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ABSTRACT

A study of question and response patterns in middle and secondary schools in Indonesia is presented. The study examines questioning from the point of view of several previous studies. Interactions in 12 classes in English and in Bahasa Indonesian were videotaped in three middle schools and three secondary schools. Analysis of the data revealed patterns showing that teachers using traditional approaches to teaching vary significantly in function, form, level, rate, and participant structures in their questioning interactions with students. Using classifications adapted from Bloom's Taxonomy of Educational Objectives in the Cognitive Domain, teachers' questions were analyzed for the level of cognitive reasoning expected in the responses. The patterns that emerged revealed sequences marking (1) transitions in teacher objectives and (2) the degree to which teachers involve students in higher order thinking. This evidence refutes assumptions that classroom interaction is marked by lower-level teacher questioning and rote echoic responses. However, it is also concluded that analysis of the level of questioning must be accompanied by analysis of the level of response received. A 53-item bibliography and 12 line graphs are included. (MSE)

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Question/Response Patterns

In Indonesian Classrooms

By

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QUESTION/RESPONSE PATTERNS
IN MIDDLE AND SECONDARY SCHOOLS
IN INDONESIA

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INTRODUCTION

This is a study of question/response patterns in middle and secondary schools in Indonesia. The study represents an effort to examine questioning from the point of view of several previous studies on classroom questioning. Such triangulation can give one more insight into what really happens in questioning interactions in classrooms than have previous investigations which focused on only one of these frameworks.

After an extensive literature search was conducted in the areas of Indonesian education, teacher effectiveness, student/teacher relationships, questioning research, and sociolinguistics of classroom interactions, data were filmed and audiotaped in 12 Indonesian classrooms early in 1988. Forty-five minute classes in English and in Bahasa Indonesia (the official national language in Indonesia) were filmed in their entirety in three middle schools and three secondary schools in Malang, East Java, and in one elementary/secondary school in Jakarta.

As in the pilot study conducted on the analysis of data from three Singapore classrooms in 1987 (Grow, 1987), and in preliminary analysis on three Indonesian schools in the present study completed in the summer of 1989, the 1990 analysis of data from the eight schools reveals patterns which demonstrate that teachers using traditional approaches to teaching vary significantly in function, form, level, rate, and participant structures in their questioning interactions with students.

An in-depth analysis of the level of questioning was most revealing. Utilizing classifications adapted from the levels defined in Bloom's **Taxonomy of educational objectives in the cognitive domain** (Bloom et al, 1956), teachers' questions were charted on the basis of the level of cognitive reasoning expected in the responses. Analysis of the charts revealed sequences of patterns that appear to mark 1) transitions in teacher objectives, as well as 2) the degree to which teachers involve students in higher order thinking.

Significance to Research and Educational Practice

The study, which focuses on the questioning patterns of middle and secondary teachers, is basically a study of the sociolinguistic processes in a very important societal institution, the primary educational system, in Indonesia, a

country rich in several eastern cultures, but highly influenced by western educational technology. The study, then, contributes to a large body of literature on teacher questioning patterns which can be generalized to classrooms across cultures.

Most western writers assume the western student-centered approach to primary education to be not only more "progressive", but superior in all settings to more formalistic, structured, teacher-centered procedures (Beeby 1966, Ikranagara 1982). But when one looks at the history of the peoples of Indonesia, the traditional cultural values, the history of education in Indonesia and the importance of the traditional religious schools since even before the rise of Islam in the 16th Century, one may begin to look at that most important societal institution--primary education--from a point of view different from one's own.

This study of teacher questioning, based on raw data collected in Indonesia, analyzed from the perspective of an extensive review of the literature from sociolinguistics and another from the history of education in Southeast Asia, is particularly appropriate for consideration by educators in our society today, of course, where a global and comparative view of education is sorely needed.

Rationale

Modern educators are quick to promote "progressive" methods when asked to consult outside the mainstream (Ikanagara 1982, Beeby 1966), often without regard for the cultural context (Cazden 1986; Guthrie 1986). My own experience in Indonesia is a case in point. Teachers exposed to the progressive communicative approaches to language teaching revealed their most pressing need to be assistance in implementing the centrally imposed, highly structured, traditional curriculum in structured traditional ways.

McNamara (1981), has suggested that for decades text books and teacher trainers have made the same recommendations about teacher questioning. He proposed that what is recommended is not what generally happens in classrooms nor is it necessarily what ought to happen in classrooms. McNamara further suggested that researchers look at what is happening in classrooms, encourage teachers to look at what happens in classrooms--reflect on what is happening in their own classrooms--and proceed from there--from a certain state of awareness.

Indeed, in the past twenty years, educational researchers, ethnographers and sociolinguists, have looked at classroom interaction and teacher questioning in many different ways. Most of the studies report various implications their findings have for instruction and teacher training. However, results of the

implementation of various questioning techniques on student achievement are not conclusive. Most of the studies have been conducted in American or British classrooms. Most have investigated interactions between teacher and students from a common culture. Only a few of the studies have examined interactions between teacher and students who are members of a minority group within the dominant culture. Fewer studies yet have looked at interactions in classrooms where the educational model was borrowed from a culture different from that of both teacher and students.

Theoretical Perspective

It is well documented that traditional classrooms are dominated by teacher-talk (Jackson 1968, Barnes 1969, Flanders 1970, Cazden 1986b). Much of that talk consists of teacher questioning, student response and teacher reaction (Bellack et al 1966, Hoetker 1969, Sinclair and Coulthard 1975, Arfah 1977, Stodolsky et al 1981, Malcolm 1982). The analysis of questioning in classrooms has revealed that most classrooms are dominated by closed, factual questions-- which require a short pre-determined response (Barnes 1969, Hargreaves 1984). Closed questions are in contrast to open questions, the latter being those open to any number of answers.

