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ABSTRACT

Questions teachers use to elicit responses from students affect the kind of thought process the student will use and subsequently the type of answer he will suggest ways in which behavioral and educational objectives are reflected in teacher questions. Simplified interaction analysis techniques can be useful in diagnosing and assessing the thinking and feeling competencies of students in the classroom. The right kinds of teacher questions can create an environment conducive to developing critical reading skills. Using the levels and categories of these taxonomies as a framework the teacher can classify his own questions and thus determine whether or not he is challenging his students on a variety of cognitive and affective levels. By restating questions, the teacher can easily vary the kinds of responses elicited from his students. Frequently, the change of a key word or phrase in the question is all that is necessary to vary the kinds of response required from the listener. A table indicating the relationships between levels and categories of questions, a table showing possible question restatements for level changes, and references are included. (AL)

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A busy classroom teacher needs a ready skill in generating questions on a variety of levels and then some means of knowing for sure that he does indeed offer a variety to the students. The variety of levels contained in two available taxonomies (Bloom, 1956; Krathwohl, 1964) can provide a frame of reference for interested teachers. These taxonomies contain "thinking" and "feeling" levels that range from grasping and reacting to a message, on to producing new messages. Such abilities may be called "comprehension" by teachers of reading or "critical reading" by a teacher in any of the content areas, since math, science, social studies and literature each contain specialized vocabularies, symbols, and organization of thinking and feeling skills, that must be mastered in order to fulfill the specific objectives of each academic discipline. (Russell, 1961; Fay, 1954; Smith, 1964) A relatively simple means of knowing that one offers a variety of thinking and feeling opportunities to the learners, may be found in some current interaction-analysis systems.

Some teachers have long been aware that achievement and aptitude tests are at best only indicators of true potential ability. "Interaction analysis," although often a complex system to employ, can also be used in a simple way to assist teachers in diagnosing and assessing the thinking and feeling competencies involved in the learning opportunities offered to children. These skills must not be left to chance.

Together, the taxonomies and an interaction analysis system can be utilized by teachers who find a need to develop questioning skills. The purpose of this paper is to help teachers reach critical reading by focusing on the empirical means of obtaining knowledge of educational objectives" which influences the kinds of questions employed, which in turn are classified by means of interaction analysis.

For the past thirty years psychologists have attempted to define objectives in terms of desired behavior and then to determine the achievement of the objectives by judging the subject's performance of the behavioral tasks, tests, or operations. The adoption of this technique by curriculum makers and teachers has helped to lift educational objectives from the realm of the abstract and the nebulous and to place them within the area of measurement. Now a second process has been attempted by the researchers. Its aim is to place an objective within a large over-all scheme. Since some behaviors build upon and require knowledge or mastery of other behaviors it seems logical that some classification of educational objectives from simple to complex might be feasible. Two such classifications are now available in handbook form. The authors of these handbooks refer to the goals of education or educational objectives as the intended behavior which teachers seek in their students (Bloom, 1956, p. 12). Both authors manifest full cognizance of the fact that human behaviors cannot actually be separated into those which deal with thinking and those arising from feeling. However, since their materials are the stated objectives of teachers and curriculum workers who do make distinctions between thinking and feeling, both authors treat, these intended behaviors as belonging to either the cognitive or the affective domain. Their classification schemes propose to facilitate communication regarding educational objectives (Bloom, 1956, p. 10).

One Handbook which deals with the goals of a cognitive nature, presenting them in a hierarchical arrangement, is called the Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook I: Cognitive Domain (Bloom, 1956). It establishes six levels of cognition: Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation. The operational definition for each level can be found by noting the underscored words and phrases in Figure 1, which is a condensed version

1. KNOWLEDGE-recall of specifics and universals, methods and processes, etc.
   - 1.10 Knowledge of specifics-recall of specific and isolable bits of information
   - 1.11 Knowledge of terminology
   - 1.12 Knowledge of specific facts
   - 1.20 Knowledge of ways and means of dealing with specifics-ways of organizing, studying, judging, and criticizing
   - 1.21 Knowledge of conventions-characteristic ways of treating and presenting ideas and phenomena
   - 1.22 Knowledge of trends and sequences-with respect to time
   - 1.23 Knowledge of classifications and categories-classes, sets divisions, etc.
   - 1.24 Knowledge of criteria-by which facts, principles, etc., are tested or judged
   - 1.25 Knowledge of methodology--in a particular field
   - 1.30 Knowledge of the universals and abstractions in a field
   - 1.31 Knowledge of principles and generalizations
   - 1.32 Knowledge of theories and structures--the body of these

Intellectual abilities and skills

2. COMPREHENSION-understanding the literal message contained
   - 2.10 Translation-accuracy in changing one form of communication to another--grasping the meaning and intent of material
   - 2.20 Interpretation-explaining or summarizing a communication
   - 2.30 Extrapolation-implications, consequences, etc.

