
Jennifer Craig, R.N., B.S.N.

Advisory Committee
Gordon Page, Ed.D., Director, Division of Educational Support and Development, Health Sciences, U.B.C.
Walter Boldt, Ph.D., Professor, Faculty of Education, U.B.C.
Marilyn Willman, Ph.D., Professor, Director, School of Nursing, U.B.C.

Financial Support
Province of British Columbia Seasonal Employment (University) Programme

Cover Design
Pat Parsons
Acknowledgements

The author's heartfelt thanks go to:

Gordon Page and the advisory committee for their continual support and encouragement

Elizabeth Bregg for her nurturance.

Elizabeth McCann and Elizabeth Will for their helpful suggestions.

Barbara Bradley, Norma Foster, Valerie Sproule and Debbie Taylor for their willingness to be guinea pigs.

Julia Quiring for her influence.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is this?</td>
<td>5</td>
</tr>
<tr>
<td>What is the content?</td>
<td>7</td>
</tr>
<tr>
<td>Major Objectives</td>
<td>11</td>
</tr>
<tr>
<td><strong>Unit I</strong></td>
<td></td>
</tr>
<tr>
<td>Learning Activity One</td>
<td>17</td>
</tr>
<tr>
<td>Learning Activity Two</td>
<td>19</td>
</tr>
<tr>
<td>Learning Activity Three</td>
<td>21</td>
</tr>
<tr>
<td>Learning Activity Four</td>
<td>39</td>
</tr>
<tr>
<td><strong>Unit II</strong></td>
<td></td>
</tr>
<tr>
<td>Learning Activity Five</td>
<td>55</td>
</tr>
<tr>
<td>Learning Activity Six</td>
<td>67</td>
</tr>
<tr>
<td>Learning Activity Seven</td>
<td>79</td>
</tr>
<tr>
<td><strong>Unit III</strong></td>
<td></td>
</tr>
<tr>
<td>Learning Activity Eight</td>
<td>95</td>
</tr>
<tr>
<td>Learning Activity Nine</td>
<td>106</td>
</tr>
<tr>
<td>Annotated Bibliography</td>
<td>111</td>
</tr>
</tbody>
</table>
WHAT
IS
THIS
What is this? This is a module.

A module is a self-contained series of planned activities designed to help the learner accomplish certain well-defined learning objectives.

Who is it for? Instructors of Nursing.

This module is designed for clinical nursing instructors who teach in two year college programmes within the Province of British Columbia.

What is its purpose? To help you improve your questioning skills.

The purpose of this module is to help you improve your oral questioning skills when you are conducting post-clinical conferences.
WHAT IS THE CONTENT
The ability to ask thought-provoking questions is one of the hallmarks of an effective teacher. Research studies of the characteristics of an effective nursing instructor have identified skill in questioning time and time again.

However, many nursing instructors have never been taught questioning strategies.

This module has been designed for you to teach yourself some elements of questioning.

Only "some"? Yes. There are many elements in a questioning strategy. This module deals with the relationships of questions to levels of cognitive thought and how this knowledge can be applied during post-clinical conferences. If you become interested in the topic, the bibliography at the end of this booklet will direct you to further sources of information.

A question is usually taken to be an interrogative sentence. In addition, the word "question" is used in this module to include any request by a teacher calling for an intellectual or cognitive response on the part of the student.

For example: presentation of a problem; a project.
A Word About Clinical Conferences

The post-clinical conference may be defined as a discussion conducted by the instructor with all students for whom she has been responsible, following the experience in the clinical area. The purposes of these conferences are many and may be briefly summarized as:

1. To relate experiences in the clinical area to classroom teaching and nursing theory.
2. To present nursing care plans and processes for analysis and evaluation.
3. To share thoughts, feelings and concerns.

The instructor is faced with the difficult task of helping students to integrate their varied experiences and to clarify the relationship between them and content presented in the classroom. The instructor is also expected to help a student cope with her emotions as she meets people in conditions she feels ill-equipped to handle.

This module deals with one small aspect of the total teaching strategy required to conduct a conference - the ability to ask thought-provoking questions. The questioning scheme proposed is directed only toward the intellectual development of the student. The fostering of values, the socialization of the student into the nurse role, group climate and all the other facets of a post-clinical conference are not considered.
Taping a Conference

In the final section of this module, you will be asked to analyse an audiotaped conference conducted by yourself. It is advisable to plan now to obtain a recording before you begin to work through this module. Here is a suggested taping procedure.

What to Record

1. The post-clinical conference you record should be one designed to serve purposes 1 and 2 listed on the previous page. It should not be one in which new students are being oriented, or one following an unusual experience.

2. Be prepared to conduct the discussion and ask questions in your usual way.

Taping Procedures

1. Explain to the students that you will be recording the discussion in order to analyse your teaching behavior.

2. Make sure the tape recorder is working and that everyone in the group can be heard.

3. Record at least 30 minutes of instructor directed discussion.

4. The desired tape should contain both instructor and student talk.
MAJOR OBJECTIVES
Learning Objectives

The following are the major learning objectives for this module. They will give you an idea of the instructional intent.

When you have complete this module you will be able to:
1. Classify questions in terms of the levels of Bloom's Taxonomy of intellectual processes.
2. Generate questions at each level of Bloom's Taxonomy.
3. Evaluate questions asked during post-clinical conferences.
This module is divided into three units, one for each major learning objective.