Researchers in second language teaching have demonstrated that the function of most teacher questioning in classrooms is to elicit responses which will display student knowledge for the teacher--the teacher generally already possessed of the answer (Long and Sato 1983). Very seldom do teachers seek to elicit communicative contextual information with their questions, information which will fill an information gap. Questions such as these are known as referential questions.

It is also well known that questions asked in classrooms generally elicit responses from students which require lower cognitive functioning. These are questions which can be answered from simple recall of facts with no higher level thinking required (Bloom 1956, Gall, 1970). Many studies have analyzed questioning based on the level of cognitive functioning of the responses expected from the questions. Lower level questions are generally defined as those convergent questions which require simple recall of facts in the response. Lower level questions are like those which Bloom classified as at the level of knowledge and comprehension in his taxonomy (Bloom et al, 1956).

Higher level questions are divergent questions that require interpretation or inferencing and are comparable to the questions Bloom describes at the cognitive thinking levels of application, analysis, synthesis, or evaluation. Factual, lower level questioning is usually closed, though not always. Higher level questioning is usually open, though not always. Much of the literature demonstrates that most teacher questions are factual

in nature and demand lower level responses from one's knowledge of names or facts (Barnes, Britton and Rosen, 1969; Gall, 1970; Good and Brophy, 1973; Hargie, 1978).

Other studies demonstrate that the time elapsing between one question and the succeeding speech act in classrooms is generally under three seconds (Rowe 1974, Tobin 1987). The result of such short wait time after questions is that fewer students respond, and more of the responses elicited are at a low level of cognitive functioning. It has also been observed that varying participant structures have differential effects on question/response interactions, and that specific types of interactions have differential effects on participants (Boggs 1972, Dumont 1972, Phillips 1972, Koh 1981, Malcolm 1982).

The description of constructs for this study can be summarized as follows. It is assumed that classrooms are dominated by teacher talk. Much of classroom interactions consists of Teacher Questions/Student Responses/Teacher Feedback. The majority of questions in most classrooms are closed display questions requiring lower level responses. Some students receive more questions than many others, and the rate or pause time in questioning may influence the thinking of students. However, it is easy to over-generalize; results of studies about the relative effects of various questioning methods are not conclusive.

Methodology--Data Source, Data Analysis, Results

Data Source

For this study data were filmed and audiotaped in ten Indonesian classrooms early in 1988. Forty-five minute classes in English and in Bahasa Indonesia (the official national language in Indonesia) were filmed in their entirety in three middle schools and three secondary schools in Malang, East Java, and in one elementary/secondary school in Jakarta.

The films were transcribed and translated, and classroom questioning interactions analyzed for patterns and explanation building.

Analysis of the Data

The data on teacher questioning behavior are being analyzed for function (Skinner 1957, Halliday 1973, Kearsley 1976), form--closed or open questions--(Barnes 1969, Hargreaves 1984), level of cognitive thinking required in the response (Bloom et al 1956, Gall 1970), rate of wait time after the question (Rowe 1969, Tobin 1987), and participant structures (Flanders 1970, Good & Brophy 1971, Cazden 1972, Malcolm 1982). The rationale for the analysis is based on the assumption that examining the

salient activities in highly complex classrooms will add to the knowledge we have about classrooms, and thus have implications for the improvement of what goes on there.

In analyzing the data from the transcribed videotapes filmed in the ten Indonesian classrooms, an attempt was made to discover patterns and differences in the function, form, level, rate, and participant structures of questions asked by teachers. First, the function of questions was examined, particularly the extent to which questions were used merely to display pupils' knowledge, and the extent to which questions were used referentially, that is, used to elicit from the responder information previously unknown to the questioner.

Secondly, the form of questions asked was investigated. Form is defined as the extent to which questions are open to many answers, or closed to all but one "right" answer, or "half-open", that is, up to the discretion of the responder. The level of cognitive thinking required in the responses to questions was also investigated, as was the rate or length of time between question and response, and the participant structures of questioning interaction. Looking at participant structures gives information as to whom questions are directed.

Results

In the sections below I will summarize the data from all the transcripts. Then, focusing on the cognitive level of teacher questioning, I will discuss in more detail data from three of the transcripts.

Analysis of the data from the ten classrooms corroborated results of the analysis of a pilot study conducted in Singapore (Grow 1987) and preliminary analysis of the Indonesian data. The results demonstrate that teachers using traditional approaches to teaching grammar vary significantly in the function, form and level of questioning that they use. Patterns can be found which delineate a continuum with repetitive information-giving statement/questions and rote echoic responses on one end, leading inquiry questions and responses requiring student-active cognitive processing on the other. (See Figure 1.) Other patterns were found which seem to typify the structure of lessons.

Continuum of Questioning Techniques

Repetitive fact-giving Statement/questions requiring Rote responses	Leading inquiry questions requiring Cognitive processing

Figure 1.

The data show that several teachers, for instance, followed a general pattern which began with low level questioning as a review and introduction to new material, gradually higher level questioning as the material was explained, and a repetition of low level (review) questions in each segment of the lesson as new material was presented.

Overlaying that pattern of sequencing were other patterns that revealed in general three classifications of teacher questioning. In Category I transcripts from three classrooms reveal teachers' questioning to be generally on a high level--above the level of Comprehension on Bloom's **Taxonomy of educational objectives for the cognitive domain** (Bloom et al, 1956).

In Category II transcripts from three other classrooms show that the level of teacher's questioning is characterized by frequent changes from low to high, and from high to low. Category III is marked by transcripts from three more classrooms in which teachers' questions seem to stay almost exclusively at the comprehension level, the student responses at the simple recall level.

