

In-Class Observations: Quick Data Collection with Non-Linear Access to Audio for Subsequent Assessment and Reporting

Overview

Teaching a class requires the instructor to manage a variety of activities at the same time. In many classes, teachers present new information while engaging learners in a dialog that enables them to process the information more deeply than they would in a traditional lecture. In order to help students develop competencies associated with a classroom dialog, teachers must deliberately monitor student performance and provide supportive and/or corrective feedback to each student. Unfortunately, presenting new information, coordinating a discussion, and managing classroom behavior—while keeping an eye on the clock—taxes even the most organized and experienced teachers. It would be too much to also ask that the teacher engage in a systematic process of assessing every individual on class participation according to a predefined rubric.

The Livescribe Pulse smartpen provides the means for teachers to record classroom discussions—linked to a system of simple marks on a seating chart—allowing them to return to the recording later for the explicit purpose of evaluating performance. Maintaining a record of in-class participation also allows teachers to share examples of in-class contributions with each student, fellow teachers, or parents, in order to demonstrate progress toward a goal.

Background

“Class participation” should require more of students than to simply attend class or refrain from engaging in inappropriate behaviors. Teaching lessons that *require* student participation enhances motivation and improves learning and retention. According to Morgan and Saxton (1991), teachers ask questions for a variety of reasons:

1. the act of asking questions helps teachers keep students actively involved in lessons;
2. while answering questions, students have the opportunity to openly express their ideas and thoughts;
3. questioning students enables other students to hear different explanations of the material by their peers;
4. asking questions helps teachers to pace their lessons and moderate student behavior; and
5. questioning students helps teachers to evaluate student learning and revise their lessons as necessary.

Following their review of the scientific literature on effective questioning techniques, Wilen and Clegg (1986) recommended that teachers use these strategies to enhance engagement and achievement:

1. “phrase questions clearly;
2. ask questions of primarily an academic nature
3. allow three to five seconds of wait time after asking a question before requesting a student's response, particularly when high-cognitive level questions are asked;
4. encourage students to respond in some way to each question asked;
5. balance responses from volunteering and nonvolunteering students;
6. elicit a high percentage of correct responses from students and assist with incorrect responses;
7. probe students' responses to have them clarify ideas, support a point of view, or extend their thinking;
8. acknowledge correct responses from students and use praise specifically and discriminately” (p. 23).

In order for students to develop their question asking and answering skills, teachers must provide instruction, evaluate performance, and provide feedback. The most effective teachers will also track student performance over time to reveal trends toward a predetermined achievement level. And increasingly, teachers are expected to provide evidence—to administrators and teachers—of actual student work in order to justify instructional or behavioral interventions.

In-Class Data Collection

Bob Innes, Associate Professor of Psychology at Vanderbilt University, uses his Livescribe smartpen to capture the audio of his classroom discussions and “tag” time-coded student comments to his seating chart. After class he is able to quickly review student comments and apply 100% of his attention to evaluating the quality of the comment against his class participation rubric. The review of a 75-minute class takes Bob approximately 10 minutes.

Preparation Prior to Class

Before going to class, Bob opens to a blank page in his spiral bound notebook. He turns his smartpen on and writes the title of the class and the date across the top line. Below it he draws a rough seating chart of the classroom—including his own name and position. Since his students often change their seats from class-to-class, he waits until students enter take as seat before writing their names on the chart. (Note: early in the semester, before he has learned all the student names, he brings to class a roll sheet with student photos so he can associate names with faces.)

After Class: Evaluating Class Participation

Once Bob has returned to his office, he takes out his class participation scoring rubric and replays portions of the classroom discussion. Rather than listening to the entire recording from beginning to end, as with a podcast, fast-forwarding to the next moment of interest, Bob simply taps on the marks next to each student's name and evaluates the student based on the rubric. Because he can devote his entire attention to this process, and because he can relisten to a comment or question as many times as he wishes, he can be much more deliberate and accurate in his evaluation. Bob can also turn back to a previous lecture to listen and compare a particular student's comments in the most recent class meeting to one made in the past. This allows him to quickly evaluate the development of a student's abilities.