Each unit contains:
1. Specific objectives for the unit.
2. What materials you will need, e.g., a tape recorder.
3. A prospect of the unit.
4. Learning activities, e.g., read, answer a question, write something.
5. An estimated time to complete the unit to assist you to plan your time. Of course, these are only rough estimates as each person's situation will vary.
6. A summary of the unit.
UNIT ONE
Unit I

Major Objective: When you have completed this unit, you will be able to classify questions in terms of the levels of Bloom's Taxonomy of intellectual processes.

Specifically, you will:
1. Define the term "taxonomy".
2. List the levels of Bloom's cognitive domain.
3. Describe the levels of Bloom's Taxonomy as it relates to questions.
4. Allocate selected questions to levels of Bloom's Taxonomy.

Resources Needed
None.

Estimated Time to Complete
One - two hours.

Prospect of Unit I

In this unit you will be introduced to Bloom's Taxonomy as it relates to levels of intellectual processes and to how questions may be used to foster these processes. This part of the module is probably the most exacting but it is a necessary base for what is to follow. After reading the descriptions of the six levels of the Taxonomy, you will be given sets of questions to allocate to a cognitive level. Your learning of the levels of Bloom's Taxonomy will be reinforced by these exercises.
LEARNING ACTIVITY ONE

Briefly look at the chart on page 50 which presents a summary of this unit. Before we explain what we think a taxonomy is, describe what you think a taxonomy is.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

N.B. It is best to WRITE OUT your answers if you are to learn from this module.
Originally intended to classify biological phenomena into categories such as genus, species, class, etc., the word is now used to denote any classification of things into categories.

In education Benjamin Bloom and others have attempted to classify the goals or objectives of education. The result of their work is the Taxonomy of Educational Objectives: Book I Cognitive Domain. Bloom postulates the existence of six intellectual processes and classifies them into levels. The goals of education can be directed to each level in order to foster critical thinking.
LEARNING ACTIVITY TWO

The six intellectual or cognitive levels are:

- 6.0 Evaluation
- 5.0 Synthesis
- 4.0 Analysis
- 3.0 Application
- 2.0 Comprehension
- 1.0 Knowledge

As you can see from the arrangement of the diagram, the levels form a hierarchy. In other words, the lowest level, knowledge, is necessary before the next level, comprehension, can be attained, and so on. In order to operate at the highest level - evaluation - mastery of the previous five levels is necessary.
Memorise the names of the six cognitive levels presented on the previous page. Without referring to the previous page, fill in the levels in the diagram below.

The classification scheme for questions in this module is based on Bloom's Taxonomy. We have therefore assumed that:

1. there are six levels of cognitive thought, and
2. the six levels form a hierarchy.

To encourage students to think, a teacher asks questions that require thought at the highest cognitive levels in order to answer them. Research has shown that, although teachers want to promote critical thinking, the majority of the questions they ask are at the lowest cognitive levels and require only knowledge or comprehension to answer them.
LEARNING ACTIVITY THREE

The following pages describe the six levels of cognitive thought in more detail and how questions relate to each level. The levels are subdivided into:

1.0 KNOWLEDGE

K1 Knowledge of specifics
K2 Knowledge of ways and means of dealing with specifics
  K2.1 Knowledge of conventions
  K2.2 Knowledge of trends and sequences
  K2.3 Knowledge of classifications and categories
  K2.4 Knowledge of criteria
  K2.5 Knowledge of methodology
K3 Knowledge of universals and abstractions in a field

2.0 COMPREHENSION

C1 Translation
C2 Interpretation
C3 Extrapolation

3.0 APPLICATION

4.0 ANALYSIS

An1 Analysis of elements
An2 Analysis of relationships

5.0 SYNTHESIS

S1 Production of a unique communication
S2 Production of a plan or proposed set of operations

6.0 EVALUATION
The following descriptions of the levels of cognitive thought have been adapted from

Bloom, Benjamin (editor) *Taxonomy of Educational Objectives*

1.0. KNOWLEDGE

K1. Knowledge of Specifics

Questions at this level emphasise the recall of facts. However, this does not mean that these are poor questions as facts provide the data base on which the student builds abilities to analyse and synthesise. The effectiveness of questions at this level depend upon the objectives the instructor is attempting to meet. Knowledge questions are easy to think of but the reason for such questions should always be clear.

Examples: 1. How many milligrams are there in a gram?
           2. Name the valves of the heart.

K2. Knowledge of Ways and Means of Dealing with Specifics

The second major division of the knowledge category is concerned with a knowledge of the ways of organizing, studying, judging and criticizing. The stress is not on the recall of facts alone but rather on the processes of dealing with facts. This division has five subdivisions.

K2.1. Knowledge of Conventions

Questions at this level demand a recall of the characteristic or accepted ways of dealing with various types of information or situations. Examples:

1. What is the correct way to bag isolation linen?
2. How would you pronounce a-p-h-a-s-i-a?

K2.2. Knowledge of Trends and Sequences

Questions request knowledge of the processes, directions and movements of phenomena with respect to time. Only recognition of the trend is called for - not understanding. Examples:

1. What can you say about the increased incidence of cardiovascular disease in Canada?
2. How did the discovery of penicillin affect mortality rates in Canada?
K2.3. Knowledge of Classifications and Categories

Questions are directed toward knowledge of the classes, sets, divisions and arrangements which are regarded as fundamental for a given subject field, purpose argument or problem. Students are not asked to do anything with the divisions but merely recall classifications or categories.

Examples:
1. How many types of leukaemia are there?
2. What are two classifications of asepsis?
(3. List the categories in Bloom's Taxonomy.)

