CLASS 4.0 USER's MANUAL

A Windows Laptop-Computer System for the In-Class Analysis of Classroom Discourse

Martin Nystrand

Programming by Yen-Ju Chen & Yunpeng Pan

Editorial Assistance by Samantha Caughlan

The National Research Center on
English Learning & Achievement
University at Albany • University of Wisconsin-Madison

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Classroom Discourse Is . . .

- *The language of learning* (Courtney Cazden)
- *The ocean on which all else floats* (James Britton)

Talking to Learn Is . . .

- *A struggle to organize . . . thoughts and feelings, to come up with words that . . . shape an understanding* (James Britton)

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Introduction

CLASS 4.0 is a Windows laptop-computer program for the in-class analysis of classroom discourse. The unit of analysis in this program is the question, and to operate CLASS 4.0, the classroom observer types in and codes each nonprocedural question that teachers and their students ask during the course of a class period. Procedural questions, e.g., questions about pages to be read as homework, are not included in this analysis since they are peripheral to instruction and learning.

Questions, of course, presume answers, and question-answer exchanges dominate classroom interactions in English Language Arts instruction. Hence, for purposes of analysis, the questions teachers and their students ask during a class period effectively index the entire discussion, and we may build profiles of instruction and study classroom discourse by focusing on the questions.

In using CLASS 4.0, the observer is prompted to code each question for (a) **source** (who asks the question: teacher or student), (b) **response** (whether there was a response), (c) **authenticity** (authentic questions are questions for which the teacher has not prespecified an answer), (d) **uptake** (uptake occurs when a teacher incorporates a previous student answer in a subsequent question), and (e) **cognitive level** (report or high level: generalization/analysis).

Unlike previous versions of CLASS, CLASS 4.0 codes responses to questions for (a) respondent's **identity**, (b) extent of **elaboration**, (c) **audience** for the response (teacher or class), and (d) **relation** of response to other responses.

Because of the importance of student questions (Nystrand, Wu, Gamoran, Zeiser, & Long, D. [2001]), CLASS 4.0 also prompts the observer to code the teacher's response to student questions,
checking whether the teacher uses the question to open up discussion or manages it in such a way as to table it.

During seatwork, lecture, reading aloud, small group work, and question-answer activities, CLASS 4.0 prompts the observer

periodically to indicate the number of students who are obviously offtask, plus any appropriate adjustments in the number of students in the class (in case any have recently entered or left the classroom). The program also elicits miscellaneous holistic assessments of instruction and curriculum after each observation.

When data collection is completed, the observer can use the program to proofread, edit, and revise the file for incomplete and inappropriate codings and compute basic statistics for each episode and class.

CLASS 4.0 is premised on a view of instruction not as what teachers provide or do to students but rather as what teachers and students collaboratively negotiate. High-quality classroom discourse is characterized by substantive reciprocity between teachers and their students. In such instruction, students and not just teachers have a lot of input into the business of the classroom and hence what is learned. CLASS 4.0 provides a number of measures designed to assess the quality of interaction between teachers and their students. A fuller discussion of this view of instruction as discourse is presented in Nystrand (1997), Applebee (1996), and Langer (1995).

The linkage of human to human is, in the final analysis, the groundwork of all ethics as a reflection on the legitimacy of the presence of others. H. R. Maturana & F. J. Varela

The bottom line for instruction is that the quality of student learning is closely linked to the quality of classroom talk. Martin Nystrand

Installation Procedure

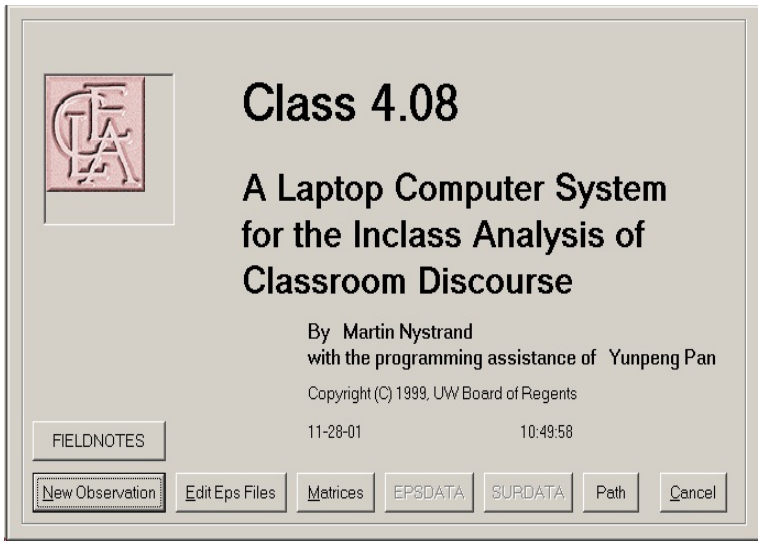
Installation of CLASS 4.0 involves five files available on both disk and web. Begin by creating a special subdirectory on your hard drive for the five installation files, e.g., C:\PROGRAMS\CLASS. The program can be installed from a CD installation disk.

Using the installation CD, run SETUP.EXE. Be sure you have no other programs running when you do this. If you are warned that you are about to write over any existing *.dll files, be sure to KEEP THE FILES YOU'VE ALREADY GOT--DON'T WRITE OVER ANYTHING. You can "ignore" any other warnings.

Reading and writing experiences are best supported through conversations in which students' growing and changing understandings guide "the questions we ask and the ways we teach." Judith Langer

§1. CLASS 4.0 Program Operation

§1.1. Starting the Program



To start the program, turn the computer on, and click on the Class 4.0 desktop icon. The program will load, and after the CELA logo, you will note the date and time. To start collecting data, click on the default: NEW OBSERVATION (the other choices, for editing data, are explained below).

Next, you will be asked to enter basic information: your initials, plus school, class, observation numbers, and the number of students present.

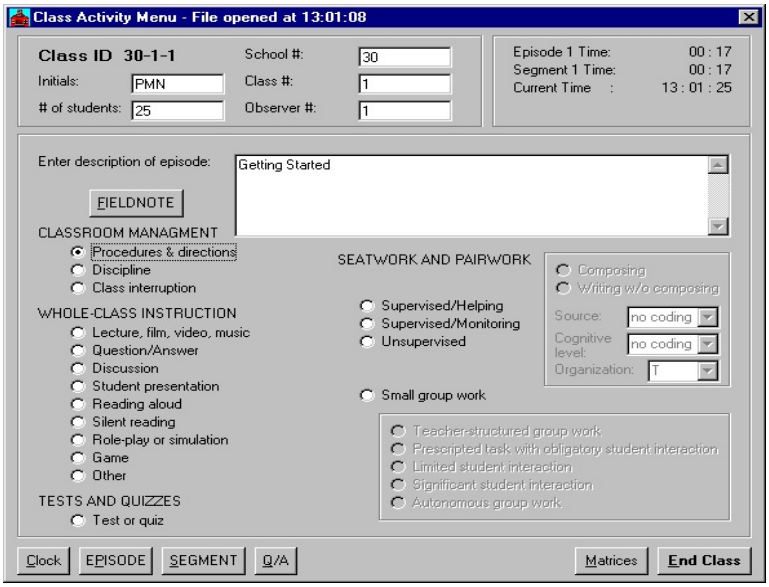
When you enter school, class, and observation numbers, the program checks to make sure that you have not already set up a file for the class observation you indicate. It checks both main (.EPS) files and backup (.BAK) files, and warns you in the event that either already exists.

If you enter nothing when so prompted, the display will flash at the offending (non)entry, and the program will not proceed till you oblige it. You should enter all preliminary information before class begins. If you make any mistakes, click RESET and start over.

§1.2. When Class Session Starts

Click START when the bell rings. You will be prompted to enter an initial description of the episode (typically, you will type "Getting started" for the first episode). Don't worry if you're not sure exactly what's going on when you first describe the episode; you will have plenty of opportunities to revise and expand your description. Indeed, you will want to make changes as each episode unfolds.

When you type in the episode description, be sure to press ENTER↵, but do NOT–repeat **NOT**!--ever include either a Hard Return (carriage return) or a colon in an episode description (the program erroneously misreads these as program instructions). You will then be confronted with the Class Activity Menu. In the pper right hand corner of the screen, note episode and segment numbers and episode and segment times, plus actual current time.



On this screen, you will need to click the appropriate activity, indicated here as "Procedures."

We define an episode as any coherent classroom activity centering around a particular purpose or topic. A new episode starts when the teacher addresses a new purpose or topic. Sometimes episodes will consist of two or more activities. For example, in addressing a particular objective, the teacher may initiate a question-and-answer session which is then interrupted by periodic, brief lectures, and culminates with a homework assignment. When something like this happens, we say that the episode is divided into segments. A segment is any coherent part of an episode which differs from other activities constituting an episode. It may help to think of an episode as a "chapter" and a segment as a "paragraph" within a chapter.

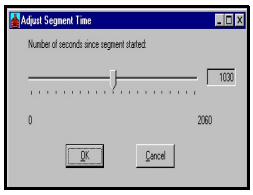
HOT BUTTONS

The initial episode and segment numbers will both be 1 when you start, of course, and the segment number will advance each time you indicate a new type of activity within the episode.

When the first episode/segment ends, you will need to click EPISODE or SEGMENT to mark the end of the current activity episode or segment and the start of a new one.

If you select Q/A, you will immediately be switched to the QUESTION-ENTRY AND CODING mode (see p. 12).

Menu functions available include:



CLOCK resets the clock. If you are late in recognizing the start of an episode or episode segment, you can lengthen the segment by resetting the clock. When you click on CLOCK, a time bar will be displayed: To *lengthen* the segment, move the marker on the bar to the right; to *shorten* the segment, move the marker to the left. The scale registers the change; the number at the right is the maximum number of seconds you can change the time.

EPISODE initiates a new episode. This option ends the current episode and returns you to the menu to start a new episode. Upon clicking EPISODE, you will first be prompted, as necessary, to enter the number of students offtask, and then you will return to the activity menu.

SEGMENT initiates a new segment. Use this option when the teacher continues with the same topic or objective but switches from activities. Upon clicking SEGMENT, you will first be prompted, as necessary, to enter the number of students offtask, and then you will returned to the activity menu. Select the appropriate activity (do not type in a description this time), and answer "Y" to the prompt "<ACTIVITY> (Y/N)" to confirm your selection.

REVIEW and PROOF enable in-class data [question] editing. If you are observing some activity other than question/answer, e.g., lecture or seatwork, you can press PROOF to find questions that you may not have had time to complete, though please note that the routine will work only after the first Q/A segment. The program automatically searches for missing or incomplete codes.