3. APPLICATION- use or abstractions in particular and concrete situations as: application as to the phenomena discussed in one paper of the scientific terms or concepts used in other papers

4. ANALYSIS-breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit
   - 4.10 Analysis of elements-as: skill in distinguishing facts from hypotheses
   - 4.20 Analysis of relationships-connections and interactions between elements of a communication
   - 4.30 Analysis of organizational principles-as: ability to recognize form and pattern in literary or artistic works as a means of understanding them

5. SYNTHESIS-putting together elements and parts so as to form a whole
   - 5.10 Production of a unique communication-as: skill in writing in speech
   - 5.20 Production of a plan, or proposed set of operations-design an experiment
   - 5.30 Derivation of a set of abstract relations-as: formulate hypotheses

6. EVALUATION-involves thinking about values
   - 6.10 Judgments in terms of internal evidence, as: ability to indicate the logical fallacies in arguments
   - 6.20 Judgments in terms of external criteria-comparison with other works of recognized excellence

Figure 1. Condensation-Taxonomy of Educational Objectives--Edited by Benjamin Bloom

of the Handbook. The authors repeatedly assert that the classification--which is admittedly arbitrary--reflects "The distinctions which teachers themselves make among student behaviors" (Bloom, 1956, p. 13). The hierarchical arrangement of the Taxonomy begins with the numerical measurement attributed to a matter of specific recall. (For example, the response to such a question as: This picture shows a member of what race?, would require the 1.0 level of thought.) The highest level involves a judgment based on a comparison. (For example, the response required by this question: What in your opinion constitutes evidence that any one race of men in the world today is superior to any other race?, belongs to the 6.0 thought level.) The numerical measurement is presumably based on teacher objectives and in the mind of the authors "the objectives of one class (i.e., analysis) are likely to make use of and be built on the preceeding classes in the list; i.e., application, comprehension and knowledge (Bloom, 1956, p. 18).

A close parallel can be drawn between the levels of cognition and the aspects of reading comprehension. First, consider a recently arrived-at definition of reading behaviors.

> "Reading behaviors are covert responses to verbal written language. These covert responses are indicated by overt performance which could not have occurred without the covert responses to the written language (Gephart, 1969).

In attempting to find out how authorities in the field of reading unpack the words "covert behavior," one encounters a diversity of opinion which enriches the concept of reading. One also finds some unity in the connotations ascribed to the term "reading comprehension."

Reading as a subject of formal instruction is generally divided into two main areas, i.e., word recognition and comprehension. Word recognition is a term used to refer to the actual decoding of a message.

It includes the physiological and the neurological aspects of reading up to the point of grasping the message. Comprehension, in general, refers to all of the mental and affective activities the reader engages in as he grasps and reacts to the material to be read. Comprehension is usually divided into three major aspects: literal, critical and creative understanding of written language.

In order to facilitate communication, the writer chose the labels given to the levels of cognition as arranged in Bloom's Taxonomy as a way of integrating the various definitions of critical reading found in the literature. A group of educators, recently convened to define "reading," converged on the following mental activities as those which do comprise critical reading: interpretation, analysis, synthesis and evaluation (Gephart, 1968). It is true that Helen Huus (1965) after surveying the literature, distinguished between critical and creative reading in a way that makes creative reading correspond to synthesis. However, operationally, creative reading will be considered an aspect of critical reading.

Fay (Bulletin #28) and Peikarz (1964) call attention to the need for including attitudes when considering critical reading. In an address delivered to the National Association of Secondary School Principals, Wilhelms (1968) suggests that reading instruction, geared to helping a student develop his own ego strength by accenting both what he thinks and feels, can provide an important part of the right conditions for effective learning. Conditions conducive to critical reading range from strong educational objectives aimed at developing the appropriate skills to giving the pupils sufficient time to do reflective thinking. Engle (1960, p. 21) points out the need for educators to select and organize instructional

materials and experiences so as to offer the child maximum opportunity for making intelligent and thoughtful decisions once he has encountered all of the known alternatives to a choice.