K2.4. Knowledge of Criteria

Questions require recall of the criteria used to judge or test facts, principles, opinions and conduct. Use of the criteria in problem situations constitutes Evaluation. Examples:
1. What criteria are used to determine a person's eligibility for admission to an Extended Care Unit?
2. What are the criteria for assessing when the second stage of labour has been reached?

K2.5. Knowledge of Methodology

Questions under this subdivision are designed to establish the students' knowledge of the methods of inquiry, techniques and procedures, not her ability to apply them. Examples:
1. What steps did the team leader take to test the patency of the naso-gastric tube?
2. If a nurse is required to take a wound culture, what would be her first action?
K3. Knowledge of the Universals and Abstractions in a Field

The third major division of the knowledge category deals with knowledge of principles and generalizations, and knowledge of theories and structures. The student may be expected to state a theory or recall a generalization at this level. Questions at higher levels may ask her to apply these theories or even formulate one of her own. Questions at this level determine the possession of knowledge - the ability to use it does not necessarily follow.

Examples: 1. What principles underlie the use of traction for a fractured femur?
2. Several divergent opinions exist as to the cause of obesity. What theories have been suggested?
KNOWLEDGE

Questions directed toward the KNOWLEDGE level require

RECALL

or recognition of information by the student.

Although more than rote memory is required, the information elicited
is not very different from that originally learned.

KEY CONCEPTS

MEMORY

KNOWLEDGE

REPETITION

DESCRIPTION
2.0. COMPREHENSION

The comprehension level represents the lowest level of understanding. When a student is confronted with a message in either verbal or written form, she is expected to understand and make some use of the ideas contained within it. At this level she is not expected to relate these ideas to others nor to see the full implications of the ideas. There are three divisions of questions in the comprehension category.

C1. Translation

Questions test the student's competence in translating or paraphrasing a communication from one form to another without losing accuracy of meaning. Accuracy in translation is dependent upon prerequisite knowledge.

Examples: 1. What does "pro re nate" mean in English?
2. Nurses are currently discussing the "Quality Assurance Program." What does this expression mean?

C2. Interpretation

Questions focus on the student's ability to comprehend the major ideas within a communication and understand the relationships between them. The relationships may be cause and effect, between a definition and an example and a generalization and supporting evidence.

Examples: 1. What may have caused your patient to vomit?
2. If a nursing intervention is defined as "a nurses action to initiate change in a patient's condition", give an example.
C3. Extrapolation

Questions at the third sub-category of comprehension ask the student to not only translate and interpret, but to expand the information a step further. She may be asked to fill in gaps in her data or predict the consequences of a course of action while, at the same time, recognising the limitations of drawing inferences.

Examples: 1. What might happen if you gave an intramuscular injection in the lower outer quadrant of the buttock?
   2. What did you conclude after weighing the patient?
COMPREHENSION

Questions directed toward the comprehension level require UNDERSTANDING by the student.

KEY CONCEPTS

EXPLANATION  COMPARISON

ILLUSTRATION
3.0. APPLICATION

The third level of Bloom's categories of the cognitive domain is application. Questions at this level ask students to apply their knowledge and understanding to situations without specific directions from the teacher. The student is expected to use her information to solve problems she has not encountered before. A return demonstration following instruction of a technical procedure would not fall into this category; it would demonstrate comprehension but not application. Later, the student may apply this technical skill in a different situation.

Examples: 1. You have stated that an important learning principle is immediate feedback. How will you apply this principle when you teach your patient?

2. Chart your observations using the S.O.A.P. approach.
APPLICATION

Questions directed toward the application level require SOLVING by the student.

KEY CONCEPTS
4.0. ANALYSIS

Analysis requires more sophisticated intellectual skills than does comprehension and application. In comprehension, a grasp of meaning is required. In application, the remembering and using of knowledge in a new situation is called for. Analysis requires the breakdown of a message or situation into its component parts, and detecting the interrelationship and organization of these parts. Analysis is the prerequisite for evaluation.

There are two sub-categories of analysis.

An1. Analysis of Elements

Questions at this level are asking for identification of the elements in a communication or of events that have occurred. The student is required to distinguish facts from hypotheses or opinions, and to recognize unstated assumptions.

Examples: 1. What values are traditionally prized in his culture that may have some bearing on his behavior?
2. What are some of the significant observations you made that led you to believe there was a complication?

An2. Analysis of Relationships

Once elements in a communication or a set of events have been identified, the student must then determine the connections between them. Questions ask students to identify consistencies or inconsistencies in the flow of ideas or events, and to display inductive or deductive reasoning. Inductive reasoning results in a general statement being made on the basis of particular examples and evidence. Deductive reasoning allows inferences to be drawn from general statements or applies what is true in one instance to what is true in another related instance.

Examples: 1. You have identified some values of his culture. Does it follow that these may affect his behavior while he is a patient?
2. Last week you had a lecture on maternal-child bonding. Analyze your patient's behavior in terms of this theory.
ANALYSIS

Questions directed toward the analysis level require EXPLORATION OF REASONING by the student.

KEY CONCEPTS

INDUCTION

DEDUCTION

LOGICAL ORDER
5.0. SYNTHESIS

The fifth level of Bloom's Taxonomy is synthesis. In order to synthesize students must use the lower four levels of cognition, though not necessarily in order. They must have recalled and comprehended knowledge, applied it to their task and analyzed the situation. The process may be cyclical or errant but the result is the production of a unique communication, a plan or a set of abstract relations. Time is needed by the student before questions at this level can be answered.