Discussion of Three Transcripts

Ikranagara (1982) applied Skinner's (1957) concepts of "mand," "tacts," and "echoic responses" to two classrooms in Indonesia, one a traditional classroom in a rural school, the other in a development or "lighthouse" school in the capital city. Mands refer to questions and statements meant to meet the needs of the teacher. Tacts refer to questions and statements made to transfer information or directives. Ikranagara found that in the traditional classroom, interactions were dominated by questions and statements meant to meet the needs of the teacher (mands). In the more progressive classroom, more teacher statements were made to transfer information (tacts) and directives to students.

The same phenomenon was evident in data for this study. In two of the classrooms teachers where giving directions for individual seat work or small group work in the beginning of the class, (tacts), and then turning the class over to pupil-active learning situations. In such cases, students functioned at a very high level of cognitive processing, applying, analyzing, synthesizing, and evaluating their own work. (See graphs SMA A and SMP B.)

Transcripts of other classes were characterized by teacher questions at the comprehension level, the questions periodically going higher, then lower when vocabulary was introduced and practiced. One teacher observed in two classes taught the same material in both classes, but in general functioned on a higher level of questioning in one classroom than in the other. Given

that the content was the same, one might infer here evidence of tracking, evidence that one group was paced at a higher level than the other. (See graphs for SMA F and SMA G.)

Graphs F and G depict also a good representation of the structure of one of the typical language lessons mentioned above. On the SMA G graph questions 1 through 6 introduce an exercise in conversation. Question 7 leads into new material, and Question 11 introduces the new material.

Q1 *T* Okay, Jaya. Please advise your friends to study harder.
S . . . (noisy) . . . study hard.
Q2 T Advice your friends to study harder. Advise, suggest. Who can? Ya, Etik, please!
S You should study harder.
Q3 T That's good. You should study harder. Yes. Andri, would you please close the window? Close the window! Would you please close the window? Yes, that's right. Right. Right or wrong?
S Right.
Q4 T Okay, Supriyadi, ask your friends to stop smoking.
. . . . . .
Q7 T Page 24 please. There is a sentence: I have a beautiful ring. . . . I bought it last night. . . . "It" refers to what?
SS Ring.
Q8 T Ring. Very good.
Q9 T Yes. So, "it" is a pronoun. Or something else?
SS Pronoun.
Q11 T Pronoun, very good. Because "it" substitutes for ring. Yes, "it", in my sentence, substitutes . . .?
SS Ring.
Q12 T Yes. Suppose I say: There is a light. It's hot. It's hot. Okay. "It" refers to what?
S Weather.

Q13 T No. Yes. "It" refers to nothing. This is what we are going to talk about today. So "it" is as a subject that is not pronoun.

T Teacher S Student SS Choral Response by Students

Graph G illustrates that after this introduction, the teacher asked several comprehension questions as students recited. The questions dropped down to the recall level only when the student did not understand. The peaks in the graph represent the teacher's asking students to apply their knowledge by evaluating the correctness of other students' responses. Generally the questions then drop to lower levels as the teacher reinforces the correct response.

In the third group of classes, observed teachers functioned almost exclusively at the comprehension level or below. In these classes the repetitive, echoic responses were most evident, though such responses were observed in all classes. (See graphs H, I, and J.)

A comparison of data from three transcripts can illustrate all the points made above. At SMA A students were drilled on vocabulary to be used later in the lesson. Thus one sees the low level comprehension, the echoic choral responses at the beginning of the lesson. The teacher than distributed newspapers, asked students to form groups and look for job descriptions that would fit their own job qualifications.

The students worked in groups, the teacher's questions were tact questions--seeking from students personal information he didn't yet have in order to assist them in evaluating job descriptions. The teacher asked the students repeatedly if they had the qualifications for the job they had identified. Thus the questions stay at a high level of application and evaluation, as do the responses. (See graph SMA A.) This was an English language lesson for an advanced group, and one can see it might be very effective for involving students in generating language and in intense reading for comprehension. The teacher intruded into the activity to ask questions of groups to lead them in a direction only if they were bogging down in the activity.

Mapping the transcript of SMP C illustrates another style of teaching. In contrast to other transcripts which show teachers to be asking comprehension questions for students to display their rote knowledge almost exclusively, the teacher observed at SMP C used recall echoic questions only to correct or reinforce a point. She used knowledge level questions to set up the lesson and then checked for comprehension after students applied the principle. This pattern occurred over and over. The teacher emphasized the need for students to know the meaning of the concepts in the text, asked evaluation questions to solicit students' opinions, and spent a great deal of time explaining. The teacher then gave examples to which students applied a principle. Thus students often functioned above the comprehension level--at the application level or above. And there is evidence in the transcript that students are following and comprehending. (See map SMP C.)

By contrast, there is evidence in the transcript for SMP E that the teacher stays almost exclusively on the comprehension level in her questioning. Unlike the teacher in SMP C, she does not ask students to apply the knowledge or principle, but merely to repeat the principle, and only occasionally asks for examples. Thus, student response to the teacher's questions drop to the level of simple recall. The following segment from the transcript illustrates this point.

The transcript from SMA E demonstrates that not all teacher questioning at the comprehension level guarantees that the student comprehends. The following passage demonstrates how the teacher, attempting to pull answers from students, receives wrong answers, and the segment degenerates into a guessing game. The students are not applying principles to comprehension level questions, but merely pulling up guesses from their short or long term memory, or perhaps from a list of possible answers in their texts.