A second handbook by David Krathwohl, Benjamin Bloom and Bertram Masia bears the title: Taxonomy of Educationa Objectives, The Classification of Educational Goals, Handbook II: Affective Domain, (1964). This Taxonomy deals with the affective, or the "feeling" levels of pupil activity. It too uses numerical measurement for pupil responses, extending from the 1.0 level, which is attributed to passive sensitivity to a stimulus to the 5.2 level ascribed to that response of a student which is consistent with his own internalized value system. (Note the underscored key words and phrases in order to operationalize the definitions offered for the various levels of the affective domain found in Figure 2.)

Questions can be so stated that the emphasis is placed on the pupil's feelings and require from him an expression of his interests and attitudes in varying degrees of commitment, i.e., responding, valuing, or manifesting a value as characteristic behavior. If intellectual development hinges on appropriate opportunities for learning, can it not be speculated that affective development can be furthered by involving the learner emotively. This attempt to make relevant to the learner's affective expreience that which he is intellectualizing offers the teacher and the learner's peers, a chance to exercise their acceptance and approval of a child's feelings. Such a climate may indeed further learning.

The two Handbooks briefly described above have contributed to research in many areas of human behavior. The author of this paper is concerned only with their use as a possible guide for teachers in asking questions which will elicit desired pupil responses.

1. RECEIVING (Attending)--concerned that the learner be sensitized to the existence of certain phenomena and stimuli
   - 1.1 Awareness--the learner will merely be conscious of something
   - 1.2 Willingness to Receive--the behavior of being willing to tolerate a given stimulus, not to avoid it. It involves a neutrality or suspended judgment toward the stimulus
   - 1.3 Controlled or Selected Attention--the perception is still without tension or assessment, and the student may not know the technical terms or symbols with which to describe it correctly or precisely to others

2. RESPONDING--the student is sufficiently motivated that he is not just 1.2 willing to attend, but perhaps it is correct to say that he is actively attending--interest objectives
   - 2.1 Acquiescence in Responding--"obedience" or "compliance." There is a passiveness so far as the initiation of the behavior is concerned
   - 2.2 Willingness to Respond--"willingness," with its implication of capacity for voluntary activity. Consent or proceeding from one's own choice
   - 2.3 Satisfaction in Response--the behavior is accompanied by a feeling of satisfaction, an emotional response, generally of pleasure, rest, or enjoyment. The category is arbitrarily placed at this point in the hierarchy where it seems to appear most frequently

3. VALUING--it is employed in its usual sense: that a thing, phenomenon, or behavior has worth. The learner displays this behavior with sufficient consistency in appropriate situation that he comes to be perceived as holding a value
   - 3.1 Acceptance of a value--the ascribing of worth to a phenomenon, behavior, object, etc.
   - 3.2 Preference for a Value--the individual is sufficiently committed to the value to pursue it, to seek it out, to want it
   - 3.3 Commitment--"conviction," "certainty beyond a shadow of a doubt." Involvement, loyalty to a position, group, or cause would also be classified here

4. ORGANIZATION--more than one value is relevant
   - 4.1 Conceptualization of a Value--see how the value relates to those that one already holds or to new ones that he is coming to hold
   - 4.2 Organization of a Value System--ideally, the ordered relationship will be one which is harmonious and internally consistent.

5. CHARACTERIZATION BY A VALUE OR VALUE COMPLEX--the individual acts consistently in accordance with the values he has internalized at this level
   - 5.1 Generalized Set--a basic orientation which enables the individual to reduce and order the complex world about him and to act consistently and affectively in it
   - 5.2 Characterization--here are found those objectives which concern one's view of the universe, one's philosophy of life, one's Weltanschauung--a value system having as its object the whole of what is known or knowable

Figure 2. Condensation--Taxonomy of Educational Objectives, Affective Domain, D. Krathwohl.