S1. Production of a Unique Communication

The student is required to produce a communication in which she tries to express ideas and feelings that are unique to her. Questions directed to this level determine the student's ability to describe a personal experience in effective English, write, or develop a script. While there are no specifications for the quality of the reply, the student is expected to demonstrate use of the four lower levels of thought to arrive at an answer. "It would be gross" as an answer to Example 1 does not demonstrate synthesis.

Examples: 1. If you had to have a permanent colostomy, how would it affect your lifestyle?

2. Write a short script that illustrates use of effective interpersonal skills by a nurse with a dying patient.

S2. Production of a Plan

At this level students are required to produce a plan or a solution to a particular problem. The plan must satisfy the requirements of the task but otherwise there is a considerable leeway for the student to use her own ideas. Production of a nursing care plan falls into this category.

Examples: 1. If you wanted to find out whether Method A for the treatment of pressure sores is better than Method B, how would you set about it?

2. How do you plan to teach this mother how to care for the baby's cord.
SYNTHESIS

Questions directed toward this level require creating
by the student.

KEY CONCEPTS

PRODUCTIVE THINKING

NOVELTY
**6.0. EVALUATION**

Evaluation is the sixth category of the cognitive domain. Although it is at the top of the hierarchy, Bloom recognises that it is not necessarily the last step in thinking. Evaluation may precede an attempt to gain knowledge and comprehension about a communication or situation judged to be ineffective. However, for the purpose of question asking, evaluation will be considered the final stage.

Evaluation questions ask students to make a judgement about something based on criteria. While it is a democratic principle that each person is entitled to her opinion, approval or disapproval are not the answers being sought from nursing students engaged in learning the practice of a scientific discipline. In being asked to judge the value of something, the student is expected to know its purpose, differentiate between facts and values associated with it, analyse it for logical accuracy and consistency, compare it with a standard or something else similarly analysed, and finally reach a judgement based on these or other established criteria.

Examples: 1. To what extent does the nursing care this patient has been receiving meet the standards set by the hospital's Quality Assurance Committee?
   2. Which of the methods used to relieve this patient's pain are the most effective?
EVALUATION

Questions directed toward this level require JUDGING by the student.

KEY CONCEPTS

JUDGEMENT  SELECTION
LEARNING ACTIVITY FOUR

The following pages list four sets of questions. Identify each question as being one of the following:

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>K1</td>
<td>C1</td>
<td>Ap</td>
<td>An1</td>
<td>S1</td>
</tr>
<tr>
<td>K2</td>
<td>C2</td>
<td></td>
<td>An2</td>
<td>S2</td>
</tr>
<tr>
<td>K3</td>
<td>C3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Answers are given at the back of each set.
You may disagree with the answers given. It is important to bear in mind that difficulty in classifying a question does not detract from its quality. What kind of thinking does the question demand? During a conference you will be able to rephrase and pursue an answer until the level of thinking is demonstrated by the student.
QUESTION SET 1

1. Was Florence Nightingale a better politician than a nurse?

2. Which statements in this report are not adequately supported?

3. Name three routes by which medications are given.

4. If a patient exhibits restlessness, pallor, rise in pulse and fall in BP, what is one possible reason?

5. Make a plan to teach an adult diabetic how to test his own urine.

6. Describe how you would feel if you were going to surgery tomorrow.

7. Decide if this graph is an accurate representation of the given information.

8. What is the normal white cell count?

9. How many milligrams of morphine would you give if the order was for 15 grains?

10. Explain what is meant by electrolyte imbalance.

11. What have you assumed to be true if you accept these conclusions?

12. Mrs. Smith has recently had a cholecystectomy. How will this affect her diet?

13. Having worked as a team member, do you think the responsibility for ensuring a patient's adequate fluid intake rests with the team leader more than the staff nurse, the staff nurse more than the team leader, or both equally?

14. What would be the probable consequences of allowing an unconscious patient to lie on his back?
**Answers to Question Set 1**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>E</td>
</tr>
<tr>
<td>2</td>
<td>An2</td>
</tr>
<tr>
<td>3</td>
<td>K2</td>
</tr>
<tr>
<td>4</td>
<td>K3</td>
</tr>
<tr>
<td>5</td>
<td>S2</td>
</tr>
<tr>
<td>6</td>
<td>S1</td>
</tr>
<tr>
<td>7</td>
<td>E</td>
</tr>
<tr>
<td>8</td>
<td>K1</td>
</tr>
<tr>
<td>9</td>
<td>C1</td>
</tr>
<tr>
<td>10</td>
<td>C2</td>
</tr>
<tr>
<td>11</td>
<td>An1</td>
</tr>
<tr>
<td>12</td>
<td>Ap</td>
</tr>
<tr>
<td>13</td>
<td>An2</td>
</tr>
<tr>
<td>14</td>
<td>C3</td>
</tr>
</tbody>
</table>
QUESTION SET 2

1. If a patient in bed has fluid retention, where is edema likely to be found?

2. What does "3 centimetres dilated" mean?

3. How would you plan to meet the affective needs of this teenager if he's to be hospitalized for three months?

4. Considering economics and resources is it better for this patient to convalesce at home or in hospital?

5. If patients were given free access to their medical record would this increase or decrease their anxiety?

6. How does blood clot?

7. What are the advantages and disadvantages of using non-allergenic tape?

8. Describe the signs you observed that led you to your diagnosis.

9. What would health services be like if the nursing profession was abolished?

10. What are five important rules to follow when giving medications?

11. Defend the view that counting drugs at the end of each shift is the best way to ensure the requirements of the Drug Act are met.