T For instance, I make this sentence. It's an example only. You said that there should be subject, predicate, and . . .?
SS Object!
T This sentence, for instance. How many elements do you see here?
SS Two.
T Two. That's right, two. The two may be the subject, predicate or . . .?
SS Adverb.
T Is this sentence already a complete sentence?
S Yes, it is.
T But there are only two elements? Why? You said there should be three of them, didn't you? Subject, predicate, and . . .?
SS Object.
T There are only two here. Why is it so? This sentence is already complete. It's shown a single . . .?
SS Meaning.
T Meaning. It consists of two elements. What are they?
S A predicate and . . . an object.
T A predicate and?
SS An object.
T A predicate and an object? A predicate and an object? Is it right? A predicate and an object? A predicate and an adverb? Who agrees? Yes, you please. . . How can we know that this is an object, for instance or a predicate? Now, where's the position of an object? . . . (End of side A on tape).
Come on, we have discussed it before, haven't we? It was, maybe, in the first semester. . . .All right, you've had it. So it was in the previous lesson. We should understand it, right, and not just memorize it?
. . . .
T (Several lines later): You still remember the characteristics of a subject, don't you?
S We haven't got it, eh, yes, we have, mam.
T All right then, tell me . . . How can we know which one is the subject in a sentence.
S By using a question word.
T That's right, which one!
S Who? What? How?
. . . .

T (Several lines later): Let's apply the question word here to find the subject. Which one should we use?
S Who
SS Who!
. . . .
T Who streamed? Who. . .
SS What, what. . .
T What streamed? What's the answer?
S The blood.
T The blood. Since "the blood" is the answer of "what" or "who", it means that "the blood" is the . . .?
SS Object!
T Object?
SS Subject.
T Subject.

Note that even when students start giving consistently wrong answers, the teacher does not for some time veer from her tactic to attempt to get students to call up from memory the answer she seeks.

Again, by contrast, the teacher at SMP C picks up a wrong answer immediately and clarifies it by pointing out the error and then by defining both terms--the response given, and the response sought.

T . . . . Did you remember that each word has two meanings? First is the lexical meaning. And the second is ...?
SS Grammatical meaning.
T What is the other one?
SS Grammatical meaning.
T Grammatical meaning. Another term for this is ...?
S Lexical meaning.
T Hm, don't misinterpret them, lexical meaning is the same as ...?
SS Denotative meaning.
T Denotative meaning or structural meaning, right. The denotative meaning is included there. Structural or grammatical meaning.

Conclusions

The conventional wisdom in many educational circles is that primary and secondary classrooms in Indonesia, as in many other places in the world including not a few classrooms in highly developed western nations, are marked by lower level teacher questioning and rote echoic responses. The results of this study show this to be an over-generalization.

There is evidence of variation in the questioning tactics of teachers in Indonesia, even among teachers who appear to be very effective. In addition, there is variation in the apparent effectiveness of teachers using similar techniques and questioning patterns. It is possible to infer from the data in this study that for students to go beyond simple recall of facts and principles from short-term memory--to assure that they comprehend new knowledge--students must have the opportunity to function at the application level or above on Bloom's taxonomy. Students of some of those teachers who merely asked for display of facts became confused and gave several wrong answers. Students who were asked for examples and to apply principles seemed to be more "with" the teacher in each case.

We may have gained some insight in the analysis of this data about the variability of results reported in the research literature on teacher questioning. As stated above, the research on the effects on achievement of higher level questioning is not conclusive (Winne, 1979; Redfield and Rousseau, 1981; Samson et al, 1987). Carlson (1990) in a paper in which he suggested that the sociolinguists and the process/product researchers can inform one another, suggested also that to determine the valid level of questioning, one must consider not only the content of questions, but also the context and the responses and reactions to questions.

Clearly the data from this study points up the problem raised by Carlson. The data show that the responses to some questions asked at the level of comprehension are responded to at the level of application or evaluation. Others are responded to at the rote recall level. Thus graphs showing questioning to be at the comprehension level may falsely illustrate cognitive functioning of students which is actually taking place at a lower (simple recall) level, or higher (application) level.

Implications

In Southeast Asia as well as in the Western world there is much talk about the communicative approach to teaching language, and encouraging teachers to change from traditional teacher-centered methodologies to more student active processes. But it is the nature of innovations that there will be resistance to effecting change. Arfah (1987) found that three years after intensive in-service training in a communicative approach to teaching language in Malaysia, teachers had made no changes in their patterns of interactions and questioning with students.

The writer's own experience in Indonesia provides an illustration of the problem. There I recently introduced communicative teaching to secondary language teachers who reacted enthusiastically to the methodology although it was very new to them. But repeatedly the teachers voiced their fears. They

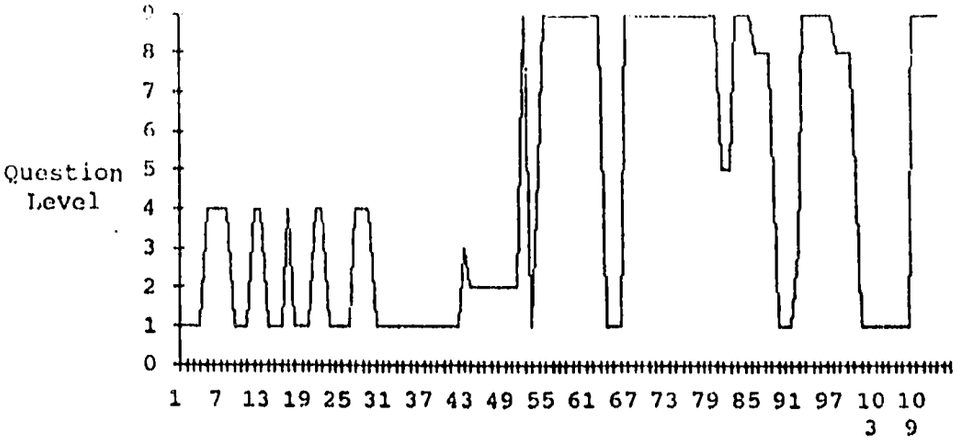
complained of the problems of an over-structured curriculum, standardized examinations mandated by the Ministry of Education, limited materials, and very limited time. The consensus seemed to be that unless changes in the curriculum and in the materials were mandated by the office of the Minister of Education, there was not much likelihood that new methodologies would be widely implemented. The most pressing need expressed by teachers exposed to the communicative techniques I introduced was assistance in the improvement of ways to implement the current structured traditional curriculum.