This paper works on three assumptions. The first is that today the key factor in guiding student progress is still the teacher. The intensive research based upon reading methods in the past few years has failed to reveal the superiority of any one method over another mainly because no method can be completely abstracted from the manner in which a teacher uses it. Since the teacher is such a vital element in determining the pupils' behavior, any improvement that can be made in teacher performance should be productive of student improvement also.

The second assumption, which flows logically from the first, can be documented by research in the area. It is that the types of questions asked by the teacher do influence the type of thinking children do. Thus, if a majority of a teacher's questions remain upon the memory-recall level, for example: What did Johnny do after he found the dog?, Name the continents of the earth?, What three conditions in the South contributed to the causes of the War Between the States?, the pupils thinking is likely to be directed to the memorizing pattern.

The third assumption stems from the rapid changes in our society briefly discussed in the introduction. The great need in our world today is the ability of the individual citizen to analyze his own needs and assets and to select from multiform opportunities those which best suit his objectives and those of the society in which he lives. This calls for skill in critical reading and thinking which like any skills are developed only through practice. If our educational system is to develop critical thinkers our teachers must be trained in asking the type of questions which will give constant practice in critical thinking. Moreover, this high level thinking should not be postponed to the elementary or junior high level but

should begin as soon as the child is capable of it. McCullough (1957) found children of primary grade level able to draw conclusions, pass judgments and see relationships when she used questions requiring such thought processes, or thinking tasks.

Since the teacher remains the key factor in education and the types of questions he employs in his teaching are a strong influence in directing the thinking patterns of his pupils, any aid that could be given to teachers in improving their questioning skill would be a significant contribution to teacher education.

Along with the previously mentioned conditions conducive to critical reading belongs the ability of the teacher to ask the right kinds of questions (Robinson, 1964). But asking questions which offer the children opportunities to think on a variety of levels hinges on the ability of teachers to ask questions. Question fluency is prerequisite to asking questions on a variety of thought levels. The more important and complex question-asking techniques come after the development of question fluency in teachers. The objective in question fluency is to become fluent in asking questions; and then to become fluent in asking a variety of questions (Allen, Ryan, Bush and Cooper, 1969).

Admittedly, the levels of thinking as described in the Taxonomy Handbooks are extremely good testing grounds for teachers' questions. But a busy classroom teacher faced with the problem of generating questions on a variety of levels for the several subjects he is teaching, needs something more. He needs some means of assuring himself that he is indeed offering a variety of thinking opportunities to his pupils. Fortunately such a means is at hand. In addition to the Handbooks of Education Objectives another resource available is the use of interaction analysis.

Just as critical reading was defined earlier in terms of the Taxonomies, questioning too, can be considered within the same framework. Sanders (1966) demonstrates this use of the cognitive taxonomy in his book on classroom questions. (The parallel with the affective domain is unique to the present paper and an unpublished study, Meehan, 1970.) Along with his explanations of the classification scheme, Sanders offers opportunity to practice classifying and constructing questions on the various levels contained in the Taxonomies. This system of Sanders is useful, if one is not concerned with refining the elements of questioning to the same degree found in the original Taxonomy, since it does not subdivide the levels to the same degree. However, even broader categories might be of greater use to an aspiring teacher. Aschner and Gallagher (1965) have developed useful categories as a subsystem of a larger interaction-analysis system which is designed to classify all classroom behavior. The same phenomena contained under the labels of the cognitive levels of the Taxonomies appear within these question categories which are called: Cognitive-memory, convergent, divergent and evaluative. This system was based on the processes outlined by Guilford in his model of the intellect (Gallagher, 1963, p. 185). Operational definitions for the categories are underscored in Figure 3.

Gallagher and Aschner* have developed a system containing four categories that are particularly useful for thinking about questions. The four categories are:

4a. Cognitive Memory Questions

These questions call for facts or other items which can be recalled. A cognitive memory question is one that involves rote memory, recognition or selective recall.

4b. Convergent Questions

These are questions which call for the analysis and integration of given or remembered data. Problem solving and reasoning are often involved in this category. The answers to these questions may be predictable, but convergent questions are always broader than cognitive memory questions. You will need to know the background of the pupils in order to determine whether questions call for reasoning or recall.

4c. Divergent Questions

Questions in this category call for answers which are creative and imaginative; which move into new directions; involve abstract experimentation. It calls for generating facts when such are sparse.

4d. Evaluation Questions

These questions deal with matters of judgment, value and choice, rather than with facts.