12. How would you use "reflection" when talking to the mother of a newly admitted child?

13. How many bones are there in the spinal column?
### Answers to Question Set 2

1. C3
2. Cl
3. S2
4. E
5. An2
6. K3
7. C2
8. An1
9. S1
10. K2
11. E
13. Kl
QUESTION SET 3

1. What happens in the lungs if the patient sits slumped in bed?

2. Select foods that would be the most suitable for this patient.

3. What range of Apgar scores is considered normal?

4. If you were this man and you wanted to explain to your wife how you felt, what would you say?

5. Draw a graph of the blood pressure recordings you made.

6. How does this child's behavior compare with the normal developmental stage of his age group?

7. What theory explains the origin of pressure sores?

8. Which vitamins are in an orange?

9. Why is it important to check the pupils following head injury?

10. How would you plan to teach a blind mother how to bath her baby?

11. What non-verbal cues did you identify that led you to your conclusion?

12. What is the most appropriate strategy for encouraging this patient to be more independent?

13. How big an airway would you need for a child of that size?
### Answers to Question Set 3

<p>| | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>C3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>K2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>S1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>C1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>An2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>K3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>K1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>C2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>S2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>An1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Ap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
QUESTION SET 4

1. What would the patient have to do to convince you that she is in severe pain?

2. Distinguish between excretion, secretion and elimination.

3. What factors in these laboratory reports have significance for the nurse?

4. How do you take the temperature of a two year old?

5. What are the side effects of digoxin?

6. What might happen if a patient ate a meal on the day following abdominal surgery?

7. Name the instrument used to record blood pressure.

8. Give an example of an endocrine gland.

9. Are the available resources being effectively used for this patient?

10. Write out directions for mixing formula for this mother to take home.

11. How would you use your knowledge of normal range of motion when caring for an unconscious patient?

12. Think of a way of arranging things so this patient could feed himself.

13. What is the specificity theory of pain?
### Answers to Question Set 4

<p>| | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>An2</td>
<td>8</td>
<td>C2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>C1</td>
<td>9</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>An1</td>
<td>10</td>
<td>S1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>K2</td>
<td>11</td>
<td>Ap</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>K1</td>
<td>12</td>
<td>S2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>C3</td>
<td>13</td>
<td>K3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>K1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following Question Classification chart summarizes Unit I. It should prove useful as you work through the remainder of this module. The chart combines and adapts the work of:


<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>COGNITIVE ACTIVITY</th>
<th>KEY CONCEPTS</th>
<th>SAMPLE QUESTION WORDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. KNOWLEDGE</td>
<td>RECALL</td>
<td>Memory</td>
<td>What; When; Who; Which; Define;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repetition</td>
<td>Describe; Identify; List; Name; Recall;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Description</td>
<td>Show; State; How; Indicate; Tell; Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge</td>
<td>or No questions, e.g., Did? Was? Is?</td>
</tr>
<tr>
<td>2. COMPREHENSION</td>
<td>UNDERSTANDING</td>
<td>Explanation</td>
<td>Compare; Contrast; Conclude;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Comparison</td>
<td>Demonstrate; Differentiate; Predict;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Illustration</td>
<td>Reorder; Which; Why; Distinguish;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Estimate; Explain; Extend; Extrapolate; Rearrange; Rephrase; Inform;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>What; Fill in; Give an example of;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Illustrate; Relate; Tell in your own words.</td>
</tr>
<tr>
<td>3. APPLICATION</td>
<td>SOLVING</td>
<td>Solution</td>
<td>Apply; Build; Construct; Solve;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application</td>
<td>Test; Consider; Demonstrate (in a new situation); How would; Check out.</td>
</tr>
</tbody>
</table>
### 4. ANALYSIS

**EXPLORATION OF REASONING**

Questions that require the student to break an idea into its component parts for logical analysis, facts, opinions, logical conclusions, etc.

<table>
<thead>
<tr>
<th>Induction</th>
<th>Deduction</th>
<th>Logical Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support your; What assumptions; What reasons; Does the evidence support the conclusion; What does the patient seem to believe about; What words indicate bias or emotion; What behaviors.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 5. SYNTHESIS

**CREATING**

Questions that require the student to combine her ideas into a statement, plan, product, etc. that is new for her.

<table>
<thead>
<tr>
<th>Productive Thinking</th>
<th>Novelty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Write; Think of a way; Create; Propose a plan; Put together; Suggest; Develop; Make up; Formulate a solution; Synthesize; Derive.</td>
<td></td>
</tr>
</tbody>
</table>

### 6. EVALUATION

**JUDGING**

Questions that require the student to make a judgement about something using some criteria or standard for making her judgement.

<table>
<thead>
<tr>
<th>Judgement</th>
<th>Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose; Evaluate in terms of; Decide; Judge; Select on the basis of; Which would you consider; Defend; What is the most appropriate; For what reasons do you favor; Which policy.</td>
<td></td>
</tr>
</tbody>
</table>
UNIT TWO
Unit II

Major Objective: When you have completed this unit, you will be able to generate questions at each level of Bloom's Taxonomy.

Specifically, you will:
1. Given an illustration, generate questions at each level.
2. Given a simulated student description of her clinical experience, generate questions at each level.
3. Given an educational objective for the clinical experience, generate questions at each level.

Resources Needed
None.

Estimated Time to Complete
Two - three hours.