REVIEW allows not only corrections of codings, insertions and deletions of questions, etc., but also rewording of questions and expansions of episode descriptions. REVIEW and PROOF give you access to data from both current and previous episodes and segments, including questions and episode descriptions from previous episodes or segments.

If you choose to proof questions during seatwork and lecture, the program will continue to monitor OFFTASK and will prompt you regularly every two minutes. When prompted, simply click on the blinking OFFTASK button, and enter your estimates; you do not have to stop proofing to do this. To return to the menu you left to do proofing, simply press RETURN; the program will know where you left off.

EP. TO SG. and SG. TO EP. allow predesignating a new episode as an additional segment in the previous episode, or a new segment at the start of a new episode. Occasionally you may realize that the new episode you just initiated is really just a segment of the previous episode you thought was over. EP. TO SG. allows you to deal with this problem.

MATRICES shifts the program to a set of holistic assessment instruments. See §1.5.

END CLASS See §1.6.

FIELDNOTE, present in the upper right area of the screen, allows you to make notes at any time during the observation concerning items of interest not handled by CLASS. FIELDNOTE is for:

- Anomalies: When something important comes up that can't be handled by the program, make a fieldnote.

- Uncertainties: When you are unsure of how to code something, make a fieldnote so you can reconsider it when you rewatch the video and edit the EPS file. Whenever the program or the class session unfolds in surprising ways, make a fieldnote.

Here's an example from an observer:

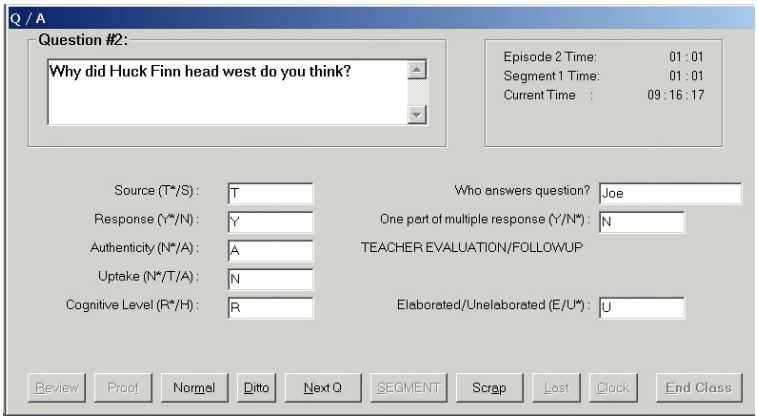
> FIELDNOTE: "*I didn't know how to handle the "organization" values for group presentations and seatwork. At what point dowe es the pointer move from T to S? For example, in one lesson, a teacher gave the class a prompt to write about whether and how they used what they were learning in this class in other classes, and if they weren't using it, why not? They wrote for about fifteen minutes, and she read them aloud. Although they all answered the prompt, they were quite individual. Is this T organization, or S?*"

This question about the student organization of group presentations and seatwork is a perfect example of fieldnote use.

CLASS automatically time stamps all fieldnotes, but the times are recorded in the BAK file, not the NTE file. This awkwardness is due to the fact that CLASS makes it possible to revise each fieldnote as the class session unfolds; hence, a given fieldnote can have multiple time stamps. This is best handled in the BAK files, where each and every coding & revision is recorded and time stamped as they occur. If time is important, it may be necessary for you to retrieve the fieldnote from the BAK file. Of course, youcan always type in the time or episode & segment numbers into the note itself.

By taking students seriously, teachers elicit the best from students by expecting the most. **Opening Dialogue**, p. 92.

§1.3. Entering and Coding Questions



In the Q/A screen, the cursor will prompt you to Enter 1 (Question #1). The program will not let you continue if you fail to type in a question and press ENTER. In coding each question, the options for each variable are shown in parentheses. One of these options is starred. This option is the default, and if you merely press ENTER, the program will record this value, and prompt you for the next value. (The defaults are SOURCE: Teacher; RESPONSE: Yes; AUTHENTICITY: No; UPTAKE: No; COGNITIVE LEVEL: Report. For full explanation of coding rules for questions, see §2. Rules for Classifying and Coding Classroom Discourse.)

In QUESTION-ENTRY AND CODING MODE, several hot buttons are available to you here (we explain only the functions that are new):

NORMAL, available only during coding, codes normal questions with appropriate default values: source: SOURCE: Teacher; RESPONSE: Yes; AUTHENTICITY: No; UPTAKE: No; COGNIIVE LEVEL: Report; multiple RESPONSE: No; unelaborated.

You may find it more efficient to code questions holistically by first deciding whether or not they are normal than it is to proceed atomistically by coding each variable as

you are prompted. If the question is normal, you can click NORMAL, and be onto the next question; even if it is not normal, you can click NORMAL and then quickly determine the ways in which it is not normal, e.g., it is authentic and there is uptake, in which case you can quickly code these two variables and accept the other defaults and, without paying attention to the other, normal values, move on.

DITTO, available after coding the first question, duplicates the previous question and the codings for that question. It should be used when a teacher repeats a question (e.g., to another student). If you type in a question and then click DITTO, the codings for the previous question but not the actual previous question will be duplicated.

NEXT Q, [also <Ctrl-N>], available only during question coding, moves on instantly to the prompt for the next question. Use it when you do not have time to complete the coding for any given question. The program will automatically insert highlighted asterisks for each uncoded variable; you will see these when you enter REVIEW, PROOF, or EDIT mode. Hence, the program keeps track and will remind you of exactly which items need your attention. If you're going really fast and don't have time to click on NEXT Q, you can execute the same function by pressing <Ctrl-N>.

SEGMENT switches from question/answer to some other activity, such as a lecture or procedures. After asking if you mean it ("Start new segment? YES NO), you will be prompted to enter the number of stu dents offtask, and then you will be returned to the activity menu. Click on the appropriate activity (do not type in a description this time). If you entered Q/A using the hot button on the class activity screen, there will also be a button next to SEGMENT with the name of the activity you left to code questions. This enables you to return to that activity immediately if the class does.

SCRAP drops the current question and clears the screen. Use it when you have started inputting a question and realize that it's not really a question or that it's really a procedural question–in short, when you want to scrap it.

You may also scrap a question after the fact by pressing DROP in REVIEW mode in response to any question.

LAST, available after coding the first question, deletes the previous question. It is useful if, after coding a question, you decide to drop the question, for example, after realizing that the question was procedural or rhetorical, i.e., not a question to be coded.

CLOCK resets the clock (see instructions, p. 9).

END CLASS See §1.6.

OFFTASK periodically will become active during some activities: you will see it blinking in the window in the upper right of the screen (right under Current Time) is the offtask prompt. When this happens, or as soon as you're able, click on the flashing alert; this will open a new window for recording your estimate of the number of students who have been obviously offtask during about the previous minute. To do this, you will need to keep a running sense of activity in the classroom as it happens. If no students were offtask and the number of students in class has remained constant, press "OK." Otherwise, after you enter the number of students offtask, CLASS will also prompt you to verify or revise, as needed, the number of students in attendance, noting if any students have entered or left the classroom since you last counted them. Sometimes, CLASS will prompt you make offtask estimates when you're struggling to keep up with a blizzard of questions. If this happens, you can either ignore the blinking prompt until you can handle it, or you can raise the offtask window and simply press the Skip button, and no data will be recorded. The next scheduled offtask prompt will offer you "Skip" as the default.

If you ignore the Offtask Prompt, you need not worry about forgetting it since it will never forget you–it will blink and blink and blink until you take care of. And if you let it go too long, you'll get another alert more quickly the next time since it is programmed to blink every two minutes during lecture and every 5 minutes during Q/A regardless of how quickly you respond to it.

Students are to be counted offtask in terms of the teachers' expectations. In some classes, teachers expect every student to pay attention during a filmstrip whereas in other classes students may either watch the filmstrip or do homework; students doing homework should be counted as offtask in the first class but not in the second.

The key word here is "obvious": To count as offtask, students must clearly be reading comics, passing notes, dancing in the aisles, getting into trouble, etc.; don't try to make any inferences about window gazing or mind wandering. Just count students offtask if it's obvious.

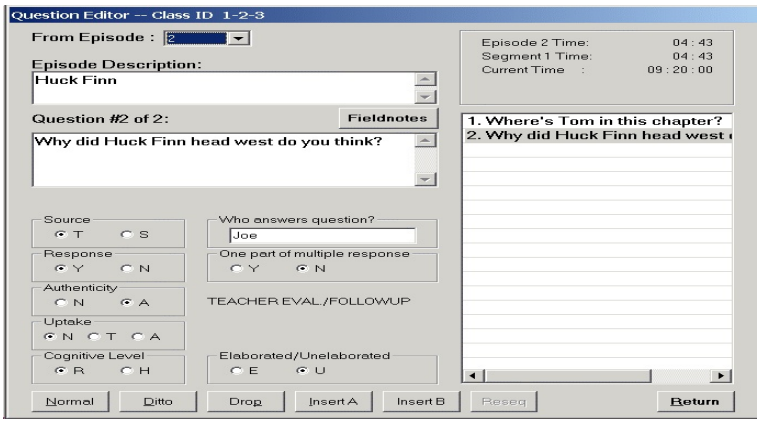
The number of students recorded as offtask should be *the average number of students offtask at any given moment in the minute prior to the prompt.*

You will be prompted to estimate the number of students offtask every 5 minutes during Question-Answer sessions and every 2 minutes during seatwork, small group work, reading aloud, and lectures.

For a question-answer session that lasts less than five minutes, you will be prompted to give offtask estimates upon exiting the Q/A routine. In the Q/A routine, the prompt occurs as a flashing * OFFTASK * immediately under the time indicators. When prompted, press the OFFTASK button, and respond to the prompts.

Question-answer exchanges, which dominate instruction in American English Language Arts instruction, occupied 30% of class time in the eighth-grade classes Nystrand and his colleagues studied and 42% of the ninth-grade classes. They play a key role in both accommodating and excluding student voices in the public, authoritative discourse of the classroom, and they are the central instructional mechanism in American classrooms for assigning epistemic roles to students. As such, they significantly regulate the extent to which teacher-student interaction can be dialogic. **Opening Dialogue**, p. 36

§1.4. Reviewing and Editing Questions



You may review and edit any questions or codings by clicking on REVIEW. In the window to the right, you will see a display of the question you were last coding in the context of several previous questions. If you want to review questions from a different episode, select the episode in the top left window. Click on the question you want to revise. The question highlighted will also be displayed in the window to the left with all its coded values below. You can revise both the question and the values.

In this mode, several functions are available:

NORMAL automatically codes any question with all the default values.

DITTO duplicates either the previous question or the codings for the previous question or both. Click on either CODING or Q&CODE.

DROP deletes the current question. The question is eliminated from the set, and each of the subsequent questions is renumbered.