Figure 3. Explanation of Category 4--ASKS QUESTIONS

*Gallagher, J. J., and Aschner, Mary J., "A Preliminary Report of Classroom Interaction," Merrill-Palmer Quarterly of Behavior and Development, Vol. 9, July, 1963, pp. 183-194.

"Interaction analysis systems are 'shorthand' methods for collecting observable data about the way people talk and act" (Sumon-and Boyer, 1967, p.1). Without recording what is actually said--i.e., a teacher's actual question and the words of the pupil's response, a relatively simple record of what is happening can be acquired by using the code of a particular system. Although these systems were originally designed as tools of research, many have been used in teacher training. Like the Taxonomies already discussed, some systems deal with the thinking process itself,

which we have termed the cognitive domain, while others deal with teacher reactions to feelings, ideas, work efforts, etc., of the pupils or the affective domain. Some systems deal with both areas. From among them the author of this paper has chosen a section from the Aschner-Gallagher System as a likely tool for the purpose of observing and recording the kinds of questions used in a given reading lesson or academic discourse.

This system contains a four-category scheme designed to suggest the various kinds of questions that elicit responses from the various levels of cognition. The categories are: (1) cognitive-memory, (2) convergent, (3) divergent, and (4) evaluative. Unlike the numerical measurement used in the Taxonomies, the categories are based on theoretical concepts which permit the objective and accurate description of the levels of thought that are required of a child to respond to the question. Basic to this scheme is the assumption that a question asked at a given level will elicit a response that can be identified with the corresponding category. In other words, a cognitive-memory question will cause a cognitive-memory response on the part of the child.

Achievement and mental aptitude tests may be one way of assessing a student's competence by <u>interaction</u> with that person could uncover ability previously unnoticed. Besides, continued interaction can assist in the individual's development of thinking and feeling, while a record of the interaction can serve diagnostic and evaluation purposes.

This paper attempts to show how the <u>intended behavior</u>, or the e ca-tional objectives as found in the two Handbooks, that become actualized via the teacher's verbalized questions can be observed and recorded by means of interaction analysis. It is reasoned by this writer that the

question categories employed by the selected interaction-analysis system closely parallel the descriptions of the various thought levels of the cognitive domain. A translation of the thinking levels of the cognitive domain, and the coreesponding feeling levels of the affective domain, into the corresponding question categories can be studies in Figures 4 and 5.

This correspondence becomes clearer as one studies the schematic translation of the levels (used in the Handbooks) into the category system which is presented in Figures 4 and 5. For example, level 1.00 in the condensed version of the cognitive domain emphasizes remembering, either by recognition or recall; level 2.10 emphasizes understanding the literal message contained in the ideas, material or phenomena. Similar terminology appears in the authors' description of the category system. The cognitive-memory category calls for facts or other items of selected recall. It too involves rote memory and recognition. Thus, the same behaviors are the substance of level 1.00 - 2.10 and the cognitive-memory category.

Representative phrases used by the authors were abstracted from the Handbook and the category system, to bear out this correspondence in each of the four categories. A careful study of each category with its corresponding levels of cognition in Figure 4, can clarify the thinking task required to answer questions classified in the different categories.

In the Handbook of the affective domain, the authors draw a rough parallel between the cognitive taxonomy and the affective taxonomy. They associate the cognitive recall level of Knowledge (1.00) with the affective Receiving level (1.00) of their own work. They further associate the cognitive Comprehension level (2.00) with the affective Responding level (2.00). The parallel continues through the remaining levels of the taxonomies. The correspondence can be studied in Figure 5.

Taxonomy of Educational Objectives Cognitive Domain, Bloom, B. S., et al (1956)	Verbal Interaction Analysis System, Gallagher and Aschner (1963)
1.00 Knowledge ...emphasizes the remembering either by recognition or recall, of ideas, material or phenomena... p. 62 2.00 Comprehension ...understand the literal message contained... p. 89 ...grasp the meaning or intent of the material... p. 144	Cognitive-Memory ...calls for facts or other items of recall... p. 187.
Both call for the reproduction of facts.	
2.10 Literal comprehension 2.20 Interpretation ...understand relationships... p. 93 3.00 Application ...bringing to bear upon given material the appropriate generalizations or principles. p. 144 4.00 Analysis ...detection of relationships... p. 144.	Convergent ...calls for analysis of given or remembered data... p. 187.
Both classifications call for the integration of facts.	
5.00 Synthesis ...combining parts in such a way as to constitute a pattern or structure not clearly there before... provides for uniqueness and individuality... creative expression within certain limits. p. 162	Divergent ...move in new directions... creative and imaginative... abstract experimentation... p. 187.
Both call for generating new data, when facts are sparse.	
6.00 Evaluation ...criteria including values added to above,..thinking about values... p. 185	Evaluation ...judgmental character... p. 188.
The thinking deals with values rather than facts.	