In countries with young developing educational systems such as those in Malaysia, Indonesia, and some other Southeast Asian nations, the introduction and implementation of new teaching methodologies may take longer than one might expect. Beeby (1966) hypothesized that primary educational systems develop in stages dependent upon the education level and the amount of training received by the teachers.

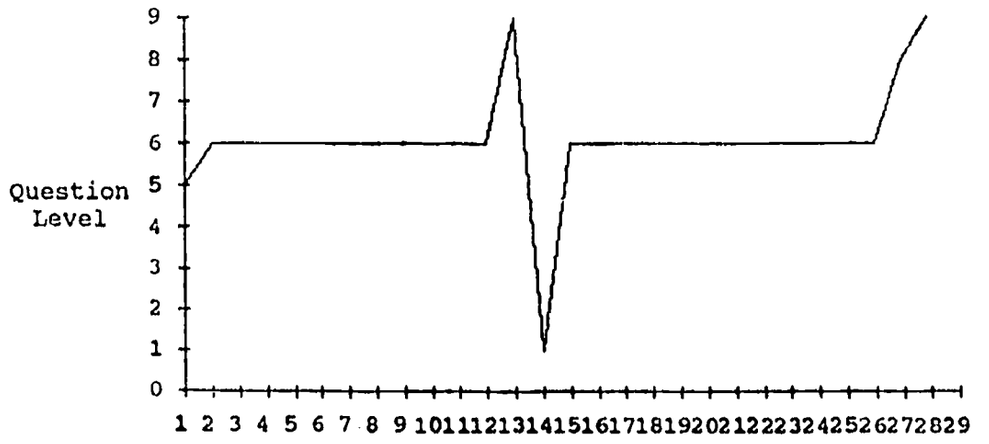
Beeby suggested that so-called "progressive" methods cannot be expected of teachers unless they are well educated and highly trained as teachers generally are in the fourth stage of the development of an educational system. Beeby further hypothesized that in educational systems in the early stages of development less qualified teachers rely by necessity on very formalistic ways to transmit the narrow content they themselves received in school (Beeby, 1966, 59). Thus, one is likely to observe teaching/learning techniques which require rote memorization and echoic responses of students in the earlier stages of the development of an educational system.

I do not suggest that teachers in Southeast Asia with developing educational systems are not ready for innovations such as student active learning, or a communicative approach to language teaching. Data from the study demonstrate that such approaches already exist there. What I do suggest is that in countries where the curriculum is traditionally structured and centrally controlled, where national examinations are required and the level of training of teachers, in general, has not reached the level desired by the policy makers, where materials are limited and where teacher time and student time are limited, one cannot expect a speedy implementation of a totally new methodology. It is suggested here that perhaps before attempting to implement innovative methodologies on a wide scale, attention should be given to improving traditional approaches to teaching--if not before, perhaps at the same time that the new technology is being introduced.