INSERT enables the insertion of a new question, either after (Insert A) or before (Insert B) the highlighted question.

RETURN exits review mode and returns to your previous location.

R#Q'S will renumber all questions in consecutive order once you are done deleting and inserting questions.

§1.5. Matrices

MATRICES shifts the program to a set of holistic assessment instruments implemented in four scales. You may be able to start completing them during class, particularly when the last activity in the class is seatwork. When you move to the matrices, you will be able to return to the other components of the program. For definitions of all terms, see §2.11.

§1.6. Ending a Class Session

Clicking END CLASS marks the end of the class observation. You will be asked to verify (Yes/No) if you want to END. You will also be given a chance to access the matrices before quitting the program (more final than marking the end of class). If you did not describe the episode at the start, you will be asked to do so now in a few words. You may also be prompted to indicate whether or not the episode was mainly/entirely a review of previously learned material (Yes/No).

§1.7. Datafile Names

EPS, SUR, BAK, & NTE Files. Data are saved under a file name that is a compilation of School-Class-Observation numbers, plus the extension eps (for episode data). For example, data for School 23-class 42-Observation 4 will be saved as 23-32-4.EPS. In addition, class creates a separate file for matrices data (*.SUR files), and backup (*.BAK) file. The backup is compiled sequentially as each question is typed, entered, and coded. Each entered item is time stamped in the file itself. If for any reason you are unable to finish a class session using the program (e.g., you run out of battery power), this backup file will preserve whatever data you created prior to the problem. Finally, CLASS 4.0 allows observers to compile free form fieldnotes. These will be saved in *.NTE files.

The word is a two-sided act. It is determined equally by whose word it is and for whom it is meant. As word, it is precisely the product of the reciprocal relationship between speaker and listener, addresser and addressee . . . . I give myself verbal shape from another's point of view, ultimately from the point of view of the community to which I belong. A word is a bridge thrown between myself and another . . . . A word is territory shared by both addresser and addressee. Valentin Vološinov

The forms of discourse encountered in ... formal schooling provide the underlying framework within which concept development occurs. James Wertsch

§2. Rules for Classifying & Coding Classroom Discourse

24 OCTOBER 2001

§2.1. Discourse Episodes and Segments

An **episode** is a coherent classroom activity centering around a particular purpose or topic. A new episode starts when the teacher addresses a new purpose or topic. High school lessons typically begin and end with procedural episodes "Getting started" and "Preparing to leave." Between these episodes, we typically find one or more instructional episodes, which often consist of two or more activities. For example, in teaching a lesson on *Roll of Thunder, Hear My Cry*, a teacher may begin by reviewing the previous night's reading assignment in a question-and-answer session, which develops into an open discussion or leads to smallgroup work, which culminates in in-class writing as students write their reactions to the exchange of views during discussion; the teacher views this writing as a head start of that night's homework assignment, which is to read the next chapter. CLASS treats sequences of activities like this as a series of **segments** comprising an instructional **episode**. The episodic structure for the lesson just mentioned is:

Episode 1: Getting started
Episode 2: *Roll of Thunder, Hear My Cry*
    Segment 1: Q/A
    Segment 2: Discussion
    Segment 3: Seatwork/monitoring
Episode 3: Preparing to leave

An **activity** is defined by how it develops or is realized. If a teacher's planned review turns into a discussion, it is to be coded as a Q/A segment followed by a discussion segment, even if the teacher planned only a review. Similarly, if students are doing silent reading start writing answers to homework questions about the reading, it is to be coded as a silent reading segment followed by a seatwork segment. Two rules:

- Activities are defined by how they are enacted.
- If some students are engaged in one activity, e.g., silent reading, and others are doing something else, answering homework questions, code the activity which most of the students are doing.

§2.2. Approach to Question Coding

CLASS question coding treats questions as sites of interaction. As Heritage & Roth (1995) and Schegloff (1984) contend, the character of any unit of discourse and related interaction is a function of the participants' understanding. Following this principle, you are to code not questions per se but rather the participants' understandings of their interactions as manifest by their discourse moves. To judge the authenticity of a question, for example, requires that you take your cues not only from how students answered the questions, but also how the teacher responded to the students' answers. As with authenticity, cognitive level is to be coded according to the level of cognitive functioning the question elicited, not the question by itself. In all cases, code not the questions directly but rather the character of social interaction involving, valorized, and elicited by the questions.

§2.3. Questions Not To Code

§2.3.1. Rhetorical Questions.

Be alert to rhetorical questions. They are not to be rated (not even recorded).

§2.3.2. Procedural Questions. Questions like "Does that answer your question?" and "Do you have any questions?" are procedural, not substantive and should not be included in your list of coded questions.

§2.3.3. Discourse-Management Questions. Questions like (a) *"What?", "Did we talk about that?",* or *"Where are we [in the text]?"*, which manage classroom discourse, and (b) *"Do you remember our discussion from yesterday?"*, which initiate discourse topics, should not be coded.

§2.4. Aborted and Repaired Questions

A question-and-answer sequence is a negotiation of sorts. In asking a question, a conversant in effect enters (or sustains) a negotiation with conversants, and the question posed must work in terms of the knowledge, experience, and expectations of the other conversants, i.e., it must initiate or sustain a **shared balance of discourse** (Nystrand, 1986). If teachers ask questions that elicit no answer, this is an **aborted question**; click 'N' (No) when prompted for RESPONSE (Y*/N: the asterisk indicates that Y is the default; simply pressing <↵>). Note that an aborted question is different from a **repaired question**, which is a question the teacher asks and, without giving students a chance to answer, revises. When someone repairs a question, you need only record the final version of the question.

The proportion of teacher questions that fails to elicit an answer is an index of the extent to which the teacher incorrectly anticipates the capabilities and knowledge of the class. If the teacher asks too many questions that students are unable to answer or don't know how to answer, it means that the teacher has misjudged the students in some fundamental way; the question indexes a mismatch.

§2.5. Authentic vs. Test Questions

> *Learning is often built on surprises.* Robert Gundlach

§2.5.1. Authentic Questions are questions whose answers are not prespecified by the teacher. By contrast, an **inauthentic question**, sometimes called a **test question**, allows students no control over the flow of the discussion, and an authentic question allows the student substantial input, if not control over, the flow of the discussion.

§2.5.2. "What Else?" Code the question *"What else?"* as:

- **Inauthentic** (test) when it is used for negative evaluation, i.e., when a student gives a wrong answer and the teacher continues to look for the correct one by saying, *"What else?";* or
- **Authentic** when used during brainstorming, i.e., when any answer is satisfactory.

§2.6. Uptake

Uptake is the speaker's incorporation of a previous answer into a subsequent question (Collins, 1982). It is often marked by the use of pronouns:

- *How did it work?*
- *What causes this?*
- *What city grew out of this?*

In such questions, the pronoun (technically a **deictic reference**) refers to a previous response.

To qualify as uptake, a question must incorporate a previous answer, *not a previous question.* Normally, this incorporation of a

previous answer will involve actual quoting. Questions that are repeated do *not* qualify as uptake.

Less obvious deictics include:

then: e.g., *"And then what happened?"* Here *then* means *"after that,"* i.e., *"after what you just said."*

so: e.g., *"So which value was given to them?"* Here *so* means *"Given that,"* i.e., *"Given what you just said, which value was given to them?"*

maybe: e.g., *"Maybe. What do you think?"* where *maybe* should be read *maybe so.*

though: e.g., *"Per item though?"* where teacher follows up a student response to get a more specific answer (previous question was *"Which has higher overhead?"*): *though* here means *"despite or beyond what you said."*

§2.6.1. Uptake by Ellipsis. Uptake may be characterized by ellipsis. For example, if, when a teacher asks a question and a student answers, the teacher then asks *"Why?",* the *"Why?"* is to be scored positive for uptake; *"Why?"* incorporates the previous student answer by ellipsis. *"Because . . .?"* as a follow up question works the same way.

§2.6.2. Missing Uptake. In the following sequence, there is *no uptake*:

Teacher question:	*What's the first x?*
Student response:	...
Teacher question:	*What's the second x?*

There is no uptake here because the teacher does not incorporate a student's *answer* into a subsequent question.

§2.6.3. Types of Uptake. Uptake will either be faux (test) uptake or authentic uptake.

- Authentic uptake: Teacher asks an unprescripted question about a student response.

- Test (faux) uptake:
  (a) Teacher incorporates previous answer into an ongoing script. E.g.,

  Teacher: *What's the subject of the sentence?*
  Student: *"Rabbit"*
  Teacher: *And the rabbit did what?*

  In this exchange, the teacher follows up on the student's answer ("rabbit"), but the answer was entirely predictable.

  (b) Teacher follows up a student answer to check (test) the student's understanding

§2.7. Cognitive Level

§2.7.1. Reporting vs. Thinking. We distinguish two levels of cognition:

R* **Recitations and reports**: What happened? Don't correspond to screen prompts (default)
H High-level **generalization or analysis**, i.e., thinking: What happens? and Why?

As a general rule of thumb, lower-order questions (i.e., questions eliciting reports) result in answers that are known information whereas higher-order questions (i.e., questions eliciting generalizations, analyses, or speculations) result in answers that are new information.

Like authenticity, the cognitive level of questions cannot be judged altogether from words alone. In judging cognitive level, code the level of cognitive functioning that the question seeks to elicit, not the question by itself or its linguistic structure. Cognitive functioning is high to the extent that "the question cannot be answered through the routine application of prior

knowledge" (Newmann, 1988). In Polanyi's (1962) terms, low-level cognitive functioning is a routine performance whereas high-level cognitive functioning is a heuristic act. Hence, though a why-question will ostensibly elicit an analysis, it will elicit a report if the teacher's focus is the recitation of a textbook's analysis rather than the class's reflection, In such a situation, "Why?" really means, "According to your text, why did it happen this way? Do you remember?"

§2.7.2. Generalization/Analysis. Generalization is the derivation or induction of a general conception or principle from particulars, typically in response to an open-ended question. Analysis is the determination of the nature and relationship *r* of parts in a whole entailing two or more stipulated particulars or concepts *a*, *b*. In analysis the teacher typically stipulates terms for consideration (e.g., *"Given what we've just said, given a and b, etc., what's the author's point?"*) whereas in generalization the teacher does not stipulate terms for consideration; the students do (e.g., *"What's the point?"*).

Examples of generalization: *What happens when you get to the next stanza? Who are these people? What do you think is the message? What does it mean to be in shackles? What does a tornado do? What's the author saying here? What's it all about?* Contrastive example of generalization and analysis:

TEACHER:	*What did Robert Fulton do? What was the result? How did his success affect river travel? What's a problem that some rivers have?*
STUDENT:	. . .
TEACHER:	*So how did Fulton's success affect river travel?*

In the first question, which is a multiply repaired question, the teacher is working to stipulate the terms of an analysis he wants students to do. The question, *"What's a problem some rivers have?"* is meant to elicit a generalization in preparation for a particular analysis these questions are driving towards: "So how did Fulton's success affect river travel?"