Figure 4. Translation of the Cognitive Handbook into a Verbal Interaction Category system.

Cognitive Domain	Affective Domain	Interaction Analysis Categories
1.00 Knowledge	1.00 Receiving	Cognitive Memory Questions
2.00 Comprehension	2.00 Responding	
2.10 Literal Comprehension		
2.20 Interpretation		
3.00 Application	3.00 Valuing	Convergent Questions
4.00 Analysis	4.00 Organization	
	4.10 Conceptualization	
5.00 Synthesis	4.10 Conceptualization	Divergent Questions
6.00 Evaluation	4.20 Organization of a Value System	Evaluation Questions
	5.00 Characterization	

MEMORY Q's	CONVERGENT Q's	DIVERGENT Q's	EVALUATION Q's
Total:	Total:	Total:	Total:

Figure 5. Questions and Classifications. T E O - I A S, Translation by S. T. Meehan, 1969.

It can be inferred that the category system which permits the reporting of the cognitive substance can also report the feeling level involved in the thinking task required by any given question. The inference flows from the rough parallel drawn by the authors of the affective Handbook (Krathwohl, 1964, p. 50). Gallagher and Aschner, in their category system, do not attempt to report affective behavior. It seems

logical to this writer to assume that the cognitive-memory category presents a useful schema for reporting actual teacher behavior in formulating questions that require from the student a response of cognitive recall, and affective responding. The writer further assumes that a similar correspondence can logically be drawn between the higher levels of the taxonomies and the remaining interaction-analysis categories. In other words, the skill of a teacher in classifying questions that occur in his verbal interaction with pupils, or in the learning tasks of materials assigned to pupils, will give the teacher the necessary feedback to determine whether or not he offers the range of intellectual and affective activities contained in the Handbooks of Educational Objectives.

As stated earlier, teachers questions are the expression used to get at the intended behaviors of the educational objectives and actual behaviors of the classroom. Just as teachers' statements of their specific objectives in actual lesson plans can be used as the substance of classification in the two taxonomies, teachers' questions and pupil responses can also be the substance. The scope of this paper does not include an analysis of pupil responses although they too can be similarly classified; but it is certainly recognized that teacher's questions would be of little value unless they elicited pupil responses reflecting a variety of thought levels.

The questions asked by teachers can be analyzed in terms of the thought level required by the student to respond to the question. The "intended behavior" of having teachers ask questions on a variety of levels can then be measured as "actual behavior" in the classifying of the questions teachers <u>do</u> ask. Once the teacher records a sample of his typical question, he can classify them. Along the bottom of Figure 5 can be found a convenient tallying device, for entering the question

numbers as they occur, in each category and then totals can be compared. From an analysis of the results, a teacher can determine the kinds of opportunities he usually offers his pupils. From this information flows satisfaction that one is indeed meeting all of the educational objectives desired, or is able to adjust one's questioning patterns accordingly.

Using the levels and categories as a framework, it is possible to practice classifying, generating and recording questions. Thus an interested teacher can determine by categorizing his own questions, whether or not he is actually challenging his pupils to think on a variety of levels or whether change is in order in his own question-asking behavior.

If a teacher finds that guided reading is followed by factual-type questions only, he can restate the question so as to vary the kinds of responses required. Figure 5 provides a form that can be used as a practice sheet by taking an idea through the various levels of thought and feeling. Figure 6 provides a simple model for such practice. The objective is to ask questions which require integration of given information; or the use of the information in some new way; or judgments regarding the given information or new ideas.

Further help may be afforded a teacher interested in the practice of classifying or generating questions in the form of a worksheet into which has been keyed frequently-used forms of linguistic expressions which were taken from the Taxonomies. Figure 7 can be used as a "key word" guidesheet to assist in the process of restating questions in order to vary the kinds of response required by the listener. This can be compared with samples found in Figure 6.