Prospect of Unit II

In Unit I you gained knowledge of Bloom's Taxonomy and how it relates to questions. You then classified questions according to the cognitive level required of the student in order to answer the question. In this unit you will be asked to formulate your own questions. You will be presented with three diagrams, three objectives and three situations. For each set you will generate questions at each level. Suggested questions as responses to each task are presented. These will vary considerably from the responses you make. Therefore, you must be your own critic of whether or not each of your questions is directed to the specified cognitive level.
LEARNING ACTIVITY FIVE

Study the illustrations. Compose questions about any idea the illustration brings to mind; questions you might direct to your students during a post clinical conference.

Write your questions using the six major categories only.
Ignore the subcategories from now on.

Knowledge
Comprehension
Application
Analysis
Synthesis
Evaluation
Question Set 5
Question Set 5

KNOWLEDGE

COMPREHENSION

APPLICATION

ANALYSIS

SYNTHESIS

EVALUATION
Question Set 5

Knowledge  What is the major cause of accidents in the aged?

Comprehension Explain why ageing people are less able to handle the hazards of the environment.

Application Test out your knowledge about changes in sensory status by assessing this 84 year old man.

Analysis What specific data lead you to infer that he is suffering from sensory restriction?

Synthesis Suggest ways of increasing the sensory stimuli of the environment for this patient.

Evaluation Judge whether extended care units are the best way of caring for our aged.
Recall that for purposes of this module the word question is used to include any request by a teacher calling for an intellectual or cognitive response on the part of the student.
Question Set 6
Question Set 6

KNOWLEDGE

COMPREHENSION

APPLICATION

ANALYSIS

SYNTHESIS

EVALUATION
Question Set 6

Knowledge What are the four basic food groups?

Comprehension Describe your breakfast and allocate each of the foods you ate to one of the four groups.

Application How would you assess this patient's nutritional status?

Analysis What does the patient seem to believe about the relationship between food and health?

Synthesis Plan a week's menu for this patient to take home.

Evaluation What would be the most appropriate policy for health professionals to adopt in order to raise the nutritional status of Canadians?
By now you may be so absorbed with questions that you think we view clinical conferences as being similar to a T.V. quiz show. Recall that we said this module deals with one small aspect of the total teaching strategy required to conduct a conference.
Question Set 7
Question Set 7

KNOWLEDGE

COMPREHENSION

APPLICATION

ANALYSIS

SYNTHESIS

EVALUATION
Question Set 7

Knowledge
What does interstitial mean?

Comprehension
Demonstrate how you would check if an I.V. is interstitial?

Application
How would you apply your knowledge of asepsis when monitoring an I.V.?

Analysis
In this hospital, a patient with an I.V. is on Intake and Output. What might be the reasons for this policy?

Synthesis
Think of a way of immobilizing the I.V. needle without immobilizing the patient.

Evaluation
Decide which type of needle would be the most appropriate for:
- a) a child?
- b) a short term surgical patient?
- c) an emaciated person?
LEARNING ACTIVITY SIX

Study the following educational objectives which relate to hypothetical clinical experiences. Formulate questions that may be asked during a post-clinical conference following a clinical experience designed to meet these objectives.
Question Set 8

General Objectives

1. The student will assess the patient's need for rest (sleep) and relief of pain.
2. The student will institute measures to promote rest (sleep) and relieve (reduce) pain.
Question Set 8

Knowledge
1. Define pain.
2. Describe the pain relieving drugs prescribed for this patient.

Comprehension
1. Explain the difference between pain tolerance and pain threshold.
2. Explain what is meant by the Gate Control theory.

Application
How might you apply the Gate Control theory in relieving this dying man's pain?

Analysis
What data from the nursing history and the nurses' notes was important in your assessment of this patient?

Synthesis
Propose a plan whereby you involve his visitors in instituting pain relief measures.

Evaluation
On the basis of this man's cardiac status, which breathing exercise for relaxation would you decide to teach him?
Questions in this module are directed only toward fostering cognitive or intellectual skills. The emotional and psychomotor components are not being considered.
Question Set 9

General Objective

The student will apply knowledge of therapeutic communication in the care of selected patients.
Question Set 9

KNOWLEDGE

COMPREHENSION

APPLICATION

ANALYSIS

SYNTHESIS

EVALUATION
### Question Set 9

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>What principles should a nurse bear in mind when conducting an interview?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td>Give an example of a nursing goal for an interview.</td>
</tr>
<tr>
<td>Application</td>
<td>How did you allow your patient to know your goal for the interview?</td>
</tr>
<tr>
<td>Analysis</td>
<td>What non-verbal behaviors did you deliberately use in order to create an atmosphere conducive to therapeutic communication.</td>
</tr>
<tr>
<td>Synthesis</td>
<td>You say you didn't use good eye contact. Can you think of a way to practice so you don't feel that you are &quot;staring&quot;?</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Which of the non-verbal behaviors you have described best accomplished your goal?</td>
</tr>
</tbody>
</table>
While the emphasis of this module is on questions that you, as a nursing instructor ask in order to foster critical thinking, in reality, the student's response will inform you about which cognitive level is being used. Questions directed toward the higher cognitive levels require time to answer.
Question Set 10

General Objective

The student will apply principles of nursing care to the child hospitalized with commonly encountered medical conditions.
Question Set 10

KNOWLEDGE

COMPREHENSION

APPLICATION

ANALYSIS

SYNTHESIS

EVALUATION
Question Set 10

Knowledge
What is acute bronchiolitis?

Comprehension
Why is oxygen run through ice in a croupette?

Application
How would you ensure an adequate fluid intake for a nine-month old child with bronchiolitis in a croupette?

Analysis
Explain your reasons for recording the observations you made regarding the need for oxygen.

Synthesis
How do you plan to meet this child's need for sleep?