§2.7.3. Factors Affecting Cognitive Level. The cognitive level of any question is affected by: (a) the knowledgeability of the person answering the question, (b) nature of the instructional activity, and (c) the source of information required by the question.

(a) **Knowledgeability** of the person answering of the question. Questions are to be coded as reports when their answers elicit a routine cognitive operation. But note that "routine" varies depending on what the person answering the question knows: The very same question that elicits an analysis from one person may well elicit a report from another, more knowledgeable individual. This distinction is especially germane to teacher or student questions. For example, "How did the French regain control of Canada?" may well elicit an analysis from students (assuming, of course, that they have to figure out the answer and not merely recite their textbook account on the point), but it will elicit a report if a student asks the teacher, who already knows the answer. Of course, teachers may not have the answers to all student questions at their fingertips, and if the teacher clearly thinks about a challenging student question, as indicated by a pregnant pause, for example, the question is to be considered as an instance of generalization or analysis. Nonetheless, most student questions addressed to teachers will elicit reports. In some low-ability classes, spelling or even pronouncing new and difficult words will require analysis whereas in other classes, where students have already mastered the pronunciations and spellings of the same words, their spelling is a mere, routine report.

(b) **Nature of the instructional activity**. When whole-class instruction is devoted to review, the normal expectation for the cognitive level of the questions is report, even if the questions have the linguistic form of higher level questions. Sometimes, of course, you may encounter teachers who use review as a basis for analysis and reflection, so take this situation into account in your coding.

(c) **Source of information** required by the question. We define "prior knowledge" as "prior to the previous night's homework." Hence, if a teacher asks students about the previous night's reading, the question will normally elicit a report.

§2.8. Coding Ambiguous Questions

§2.8.1. Preformulated Questions

(e.g., *"Do you think that's important?"*). In judging cognitive level of preformulated questions, disregard the preformulator (*"Do you think. . ."*), and code the remainder of the question ("*Is it important?*"), i.e., code only the nuclear utterance (cf. French and Maclure, 1981). Superficially a question such as "*Do you think that's important?*" elicits a record (i.e., what the student is thinking now), but if the real purpose of the question is to elicit a higher cognitive operation (an analysis of what is important), it should be so coded. Hence:

"Do you think that's important?"="Is that important?"=**ANALYSIS**
"Do you know what a catechism is?"="What is a catechism?"= **REPORT**
"Do you understand why #11 is a 'b'?"="Why is #11 a 'b?'= **ANALYSIS**
"*What do I mean by 'transition'?*"="*What's a transition?*"=**REPORT** or **ANALYSIS**, depending on context student to report. When in doubt about cognitive level, always ask what *mental operation the question is eliciting* (not the literal meaning of the question). Hence, *"Should I do anything more with it?"* should be coded as *"What more should I do with it?"*

§2.8.2. Homework Questions.

Sometimes teachers will ask questions about things students have already completed or considered, e.g., homework. If, in answering these questions, students actually consult their homework, the question will elicit a report, since the students are reporting on what they have already done. If the students do not actually consult their homework, however, the questions should probably be coded as if they had been asked the first time, i.e., analysis/generalization.

When teachers ask questions about what students are thinking (and not just to see if they have done their homework), and when they ask them questions about their previous answers, they promote fundamental expectations for learning by seriously treating students as thinkers, i.e., by indicating that what students think is important and worth examining (Martin Nystrand)

§2.8.3. Redirected Questions. Whenever a teacher redirects a question to another member of the class, code the new question with the same values as the original question; use DITTO. This includes uptake, authenticity, and cognitive level. For example:

Eugene, can you tell me a bit about it?	*T A Report*
Mike?	*T A Report*

§2.9. Coding Responses to Questions

> *Meaning is realized* only in the process *of active, responsive understanding.... Only the current of verbal intercourse endows a word with the light of meaning.* Valentin Vološinov

§2.9.1. Principal Codings

- Relation to other responses. One part of multiple response (y/n). When teachers encourage or allow multiple responses to a single question without repeating the question, it can indicate a transition to dialogic interaction in the class.
- Identity of respondent. In the text box next to this prompt, type in a code identifying the respondent.

§2.9.2. Teacher Evaluation/Followup

: Elaborated vs unelaborated. Elaborated responses show thinking and offer a rationale for the answer given (two parts: answer + elaboration). Unelaborated responses provide just answers, typically with just the information the question targets.

§2.9.3. Teacher Response to Student Questions

Coding teacher response to student questions. Whenever a student asks a question, you will be prompted to code the nature of the teacher's response: T response (C/A*/O) where

C = Closing down: Tabling , changing the subject (perhaps with a different question)
A = Answering (default), either elaborated or unelaborated
O = Opening up: Asking for more information, rerouting question to class.

§2.10. Classifying Instructional Activities

§2.10.1. Lecture. Lecture is to count as a segment only when the teacher talks uninterrupted for at least 30 seconds.

Lecture, film, video, music also refers to student consumption of recorded material, such as documentaries, fiction films or books on tape.

Lecture deals with English content, not with instructions for class activities. Code as Lecture when teacher is talking about skills or knowledge which will be generally useful to the student in the future. For example, "How to do a bibliography" may be Lecture, but "You may only have one Internet source in your bibliography for this paper" would be Procedures and Directions.

§2.10.2. Discussion. We define discussion as free exchange of information among students and/or between at least 3 participants that lasts longer than 30 seconds. The 3 participants may include the teacher, though the teacher may be deliberately silent during some discussions. When discussion occurs in the midst of question-and-answer, it interrupts or violates the normal initiation-response-evaluation sequence of recitation. Discussions typically include relatively few questions; most often these questions clarify ideas and information (*"By that do you mean . . . ?"*) and are consequently authentic since, rather than quizzing

> *Ms. Lindsay's class was about figuring things out—in class, face-to-face, teacher and students together.*
> **Opening Dialogue**, p. 2

each other, the conversants exchange only that information they actually need to know. Discussion displays regular uptake so long as the conversants listen and respond appropriately to each other. Typically discussion comes about in question-answer when a student volunteers an observation (not a question) that substitutes for teacher evaluation.

§2.10.3. Student Presentation: Quick vs Careful

- Quick: Students have only the class hour or less to prepare.
- Careful: Students have prepared at home or during previous class sessions, and it is clear that this counts as more than a daily grade.

§2.10.4. Reading Aloud generally refers to students reading aloud. Teachers reading aloud an excerpt to illustrate a lecture point counts as lecture; however, teachers taking their "turn" in the reading aloud of a class text counts as Reading Aloud. Tapes of someone reading aloud count as "lecture, film, video, music."

§2.10.5. Role Play or Simulation: An open-ended activity where students take on a role or put themselves in another's place. Example: The class having a "town meeting" of characters in a story, or choosing lots before reading "The Lottery." Sitting in seats and reading parts from a play is reading aloud. Students preparing and then presenting a scene can be either Student Presentation or Role Play, depending on how faithful they are to the class text.

§2.10.6. Game: A structured activity with rules, points, winners, losers. Examples: Pictionary, Vocabulary BINGO.

§2.10.7. Class Interruption: An interruption originating outside the class interrupts class activity. Examples: intercom announcements, visitor, CELA paperwork.

§2.10.8. Seatwork. Seatwork is coded according to Source, Cognitive Level (see above, question coding), and Who organizes the product, as well as Type of writing, if any.

§2.10.8.1. Writing Without Composing: all mechanical uses of writing:

- Multiple-choice exercises
- Fill-in-the blank exercises (answered with less than a sentence)
- Short-answer exercises (brief, one or two sentences per question)
- Writing to show memorization (e.g., science or math calculations, spelling tests, written recitation)
- Transcription from either written material (copying) or (dictation)
- Translation (copying words or short phrases from one language into another)
- Other mechanical uses (diagraming, vocabulary exercises, crossword puzzles, pre-first draft activities, e.g., concept mapping)

§2.10.8.2. Composing: writing that is informational, personal or imaginative.

§2.10.9. Small Group Work. Small group work is to be coded for the following:

- Teacher-structured group work (i.e., collaborative seatwork). Task parameters entirely defined by teacher. Task can be done without student interaction (e.g., worksheets); group setting is gratuitous.
- Prescripted task: Prescripted task with obligatory student interaction.
- Limited student interaction: Teacher gives students some latitude in their interactions with each other, and group work

involves spontaneous student interaction concerning substance; students are on "short leash." For example, the teacher might define some general principle which students in groups must then apply.

- Significant student interaction: Significant student interaction, including discussion, defining shape of task and outcome though teacher might have been able to predict results before class.
- Autonomous group work: Teacher sets up group work without prescripting activities; significant student interaction, including discussion, defining shape of task and outcome. Results of group work cannot be predicted before class.

§2.10.10. Offtask. See pp. 14, 15.

§2.10.11. Discipline. We distinguish between admonitions, for example, asking some students to pay attention ("Helen, pay attention"), and discipline, when the teacher brings a halt to things ("Alright, that's it!") to straighten out a more serious problem. When the teacher seems to be dealing with a nuisance, it's an admonition; when the teacher shifts gears to address a problem, it's discipline. CLASS is to be used only for noting discipline.

§2.10.12. Shifting Numbers of Students. Sometimes students will enter and leave the class during the period. When the number of students changes, indicate this number when so prompted by the OFFTASK routine.

§2.10.13. Ambiguous Activities. When the teacher does one thing (e.g., lecture) and students are allowed to do another (e.g., seatwork), classify the activity most students do.

§2.11. Matrices

At the end of each observation, you are asked to make a series of holistic judgments about the class, to be recorded in the CLASS matrices.

Check each item that involved serious effort. If you observed any of these activities but they were extremely brief and superficial, e.g., there was only 30 seconds of discussion, do not check off the category.