Reading Comprehension	Cognitive Domain	Affective Domain	Verbal Interaction Category System
	1.00 Knowledge 2.00 Comprehension	1.00 Receiving 2.00 Responding	MEMORY QUESTIONS
Who gave Jack some strange seeds? What is modern art?		Would you be interested in strange seeds? Does modern art interest you?	
	2.2 Interpretation 3.00 Application 4.00 Analysis	3.00 Valuing 4.00 Organization 4.1 Conceptualization	CONFERGENT QUESTIONS
Can you explain why Jack's mother was angry about the seeds? Explain why Picasso is called a modern artist.		Would you trade something very valuable for some seeds you didn't understand? Do you usually accept works of modern art?	
	5.00 Synthesis	4.2 Organization	DIVERGENT QUESTIONS
Instead of a giant's castle at the top of the beanstalk, to what other things might the seeds have led What explanation can you think of for Picasso's use of facial profiles?		How might you feel if the seeds didn't grow and your mother and you had to go hungry? What is your attitude toward people who call modern art, "just a mess of canvas?	
	6.00 Evaluation	5.00 Characterization of values	EVALUATION QUESTIONS
Is this a good or bad story about magic seeds? Did you agree that Picasso's work belongs to modern art?		Given a chance would you take courses in modern art?	

MEMORY QUESTIONS	CONVERGENT QUESTIONS	DIVERGENT QUESTIONS	EVALUATION QUESTIONS
Total_____	Total_____	Total_____	Total_____ Tape___

Figure 6. Question Samples.

Critical Reading	Cognitive Taxonomy	Affective Taxonomy	Verbal Interaction Category (Revised V I C S) System
G R A S P Read the Line	KNOWLEDGE 1.00	RECEIVING 1.00 Attend (Can you do...?)	MEMORY QUESTIONS State... Name... Recall... Notice... Observe... ...saw happen... Recognize... Obey... Will... Like... Want...
	COMPREHENSION 2.00 Literal 2.1 (What...?) (Is...?) (How many...) (Did...?)	RESPONDING 2.00 (Do you ususally...?) (Is it usual for you...?) (Are you willing...?) (Does...interest you?)	
Between the Lines	COMPREHENSION 2.2 Interpretation (Based on information given)		CONVERGENT QUESTIONS Interpret... Implicate... Explain... Describe... Compare... Conceive of... Relate... Anticipate... Accept... Prefer... Conceive of... Perceive ...
R E A C T Beyond the Lines	APPLICATION 3.00 (Use of a principle)	VALUING 3.00 (Should one...?)	
	ANALYSIS 4.00 (Why...?) (Would you...?) (What way...?)	CONCEPTUALIZE 4.10 (Do you do...out of regard for...?) (...should consider ...) (Do you usually accept...?)	
P R O D U C E	SYNTHESIS 5.00 (What ways... might...?) (...could...?) (...may...?) (...can...?) (What if...?) (What sort of...?)	CONCEPTUALIZATION 4.10	DIVERGENT QUESTIONS Infer... Originate... Hypothesize... Predict... Present now... Conceptu-alize... Conceive of...
	EVALUATION 6.00 (Do you agree?) (How many kinds are...?) (In your opinion...?)	ORGANIZATION OF VALUE 4.20 (What do you think about...?)	EVALUATION QUESTIONS Judge... Think... Order... Feel... Value... Regard... Esteem... Outlook...
		CHARACTERIZATION 5.00	

Memory:	Convergent:	Divergent:	Evaluation:

Figure 7. "KEY" Words and Tasks Frequently Used in Questioning.

At best, this method of observing classroom questions is truly gross, but it is the writer's contention that it exceeds the often vague impressions that presently guide teachers' diagnosis and evaluation of their question-asking behavior.

In summary, this paper translates the levels of two taxonomies of educational objectives into four types of teacher questions found in a verbal interaction-analysis system. Where the two taxonomies have differentiated types of pupil behavior according to long-accepted goals of education, the present author has sought to properly associate a six-fold differentiation of the cognitive domain and a five-fold differentiation of the affective domain with four question categories that can be tabulated through an interaction-analysis system.

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