Evaluation
Is it better to nurse this child in a private room or in a ward with other children?
LEARNING ACTIVITY SEVEN

Study the simulated descriptions of a student's clinical experience. Generate questions that may encourage critical thinking on the part of the student.
Your first year student was assigned the following patient to admit and prepare for surgery the next day. The only data you had prior to the patient's arrival were:

Mrs. C. 30 years old. Housewife. Married.
Two children aged 2 and 4. For bilateral ligation and stripping of varicose veins.

Admission orders:
1. Bathroom privileges.
2. Regular diet.
3. Prep. both legs.
4. Seconal 100 mg. h.s.

The student admitted Mrs. C., recorded a nursing history and performed the surgical prep. The student charted information and performed all procedures satisfactorily, but you are concerned when she remarks during the conference, "I don't know what Mrs. C. is so worried about. After all, she's only in to have her veins stripped."
Question Set 11

KNOWLEDGE

COMPREHENSION

APPLICATION

ANALYSIS

SYNTHESIS

EVALUATION
Question Set 11

Knowledge

Define anxiety.
What are the physiological and psychological signs and symptoms of anxiety?

Comprehension

How might anxiety affect a surgical patient's post-operative course?

Application

What might you do to a) identify, b) relieve this patient's anxiety?

Analysis

What unusual events did your patient experience from the moment she set foot in the hospital? (Unusual for her.)

Synthesis

Describe how a mother might feel as she leaves two small children for the first time.

Evaluation

Which is the most appropriate method of pre-operative teaching; individual or group? Using the criteria of anxiety reduction, investigate, and answer this question next week.
Question Set 12

Your second year student is in the fourth week of her obstetrical experience. She has been assigned to care for Joan D, 22 years old, primipara, postpartum day 3. Baby D is a healthy 3.5 kg. boy. During the post-clinical conference your student reports that during feed time she found Joan D in tears and Baby D howling lustily.

Imagine the interaction between you and this student. Generate questions as they might logically flow. Note beside each question the cognitive level to which it is addressed.
Question Set 12
Question Set 12

1. What did you do? K

2. What are the common complications 3rd day post-partum? K

3. Explain your reasoning as you assessed Joan. An

4. So you diagnosed two problems; post-partum "blues" and engorged breasts. Which of your therapeutic communication skills did you use as you talked to Joan? Ap

5. For what reasons did you consider those statements to be the most appropriate? E

6. Does Joan's reply support or refute your diagnosis? An

7. Think of a way of ensuring Joan gets some rest today. S

8. Decide if feeding the baby in the nursery would give her rest or exacerbate her depression. E

9. What is engorgement of the breasts? K

10. Why does this occur on the 3rd day post-partum? C

11. How did you teach Joan how to express her breasts? Ap

12. What other relief measures for breast engorgement were described in class? K

13. On what basis would you select the use of a nipple shield as the most appropriate measure? E

14. Describe the condition of Joan's breasts. K

15. How would you explain the use of a nipple shield to her? Ap

16. Look up the answers to the questions you couldn't answer. Make up an assessment check list for a patient similar to Joan. S

17. How will you find out tomorrow whether your interventions were effective or not? An
Question Set 13

Your second year student, nearing graduation, has been working as a member of a team caring for 16 patients on a medical ward. During the shift the student assists with the emergency admission of Mrs. McKay, age 63 years, found unconscious by a neighbour.

During the conference the student gives the following data. The diagnosis is cerebral haemorrhage with right hemiparesis. On admission Mrs. McKay was conscious but unable to respond verbally. The student examined Mrs. McKay and reported:

- T. 37 P. 80 R. 22 B.P. 190/100
- noisy breathing
- left eyelid and cheek sag
- pupils equal and react to light
- drooling from left side of mouth
- responds to questions with a grunt
- normal grip in left hand. Right hand limp.

The admission orders were:
1. Neuro signs q.30 min. until stable
2. O₂ by nasal cannula at 6-8 litres per minute
3. suction p.r.n.
4. insert Foley #16 5 cc. bag and connect to straight drainage
5. I.V. 500 cc. 5% G/W q.8 h.

Imagine the interaction between you and this student. Generate questions as they might logically flow. Note beside each question the cognitive level to which it is addressed.
Question Set 13
Question Set 13

1. What does aphasia mean? K
2. What area of the brain is affected when aphasia is present? C
3. Does aphasia indicate impaired intellectual ability? C
4. Pretend for a moment that you cannot speak while we all talk to you ... Describe how you felt. S
5. Suggest ways of helping a patient with aphasia to communicate. S
6. How might you involve Mrs. McKay's family in helping her to communicate? S
7. As Mrs. McKay regained consciousness and realised she was in hospital, what did you do to provide support? Ap
8. What is the difference between flaccid and spastic paralysis? C
9. Why is the left side of the face affected when the right side of the body is paralysed? C
11. For what reasons did you position her in that way? An
12. Make out an hour by hour plan of activities for Mrs. McKay for the next day in order to commence rehabilitation. You may wish to consult a speech therapist and a physiotherapist. S
13. For what reasons did the doctor request neuro signs? An
14. For what reasons did you use suction? An
15. What might happen if you gave a drink to Mrs. McKay? C
16. How will you meet Mrs. McKay's nutritional needs? Ap
Summary of Unit II

In this unit you formulated questions directed to each cognitive level. Although there was no direct way for you to check your responses, the suggested responses should have served to guide you in correcting your questions. By now you will realise that composing questions at the higher levels is hard work and requires practice.
UNIT THREE
Unit III

Major Objective When you have completed this unit you will be able to evaluate questions asked during post-clinical conferences.