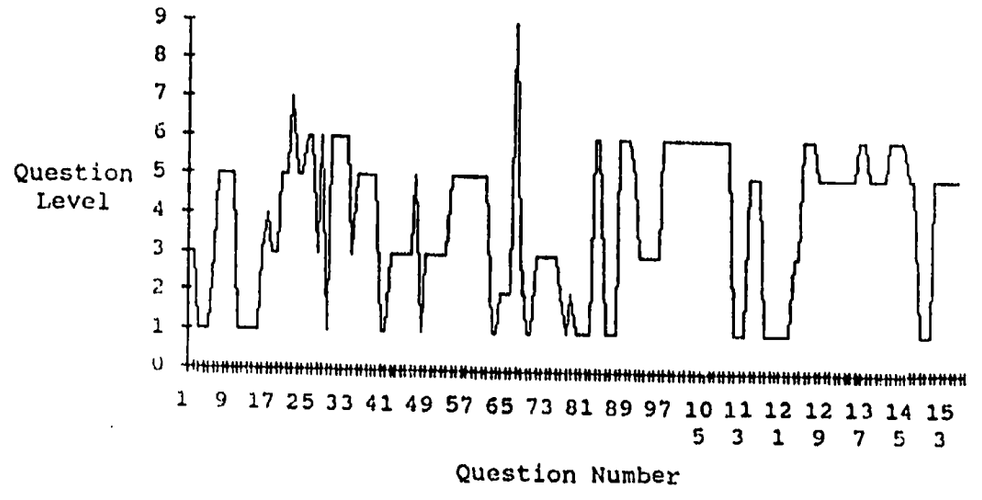
SMA A

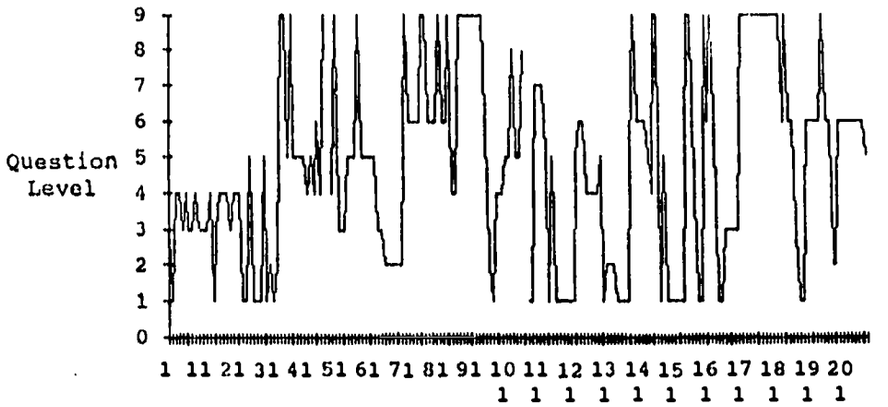


SD B



SMP C





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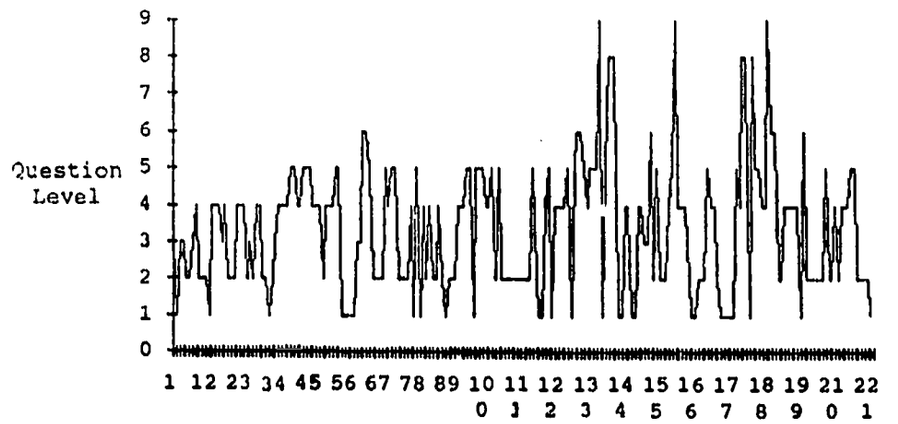

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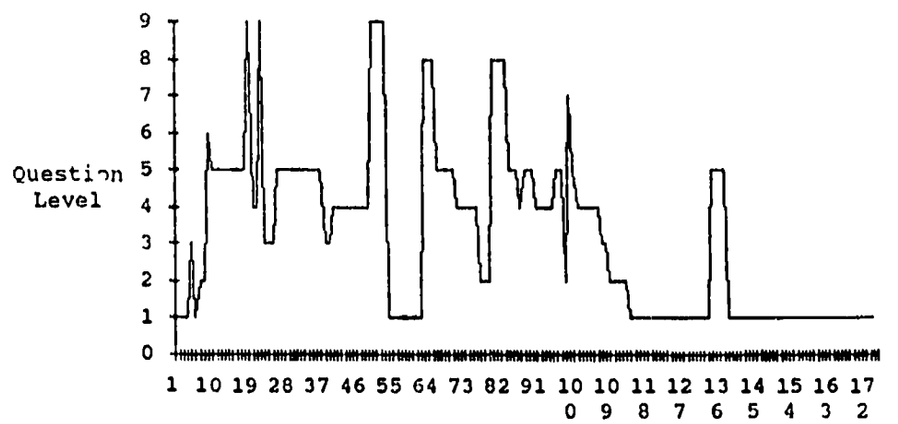
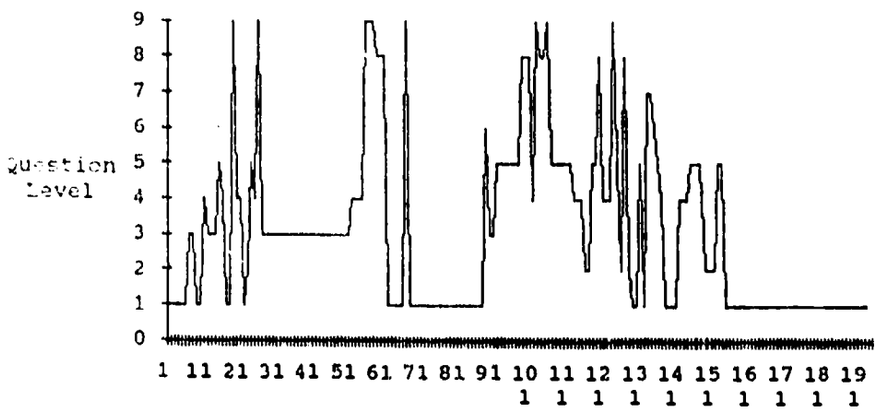


SMA G



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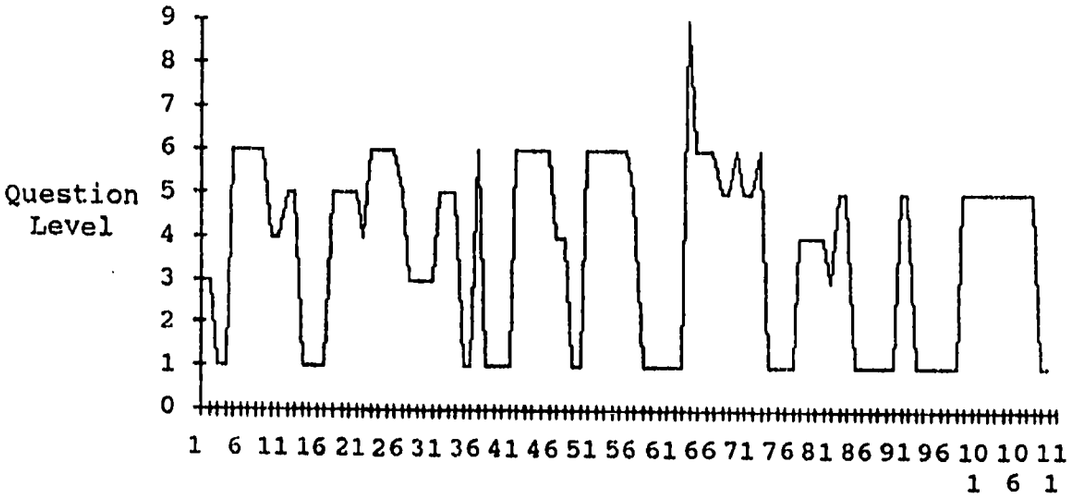