Scale 1

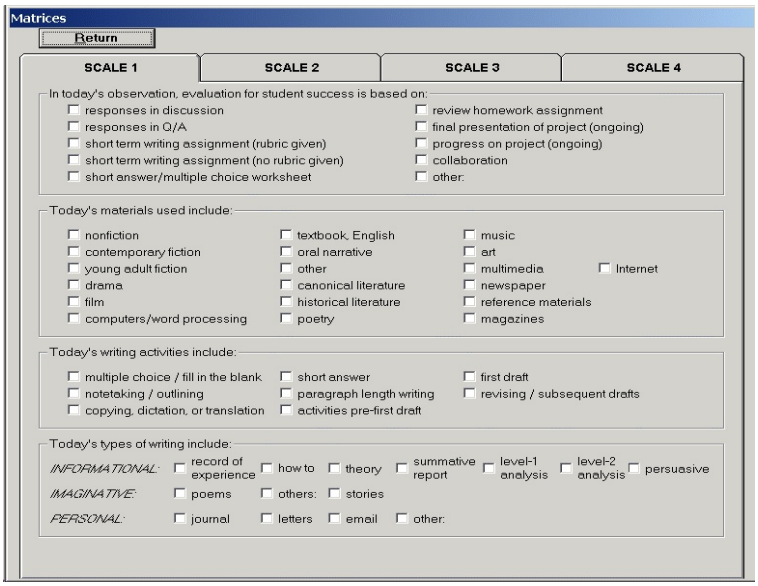
§2.11.1. Activities Not to Code. For Scale 1, check only nontrivial activities. For example, the first set of categories concerns activities involved in "evaluation for student success" and then lists several items to be considered, including:

☐ responses in discussion
☐ responses in Q/A
☐ short term writing assignment
☐ collaboration
etc.

Check each item that involved serious effort. If you observed any of these activities but they were extremely brief and superficial, e.g., there was only 30 seconds of discussion, do not check off the category.

§2.11.2. Types of Materials

Nonfiction vs. textbook: By nonfiction we usually mean essays. But sometimes such essays will be found in textbooks, complete with study questions. Your coding will depend on how the essay is treated in instruction. If the essay is treated pretty much on i t s



own, it should be classified as nonfiction; if the main emphasis is on study questions, check off both nonfiction and textbook. The same rule applies to poems. As in many other CLASS items (authentic questions, cognitive level of questions), we code each as it is realized in instruction.

Today's materials includes not only items actually on students' desks during the observation but also materials they used in homework serving as the basis of the class session you observe. Hence, if to prepare for the class session you observe, students read something in a newspaper and looked something up on the internet, check ☐ newspaper and ☐ internet, even if the internet is not up and running and no newspapers are in use during the observation.

First drafts: Whether a given piece of writing is a draft will depend on how it is treated by the instructor. In most cases, this will be obvious because the teacher calls it a draft in the assignment. But if for any reason a piece of writing gets revised,

the initial paper is to be coded as a "first draft" whether it was assigned as such or not. To repeat, code each activity and item as it is realized in instruction.

§2.11.3. Types of Writing. Classifications of writing and reading refer only to in-class writing and reading tasks. When students are composing (see §2.11.8), singly or with others, categorize their writing as follows:

(a) **Informational** uses of writing, include:

- Note taking/outlining: Selecting and synthesizing oral or written information
- Record of experience: Writing information as it happens (e.g., stream of consciousness, science observations or experiments)
- Report: Retrospective account of particular events or series of events *(This is what happened)*
- Journals/informational: Informal summary of a work of literature, classroom event, assignment. Writer does not include personal opinion, reflection, questions, etc.
- "How to" generalized narrative or description of a recurrent pattern of events or steps in a procedure (*This is what happens; This is the way it is done*)
- Analysis/Level I: Single source generalization and classification related to a situation, problem, or theme, with logical or hierarchical relationships among generalizations implicit or explicit. Writer uses a single source (e.g., personal perspective only, one film, one critique, one news article) to support writer's conclusions
- Analysis/Level II: Multiple source generalization and classification related to a situation, problem, or theme, with logical or hierarchical relationships among generalizations implicit or explicit. Writer uses multiple sources (e.g., several texts, several critiques, personal experience or another source, perspective of multiple characters) to support writer's conclusions.
- Theory-building: Defending one's own, new ideas, concept or conclusion.

(b) **Persuasive or regulative** uses of writing: Any instances in which the attempt to convince overrides other functions or in which rules are given and compliance assumed

(c) **Personal** uses of writing, including:

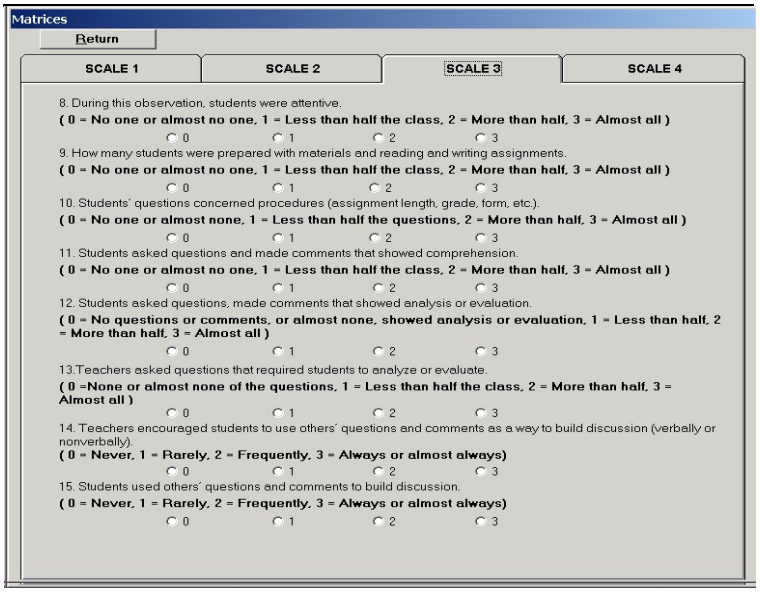
- Journals/personal: Writer reflects on work of literature, classroom event or activity. Writer gives opinion and/or poses questions.
- Letters, notes, or email where main purpose is "keeping in touch."

(d) **Imaginative** uses of writing, including:

- Stories
- Poems
- Play scripts

§2.11.4. Types of Literature

- Nonfiction: Biography, autobiography, text of a speech
- Canonical literature: Literature included in the "traditional" canon, the "classics" (typically referred to the "dead white men")
- Contemporary fiction: Literature that is written or set in contemporary times, literature that experiments with genres
- Historical fiction: Fiction addressing a particular time in history
- Young adult fiction: Fiction typically targeted for an adolescent audience



When coding materials, there will be overlap. For example, it is possible for a text to be an example of contemporary fiction as well as historical fiction (consider *Beloved* by Toni Morrison). When coding youshould focus on how the text is used in class. It might also help to consider the ways in which a bookstore might categorize the text.

Scale 2

1 How much class time was used to focus and extend student understandings developed through writing and reading?

2 How much class time was allowed for writing activities such a prewriting, journal writing, evaluation drafts, peer discussions of drafts, note taking, etc.?

3 How much flexibility did the teacher grant students to develop their own understandings?

4 How much time was devoted to classroom talk in which students developed their own understandings and explored their own ideas with peers and teachers?

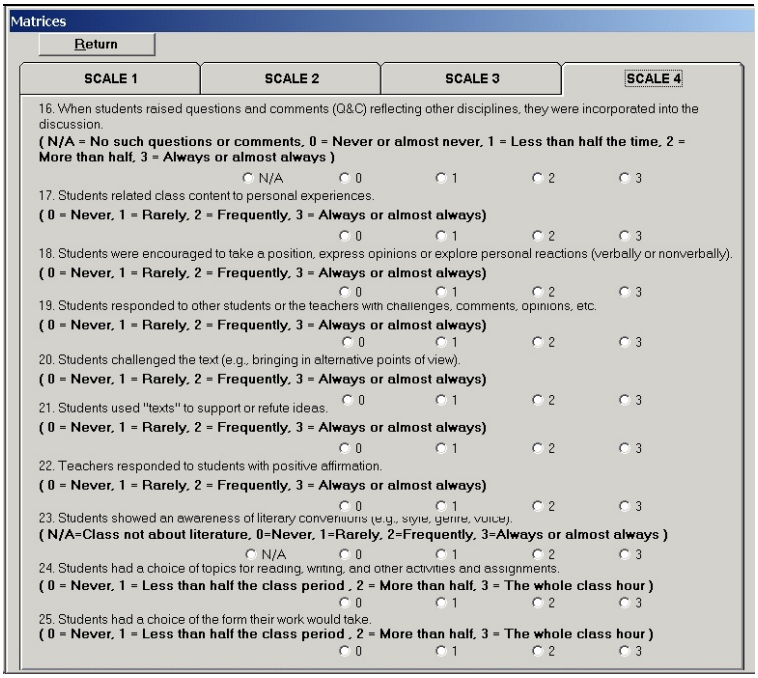
5 Students were allowed to shift discussion in a new direction.
6 Activities, Q&A, lecture or conversations conducted in today's class seemed to be part of a continuing topic within lessons.
7 Today's class activities included references connection back to previous themes and/or to upcoming topics (not tests or upcoming projects). Connections across lessons and across teacher's curriculum.

Scale 3

8 During this observation, students were attentive.
9 How many students were prepared with materials and reading and writing assignments?
#10 Students' questions concerned procedures (assignment length, grade, form, etc.)
#11 Students asked questions and made comments that showed comprehension.
#12 Students asked questions, made comments that showed analysis or evaluation.
#13 Teachers asked questions that required students to analyze or evaluate.
#14 Teachers encouraged students to use others' questions and comments as a way to build discussion, Q&A (verbally or non-verbally).
#15 Students used others' questions and comments to build discussion.

Scale 4

#16 Students' questions and comments reflecting other disciplines were incorporated into discussion.
#17 Students related class content to personal experiences.



#18 Students were encouraged to take a position, express opinions or explore personal reactions (verbally or non-verbally)

#19 Students responded to other students or the teachers with challenges, comments, opinions, etc.

#20 Students challenged the text (e.g., bringing in alternative points of view).

#21 Students used "texts" to support or refute ideas (e.g. oral, written, film, electronic)

#22 Teachers responded to students with positive affirmation.

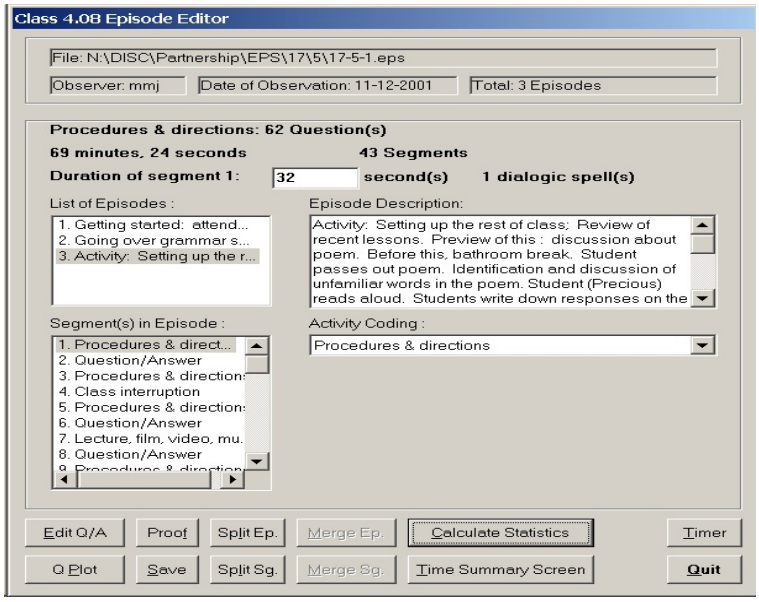
#23 Students showed an awareness of literary conventions (e.g., style, genre, voice).