Specifically you will:

1. Analyse questions asked by you and your students during a post-clinical conference.
2. Construct a Question Profile for yourself and your students.
3. Interpret your Question Profile.

Resources Needed

Tape recorder
Audio-tape of a post-clinical conference
Pocket calculator (optional)

Estimated Time to Complete

One - two hours.

Prospect of Unit III

On page 10 of this module, you were asked to tape a post-clinical conference. In this unit you will do a careful analysis of your own questions during this conference. You will be required to record the questions you asked, record the questions your students asked, allocate each question to a level as you did in Unit I and construct a question profile of yourself.
LEARNING ACTIVITY EIGHT

Record Questions

1. Listen to the tape of your clinical conference. On the pages indicated, write out:
   a) the objectives of the clinical experience,
   b) the questions you asked,
   c) the questions your students asked.

2. Examine each question. Decide to which cognitive level it is addressed and mark beside it:

   K    C    Ap    An    S    E

You will find that, in addition to questions directed toward the cognitive domain, you also asked:
   a) Procedural questions, e.g., What time is it? Does everyone understand? Can someone pick it up tomorrow? etc. Mark these questions "P".
   b) Questions directed toward the affective domain of the student, e.g., Did you feel confident? I guess you were upset? etc. Mark those questions "Af".
Objectives of the Clinical Experience
Questions Asked By You
Questions Asked By Students
Count the number of questions you asked excluding procedural and affective questions. Count the number of questions you asked at each level. Enter your scores in the boxes on the following page. Calculate relative percentages. Do the same for questions asked by your students.
### YOUR QUESTIONS

<table>
<thead>
<tr>
<th>Type of Questions</th>
<th>Number of Each Type of Questions</th>
<th>Grand Total of Questions You Asked</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KNOWLEDGE</strong></td>
<td></td>
<td>X 100 = ___%</td>
</tr>
<tr>
<td><strong>COMPREHENSION</strong></td>
<td></td>
<td>X 100 = ___%</td>
</tr>
<tr>
<td><strong>APPLICATION</strong></td>
<td></td>
<td>X 100 = ___%</td>
</tr>
<tr>
<td><strong>ANALYSIS</strong></td>
<td></td>
<td>X 100 = ___%</td>
</tr>
<tr>
<td><strong>SYNTHESIS</strong></td>
<td></td>
<td>X 100 = ___%</td>
</tr>
<tr>
<td><strong>EVALUATION</strong></td>
<td></td>
<td>X 100 = ___%</td>
</tr>
<tr>
<td>Type of Questions</td>
<td>Number of Questions</td>
<td>Grand Total of Questions Students Asked</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Knowledge</td>
<td>[ ]</td>
<td>[ ] × 100 = [ ] %</td>
</tr>
<tr>
<td>Comprehension</td>
<td>[ ]</td>
<td>[ ] × 100 = [ ] %</td>
</tr>
<tr>
<td>Application</td>
<td>[ ]</td>
<td>[ ] × 100 = [ ] %</td>
</tr>
<tr>
<td>Analysis</td>
<td>[ ]</td>
<td>[ ] × 100 = [ ] %</td>
</tr>
<tr>
<td>Synthesis</td>
<td>[ ]</td>
<td>[ ] × 100 = [ ] %</td>
</tr>
<tr>
<td>Evaluation</td>
<td>[ ]</td>
<td>[ ] × 100 = [ ] %</td>
</tr>
</tbody>
</table>
LEARNING ACTIVITY NINE

Enter your calculated percentages into the Question Profile tables for both you and your students. Answer the questions that follow.
### Your Question Profile

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
</tr>
</tbody>
</table>

### Your Students' Question Profile

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
</tr>
<tr>
<td>Comprehension</td>
<td></td>
</tr>
<tr>
<td>Application</td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td></td>
</tr>
</tbody>
</table>
Interpreting the Question Profiles

Carefully consider the implications of the percentage figures and answer the following questions.

1. Note the relative percentages of questions at each level in your profile. Describe the probable effect of your questions upon the development of student thinking.

2. To what extent were your questions directed toward the educational objectives of the clinical experience? Of your school?

3. Compare your percentages with those of your students. Is there a similar pattern? Do your students know how to ask questions?
4. Do your questions require an instant answer or do you pose questions that need time for a reply?

5. List some specific changes you would like to make in your questions.
Summary of Unit III

In this unit you analysed the questions that you and your students asked during a post-clinical conference that was recorded prior to your work on the module. Now that you have completed the module you may wish to tape another conference in a few weeks time and repeat Unit III. You will then be able to compare your profiles and decide whether you are achieving your desired changes.

It bears repeating that there are many other aspects to a post-clinical conference and that asking questions is only one teaching behavior. This module has provided you with basic knowledge about questions. The annotated bibliography suggests further resources for those interested in continuing to study.
Annotated Bibliography


Describes the cognitive levels in far more detail than in this module. Examples of questions are those for multiple choice exams.


This book is based on Bloom's Taxonomy. In addition to questions directed toward the cognitive domain, it also considers those directed toward the affective domain.


An excellent resource for any teacher. This book considers many aspects of questioning that have not been considered in this module. Recommended for anyone wishing to pursue this topic.


A very well-written article that discusses many aspects of conferences. While not analyzing questions, it does stress their importance. This article will help place questions in perspective.


Discusses two strategies that may be employed by nursing instructors in planning questions.


A useful book for anyone interested in learning more about questioning techniques and strategies.