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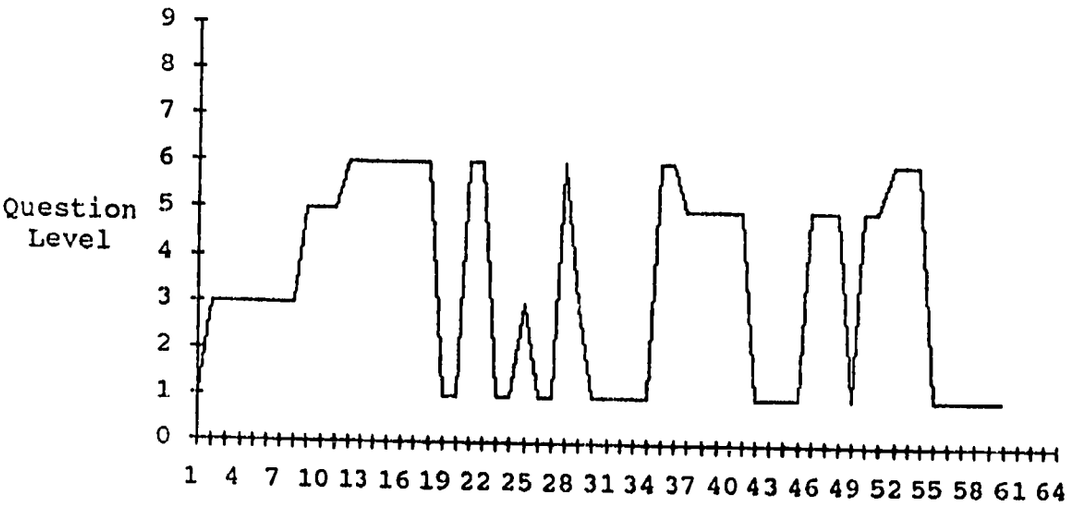