#24 Students had a choice of topics of reading, writing, and other activities and assignments.

#25 Students had a choice of the form their work would take.

§3. Editing Data

Once coding is completed, both EPS and SUR (matrices) files can be edited, and summary statistics can be computed. To edit an EPS file, first click on PATH to indicate the subdirectory where you store your data; at Madison, this directory is N:\CELA\DISC\PARTNERSHIP\EPS FILES. Then click on EDIT CLASS DATA on program start up. When you're in the correct subdirectory, the program will list the available files. Click on the one you want to edit. The program will take you to the Episode Editor, and at this point, you can edit the episode description in the window to the right called "Episode Description." It is important to click on SAVE DATA each time you edit the episode description; otherwise, the revision will not be



made.

If you need to recategorize a segment activity (e.g., change Q/A to Discussion), click on the segment you want to change in the "Segments in Episode" window to the left, and then click on the "Activity Coding" window to the right till you find the activity you want. It is important to click on SAVE DATA each time you recategorize an activity; otherwise, the revision will not be made.

§3.1. Basic Editing Functions

The basic functions in the edit program are:

EDIT Q/A allows for question reviewing and editing. Normal questions are so noted.

PROOF searches the file for (a) incomplete codings and finds them for you and (b) invalid codings, e.g., typos; for more information, see §3.2 below.

MERGE EP & MERGE SG allow merging episodes and segments within episodes; for more information, see §3.1.1 below.

CALCULATE STATISTICS presents summary episode statistics, which are available only for question-answer episodes; for more information, see §3.4 below.

TIMER is a built-in stopwatch that allows you to retime segments and episodes; for more information, see §3.3 below.

QPLOT displays a plot of question codings for any given episode with questions; for more information, see §3.5 below.

SAVE saves the dataset.

SPLIT EP & SPLIT SG (the opposite of merge) allows you to split a given episode or segment into more than one; for more information, see §3.1.1 below.

TIME SUMMARY SCREEN switches to the Time Summary Screen. For more information; for more information, see §3.3 below.

§3.1.1. Merging Episodes and Segments

MERGE EP & MERGE SG allow merging episodes and segments within episodes. To operate this function, highlight the episodes or segments you want to merge and then click MERGE EP or MERGE SG depending on which operation is needed. When you merge episodes, the respective descriptions are concatenated.

§3.1.2. Splitting Episodes and Segments

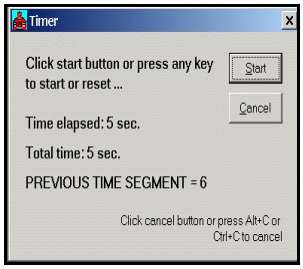
SPLIT EP & SPLIT SG (the opposite of merge) allows you to split a given episode or segment into more than one. When splitting an episode, highlight the episode and the segment(s) you want in the second of the new episodes. Then press SPLIT EP You will be prompted to divide any questions between the two episodes. Highlight any questions you want in the second episode and press the appropriate arrow. Then press OK to return to Menu. You will need to create a description for the new episode generated by the split.

When splitting a segment, highlight the segment you wish to split. Be aware you will have to assign a classification to the new segment, and you will also be prompted to divide the time values between the two segments.

§3.1.3. Rearranging Segments. If you need to rearrange segments, e.g., after realizing that the first segment of Epidose 3 is really the last segment of Episode 2, you can move them by clicking and dragging them. Click and drag will moves segments both within and across episodes.

TIMER allows you to retime segments. After clicking on TIMER, the program will ask you to "Press any key to begin," and doing so will start TIMER counting in seconds. To mark the

end of the segment you are timing, pressing ENTER; the total number of seconds will be registered as "PREVIOUS TIME SEGMENT." At the same time that the duration of the precious segment is displayed, you will see that program is already timing the subsequent segment so that when you press ENTER again, you will determine its duration. This process can be continued indefinitely.



§3.2. Proofreading and Cleaning Data

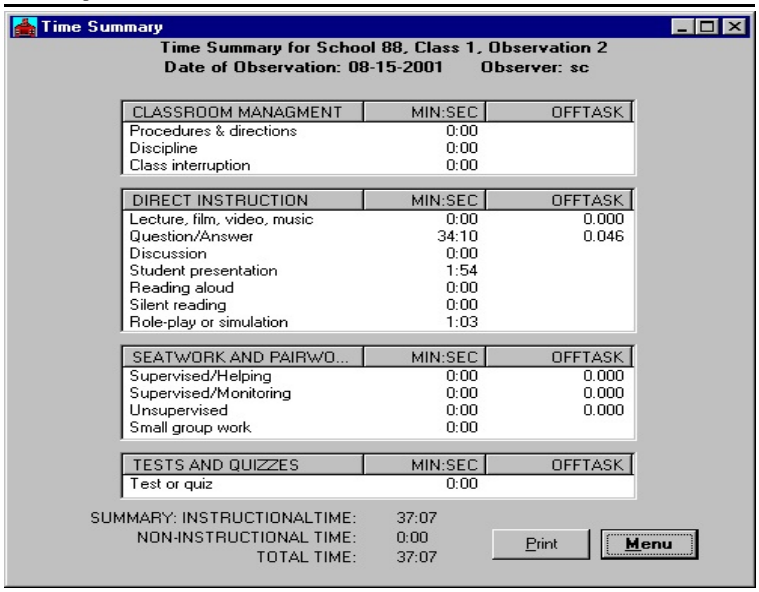
Upon clicking PROOF, the program will proofread data for encoded questions, checking for any invalid or missing codings.

In proof mode, several hot buttons are available: DROP, INSERT AFTER, INSERT BEFORE, and DITTO. DITTO allow you to duplicate either the previous question or the codings for the previous question or both, and you will be so prompted when you press DITTO.

§3.3. Time Summary

> *On average, in the eighth-grade classes Nystrand and his colleagues studied, 85% of each class day in both eighth- and ninth-grades was devoted to a combination of lecture, question-and-answer recitation, and seatwork. Discussion and small-group work were rare. On average, discussion took 50 seconds per class in eighth grade and less than 15 seconds in grade 9.* **Opening Dalogue**, p. 42

TIME SUMMARY SCREEN displays a breakdown of times for each activity in the entire class session.



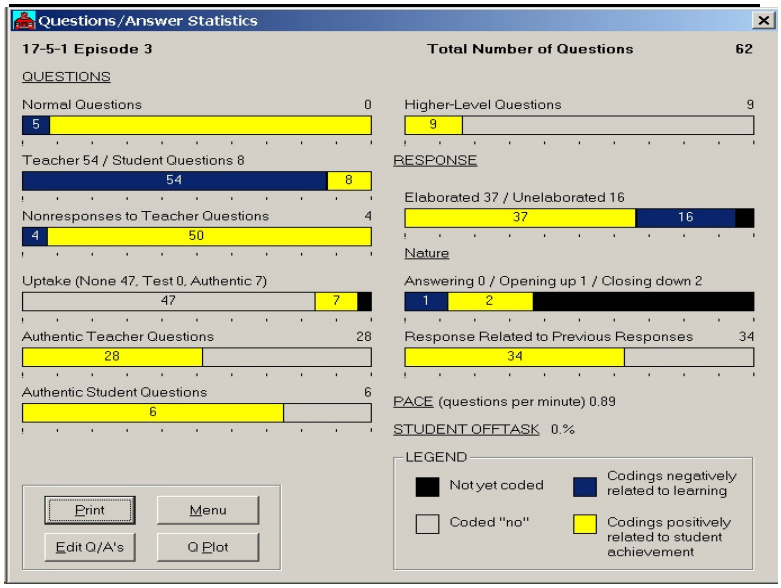
In all there are 17 possible activity categories, and in the display, the ones actually used during the class session are highlighted. Available functions options are PRINT and MENU, which returns to the main menu.

§3.4. Calculate Statistics

CALCULATE STATISTICS presents summary episode statistics, which are available only for question-answer episodes. Statistics are reported for:

QUESTIONS

1 Number of questions
2 Number and proportion of normal questions
3 Number and proportion of teacher & student questions



4 Number and proportion of questions exhibiting no uptake, test uptake, & authentic uptake
5 Number and proportion of authentic teacher questions
6 Number and proportion of authentic student questions
7 Number and proportion of high-level questions

RESPONSES

8 Number and proportion of elaborated & unelaborated student responses
9 Number and proportion of student responses related to previous responses
10 Number and proportion of teacher responses to student questions answering, opening up, & closing down

OTHER

11 Pace, i.e., questions per minute
12 Percentage of students offtask

Statistics (proportions) are presented in individual bar graphs for each instructional variable. The actual number of instances of each variable appears next to the variable name. The scales

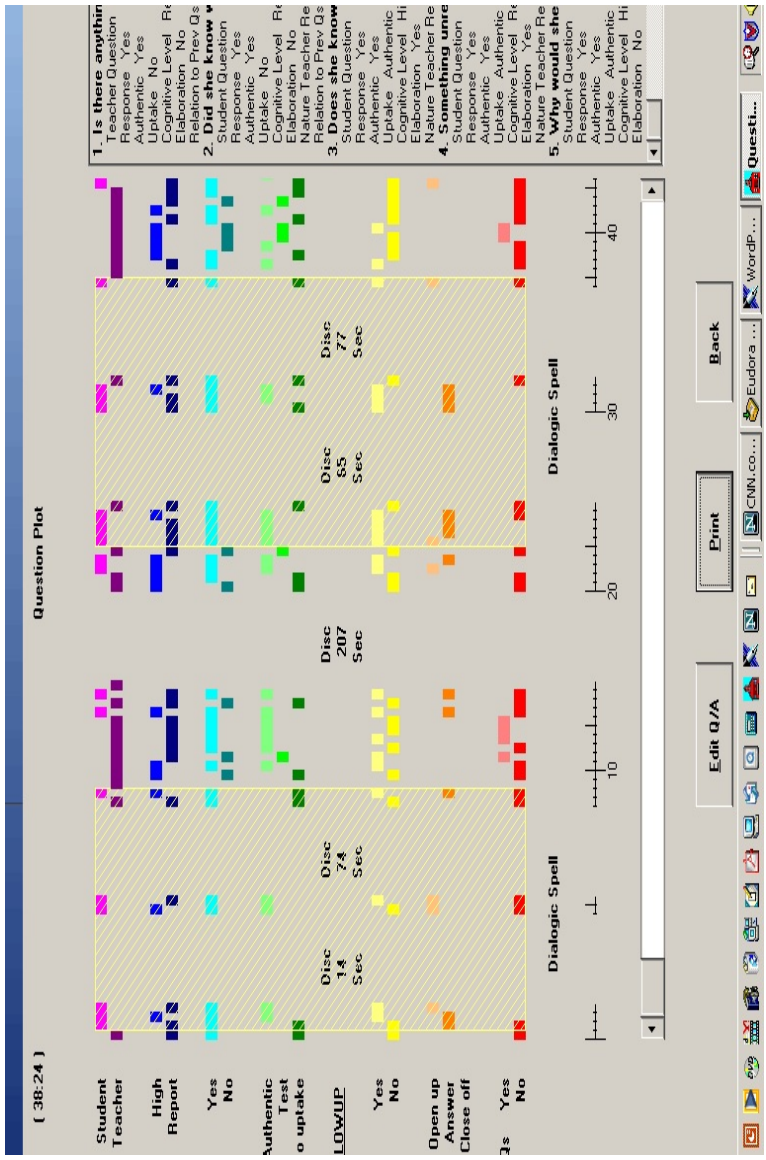
below each bar allow visual interpretation of each result relative to the scale on which it was measured. Available functions: PRINT these statistics, return to EDIT, and Main MENU.

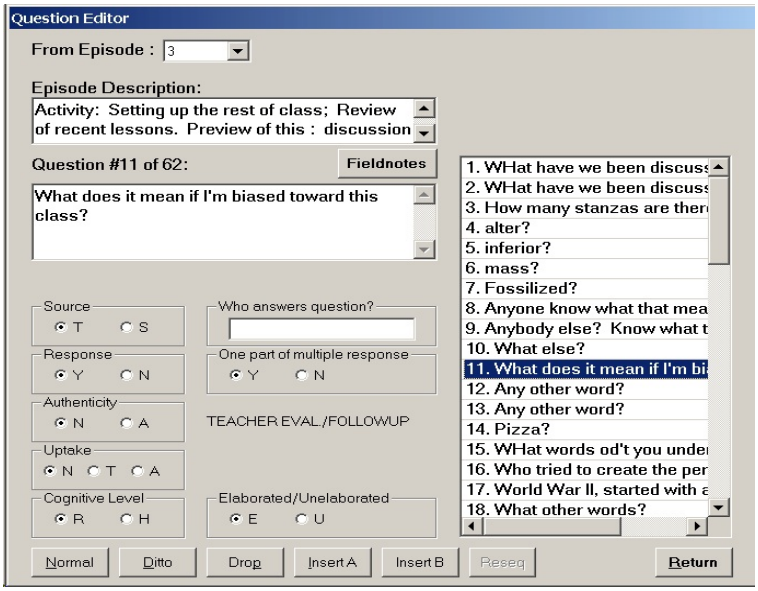
§3.5. Question Plot

Starting a discussion is a little like starting a fire. With enough kindling of the right sort, accompanied by patience, ignition is possible, though perhaps not on the first or second try. **Martin Nystrand**

The Question Plot screen is a powerful utility that displays changes in the dialogic value of questions as they unfold over time in each instructional episode. These plots reveal clusters of questions forming dialogic and monologic sequences and help to identify shifts from one state to the other. Dialogic spells, when present, are marked by vertical lines marking its start and end. A dialogic spell is a stretch of whole classroom discourse starting with a student question and followed subsequently, though not necessarily immediately, by at least two more student questions. The spell is terminated by a series of three or more monologic test questions, or, as here, by the end of the episode. Dialogic spells, phases of interaction rich with potential for interpretive analysis and in-depth processing, are important because they often work as embryonic discussions.

By displaying dialogic values for sequences of questions, QPlot allows CLASS users to investigate the antecedents and consequences of various lines of questioning, e.g., by comparing plot shifts with the questions as they are displayed in the Question Edit Screen. For more information on dialogic spells and discussion, see Nystrand, Wu, Gamoran, Zeiser, & Long, "Questions in Time" (2001).


Question Plot
(38:24)
Student
Teacher
High
Report
Yes
No
Authentic
Test
o uptake
LOWUP
Yes
No
Open up
Answer
Close off
Yes
No
Disc
14
Sec
Disc
74
Sec
Disc
207
Sec
Disc
85
Sec
Disc
77
Sec
Dialogic Spell
Dialogic Spell
10
20
30
40
1. Is there anythin
Teacher Question
Response Yes
Authentic Yes
Uptake No
Cognitive Level Hi
Elaboration No
Relation to Prev Qs
2. Did she know w
Student Question
Response Yes
Authentic Yes
Uptake No
Cognitive Level Hi
Elaboration No
Nature Teacher Re
Relation to Prev Qs
3. Does she know
Student Question
Response Yes
Authentic Yes
Uptake Authentic
Cognitive Level Hi
Elaboration Yes
Nature Teacher Re
4. Something unre
Student Question
Response Yes
Authentic Yes
Uptake Authentic
Cognitive Level Hi
Elaboration Yes
Nature Teacher Re
5. Why would she
Student Question
Response Yes
Authentic Yes
Uptake Authentic
Cognitive Level Hi
Elaboration No
Edit Q/A
Print
Back
CNN.co...
Eudora ...
WordP...
Questi...



§3.6. CLASS 4.0 Question Editor

The CLASS question editor allows you to change the text and the values of any question in the file. Special features include:

NORMAL codes normal questions with appropriate default values: SOURCE: teacher; RESPONSE: yes; AUTHENTICITY: no; UPTAKE: no; COGNITIVE LEVEL: report; MULTIPLE RESPONSE: no; UNELABORATED.

DITTO duplicates either the previous question or the codings for the previous question or both.

NORMAL codes normal questions with appropriate default values: SOURCE: teacher; RESPONSE: yes; AUTHENTICITY: no; UPTAKE: no; COGNITIVE LEVEL: report; MULTIPLE RESPONSE: no; UNELABORATED.

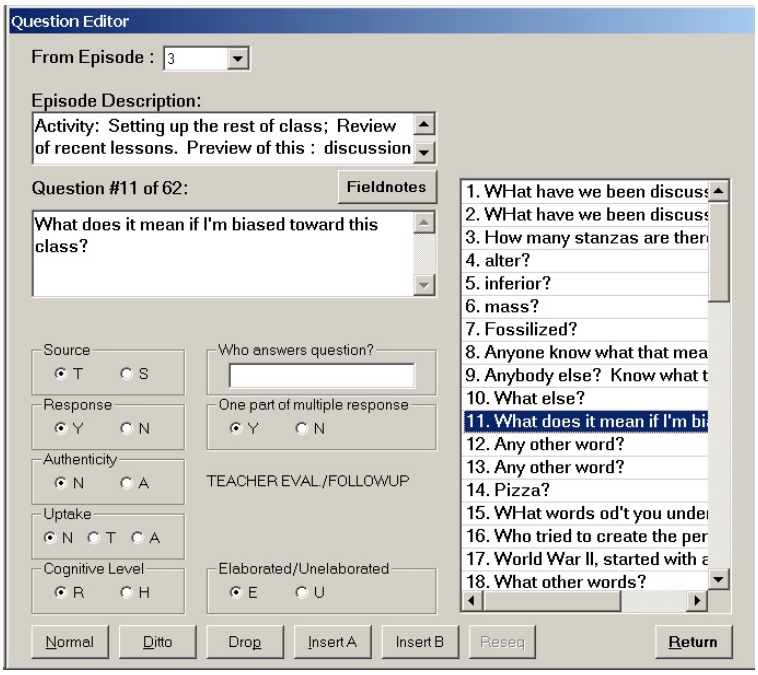
DITTO duplicates either the previous question or the codings for the previous question or both.

DROP deletes the highlighted question.

INSERT A & INSERT B (Insert after & Insert before) enable the insertion of a new question.

R#Qs renumbers all the questions after one or more have been inserted or deleted; MENU returns you to the Main Menu; END saves data and exits the program.

§3.7. Segment Editor



The Segment Editor, which is part of the Episode Editor (see p. 42), enables recategorization of any segment (e.g., changing Question/Answer to Discussion). In the Episode Editor, highlight the segment to be changed in the lower left window.

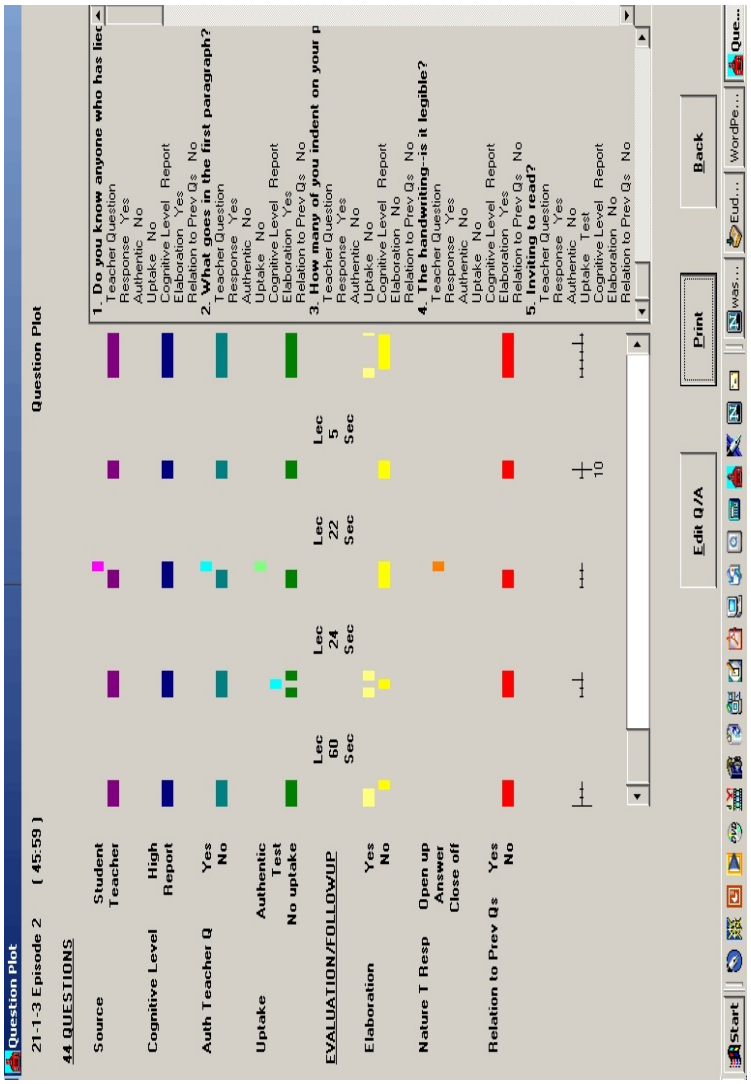
Then click on the appropriate Activity Code in the window to the right of the Segment List. Don't forget to press SAVE DATA immediately.