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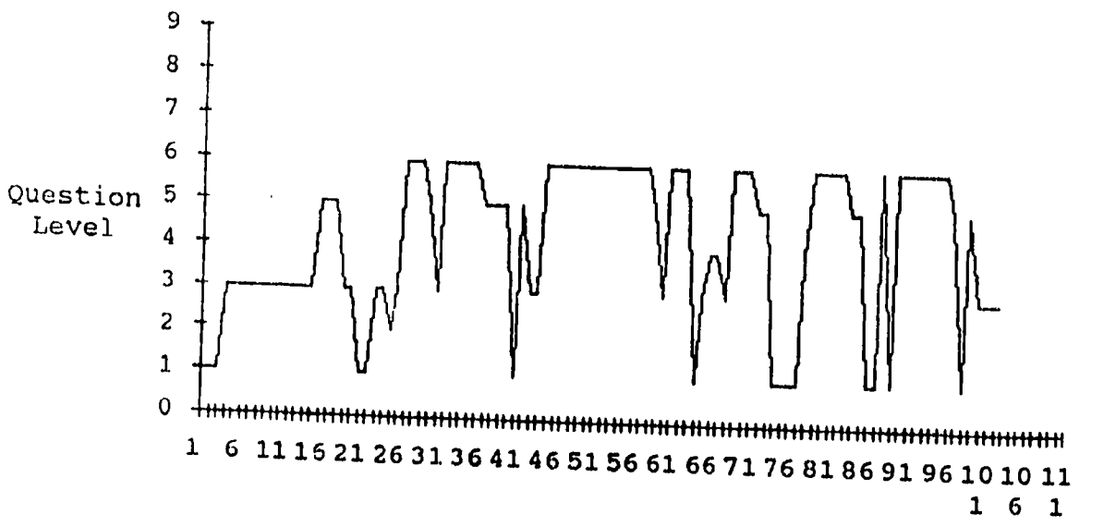
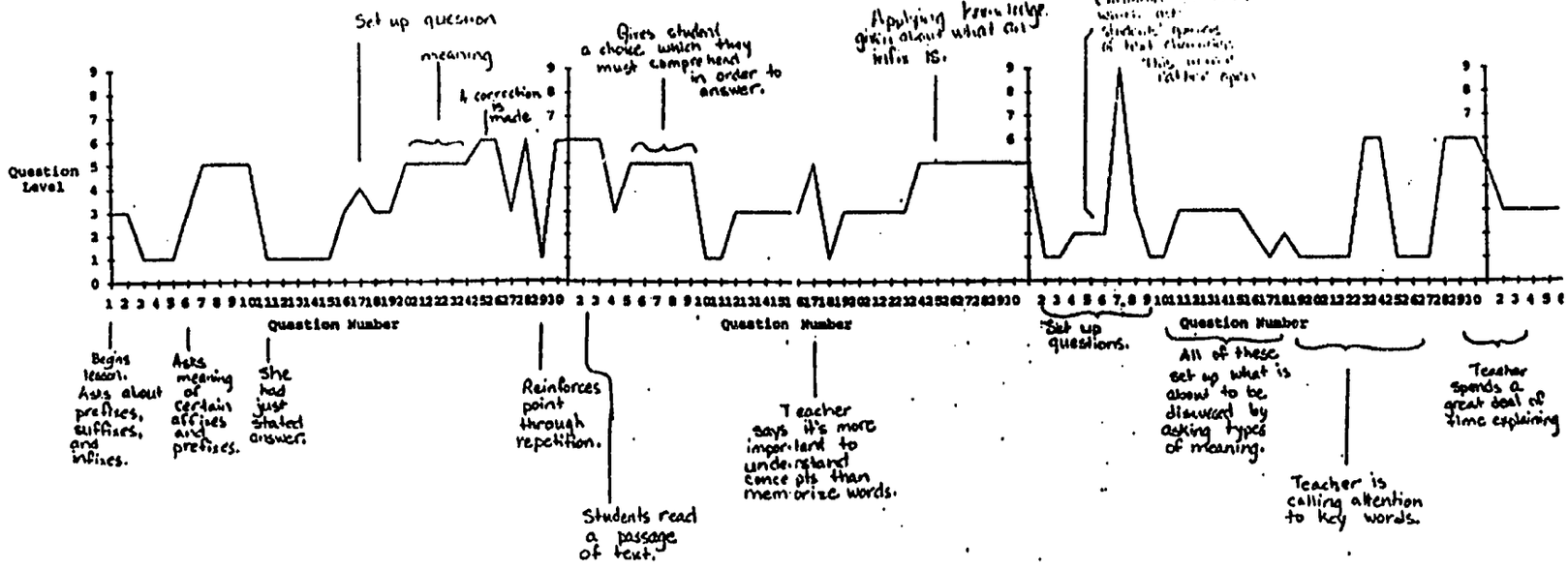
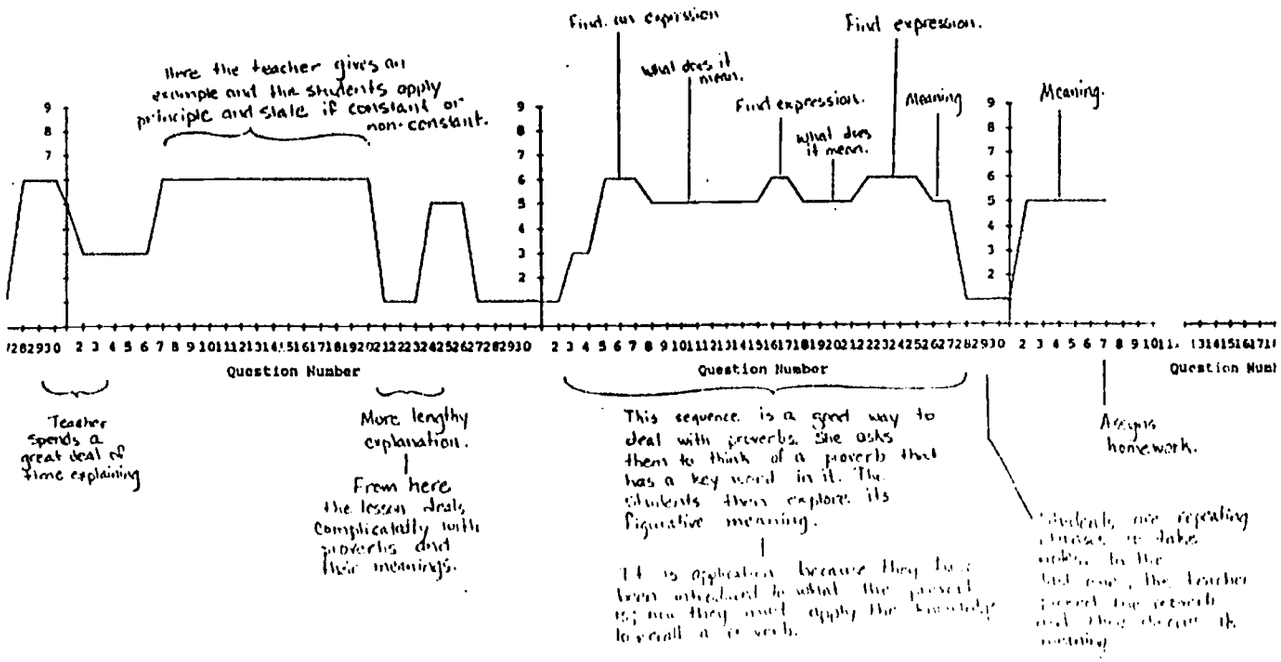


SMP C



Set up question
meaning
A correction is made
Gives student a choice which they must comprehend in order to answer.
Applying knowledge given about what an infix is.
Question Level
Question Number
Begins lesson. Asks about prefixes, suffixes, and infixes.
Asks meaning of certain affixes and prefixes.
She had just stated answer.
Reinforces point through repetition.
Students read a passage of text.
Teacher says it's more important to understand concepts than memorize words.
Set up questions.
All of these set up what is about to be discussed by asking types of meaning.
Teacher is calling attention to key words.
Teacher spends a great deal of time explaining



Here the teacher gives an example and the students apply principle and state if constant or non-constant.
Find an expression
What does it mean.
Find expression.
What does it mean.
Find expression.
Meaning
Meaning.
Question Number
Teacher spends a great deal of time explaining
More lengthy explanation.
From here the lesson deals complicatedly with proverbs and their meanings.
This sequence is a good way to deal with proverbs. She asks them to think of a proverb that has a key word in it. The students then explore its figurative meaning.
Assigns homework.

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