Successful teachers follow their students' voices "into neighborhood corners and alley ways, off the beaten path of the curricular road, where the social action is," as Anne Haas Dyson so eloquently puts it—listening carefully and opening dialogue. Phrasing instruction according to students' abilities, interests, and experience, they take their students seriously, finding—sometimes creating—ways to let their students know that what they think counts. **Opening Dialogue**, p. 108.

§4. Interpreting CLASS Files

CLASS 4.0 provides extensive data about instruction and classroom discourse and offers useful feedback to teachers. Some results are quite straightforward. The Time Summary Screen (p. 45), for example, gives a useful breakdown of time spent in discussion, lecture, question/answer, and other activities. And the Question Statistics Screen (p. 47) not only displays proportion of all questions that are authentic, marked by uptake, etc., but also highlights items in yellow that previous CELA studies have shown are associated with learning and student achievement. Such highlighted results provide important feedback to teachers–they identify strengths that can be built on.

The Question Plot Screen provides the CLASS program's most nuanced results, displaying the coded variables for all questions in sequence during an instructional episode. In addition to the questions, other activities are shown in relation to the questions themselves, making it possible to see how discussion, lecture, etc., fit into the context of question interaction. The questions themselves are displayed in the window to the right of the question plot; clicking on any coded value in the graphic display (e.g., an authentic coding) will highlight the corresponding authentic question in the list. By working back and forth between the qplot and the question list, it is possible to gain insight into how particular questions and question patterns relate to the other activities, for example, discussion, that follow.

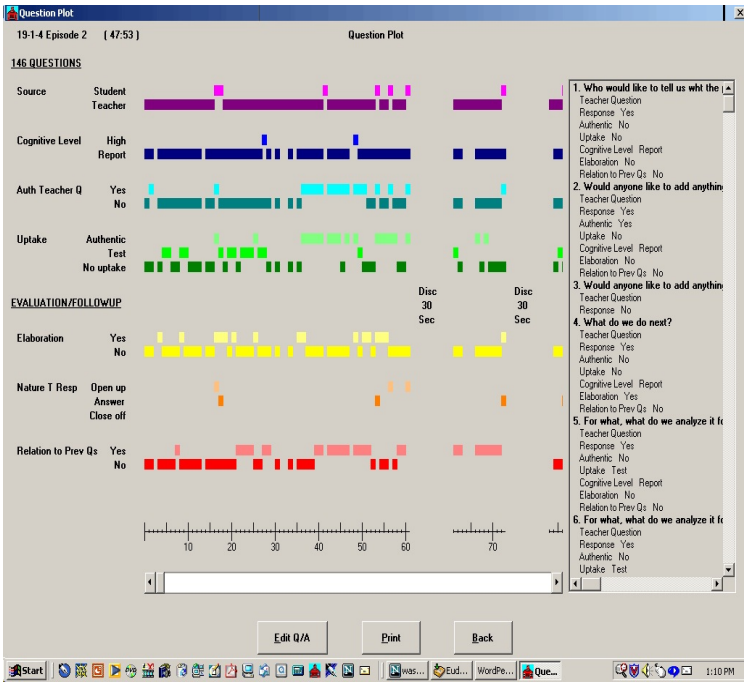

Question Plot
21-1-3 Episode 2 (45:59)
Question Plot
44 QUESTIONS
Source
Student
Teacher
Cognitive Level
High
Report
Auth Teacher Q
Yes
No
Uptake
Authentic
Test
No uptake
EVALUATION/FOLLOWUP
Elaboration
Yes
No
Nature T Resp
Open up
Answer
Close off
Relation to Prev Qs
Yes
No
Lec 60 Sec
Lec 24 Sec
Lec 22 Sec
Lec 5 Sec
10
1. Do you know anyone who has lied
Teacher Question
Response Yes
Authentic No
Uptake No
Cognitive Level Report
Elaboration Yes
Relation to Prev Qs No
2. What goes in the first paragraph?
Teacher Question
Response Yes
Authentic No
Uptake No
Cognitive Level Report
Elaboration Yes
Relation to Prev Qs No
3. How many of you indent on your p
Teacher Question
Response Yes
Authentic No
Uptake No
Cognitive Level Report
Elaboration No
Relation to Prev Qs No
4. The handwriting--is it legible?
Teacher Question
Response Yes
Authentic No
Uptake No
Cognitive Level Report
Elaboration Yes
Relation to Prev Qs No
5. Inviting to read?
Teacher Question
Response Yes
Authentic No
Uptake Test
Cognitive Level Report
Elaboration No
Relation to Prev Qs No
Edit Q/A
Print
Back
Start
was...
Eud...
WordPe...
Que...

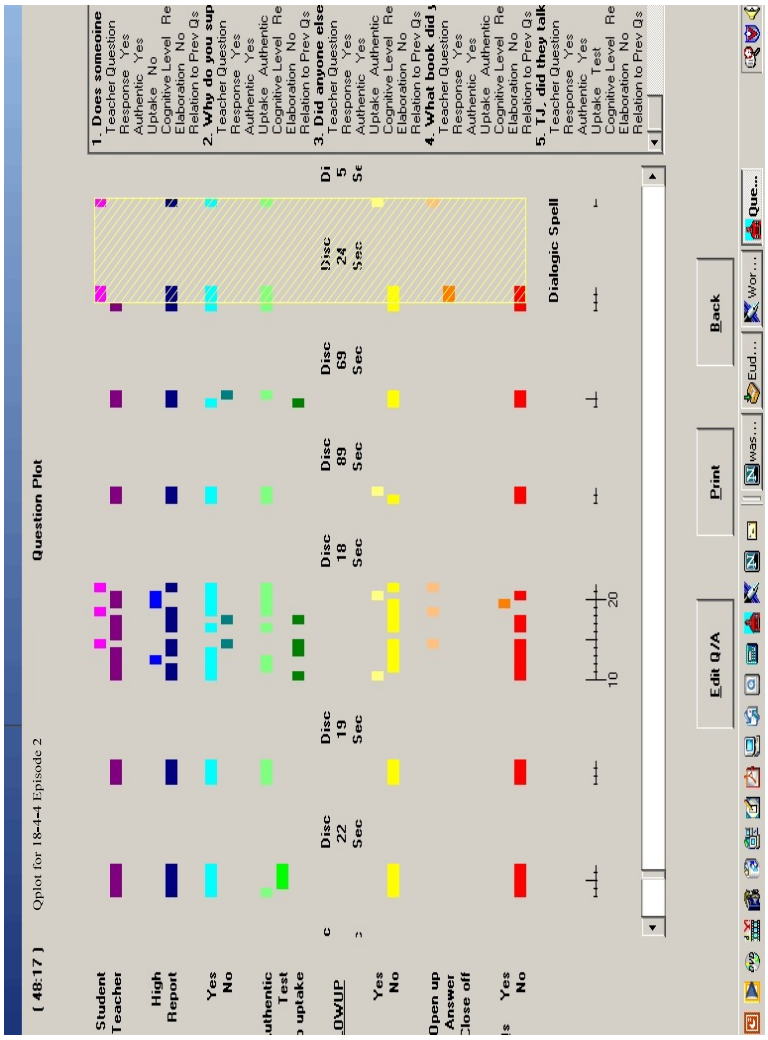
In interpreting any question plot, the first thing to look for is a "pulse" (the qplots look a little like electroencephalograms, don't they). A recitation consisting completely of teacher test questions will generate a flat-line or near-flatline plot: all or nearly all the questions are asked by the teacher, they all get a response, none is authentic, none displays uptake, and they all elicit reports from students. Such a plot reveals a lesson without a dialogic pulse. The qplot displayed for Class 21-1-3, exhibits such a pattern.

While many lessons will generate short qplot segments of this kind, many will display other patterns: a student will ask a question, a follow up question by the teacher will be marked by uptake, perhaps some of the questions will be authentic, etc. When something like this happens, the corresponding qplot gains "texture" as the flat line of test questions begins to display a new pattern. The qplot below for Class 19-1-4 involving poetry analysis exhibits such texture.

Be alert to "dialogic bids," which are student questions, authentic questions, uptake, and other devices that generate "dialogic spells." A dialogic spell begins and ends with a student question, and defines a sequence of classroom discourse uninterrupted by teacher test questions; CLASS automatically identifies, highlights, and labels them. Dialogic spells are important because they mark zones of heightened student engagement; frequently they include discussions within them. Dialogic bids can precede both dialogic spells and discussions either immediately (e.g., the question before a discussion) or sometime earlier in the episode. Our research shows that dialogic bids increase the probability of a spell or discussion; multiple instances increase the probability still more, so their effect is cumulative (Nystrand, Wu, Gamoran, Zeiser, & Long, 2002). The qplot for Class 18-4-4 shows several possible dialogic bids worth close examination, including authentic teacher questions from the very start of the episode, along with

a cluster of student questions starting around question 15. As you interpret qplots, carefully examine the relationship between both dialogic spells and the discussions and the questions that work as dialogic bids and precede them. A central task of any qplot interpretation is accounting for dialogic spells and discussions by inspecting the bids and pattern of questions and activities that generate them. Once again, it is important to work back and forth between the qplot and the question list.




(48:17)
Qplot for 18-4-4 Episode 2
Question Plot
Student
Teacher
High
Report
Yes
No
Authentic
Test
uptake
FwUP
Yes
No
Open up
Answer
Close off
Yes
No
Disc 22 Sec
Disc 19 Sec
Disc 18 Sec
Disc 89 Sec
Disc 63 Sec
Disc 24 Sec
Dialogic Spell
10
20
1. Does someone
Teacher Question
Response Yes
Authentic Yes
Uptake No
Cognitive Level Re
Elaboration No
Relation to Prev Qs
2. Why do you sup
Teacher Question
Response Yes
Authentic Yes
Uptake Authentic
Cognitive Level Re
Elaboration No
Relation to Prev Qs
3. Did anyone else
Teacher Question
Response Yes
Authentic Yes
Uptake Authentic
Cognitive Level Re
Elaboration No
Relation to Prev Qs
4. What book did
Teacher Question
Response Yes
Authentic Yes
Uptake Authentic
Cognitive Level Re
Elaboration No
Relation to Prev Qs
5. TJ, did they talk
Teacher Question
Response Yes
Authentic Yes
Uptake Test
Cognitive Level Re
Elaboration No
Relation to Prev Qs
Edit Q/A
Print
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Annotated EPS file

<ANNOTATED EPS FILE P2>

<ANNOTATED EPS FILE P3>

<ANNOTATED EPS FILE P4>