Advanced Paper Replay Feature

When listening to a Paper Replay session, any new word written on a page (while the smartpen is turned on) becomes a new ink index point to that moment in the recording. Accordingly, Bob can create a new page devoted to a particular student and create links to that student's comments from a number of different class meetings. This technique facilitates discussions with the student, fellow teachers, administrators, or parents.

Other Applications

The technique described above would be useful for a variety of situations where data collection must, or should, be separated from the process of evaluation. These include:

- Behavior assessment/management observation (see Figure 2 and Table 1)
- Classroom (teacher) observation
- Student presentation evaluation
- Team meeting observation

In many of these situations, the observer is provided with a form where they are to note the presence or absence of specified behaviors. Prior to the observation period, the observer can copy the key sections of the form into their notebook. Using the techniques above, the observer can not only capture a frequency count of each behavior, but also an audio recording associated with each behavior that will allow them to reliably and accurately report on the *quality* of the behavior—and to provide evidence to support their assessment should it be required.

Figure 1 and Table 2 an example of a classroom observations form. As in the example presented previously, the seating chart may be drawn in advance on a page in the Livescribe notebook (or on dot pages printed from the *Livescribe Desktop* application.)

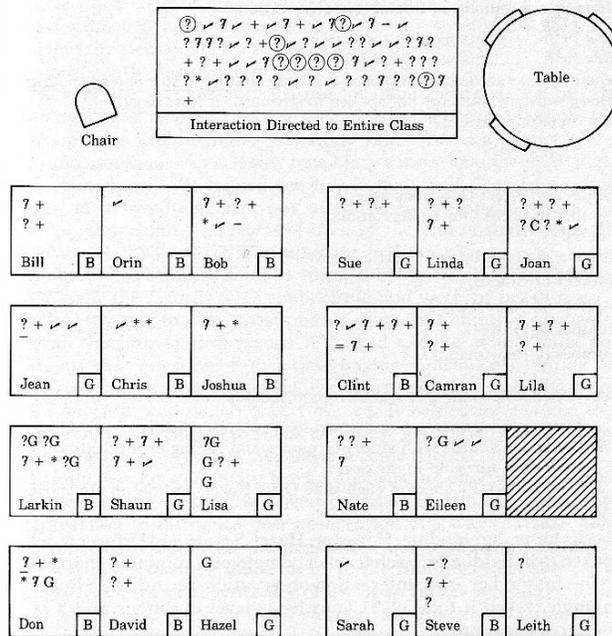


Figure 2: Classroom observation chart. (Stallings, Needles, & Sparks, 1987)

Code	Category	Description
?	Knowledge-level question	Require a right answer, simple recall of facts; include review questions
?(circled)	Higher cognitive question	Require students to think, apply, interpret, analyze, synthesize, create, or evaluate
?(slashed)	Checks for understanding	Require students to show understanding of content or procedures; call for summarizing, explaining, comparing
+	Praise or acknowledgment	Students' academic responses, actions, or products are praised or acknowledged
C	Correction	Students' academic responses are wrong or incomplete, and teacher corrects them
G	Guided correction	Students' academic responses are wrong or incomplete, and teacher guides, probes, restates
(check)	Social comments	Teacher makes a social comment to a student. Even if stated as a question, a social comment is coded
-	Reprimand	Teacher reprimands behavior, this code always refers to behavior
*	Student initiates	Student initiates remarks or questions to the teacher. Be sure to code the teachers' response if there is one.

Source: Adapted from Stallings, Needles, & Sparks (1987)

Table 1: Notation system for classroom observation.

References

Morgan, N., & Saxton, J. (1991). *Teaching, questioning, and learning*. New York: Routledge.

Stallings, J. A., Needles, M., & Sparks, G. M. (1987). In D. C. Berliner and B. V. Rosenshine (Eds.), *Talks to teachers* (pp. 129–158). New York: Random House.

Wilén, W., & Clegg A. (1986). Effective questions and questioning: A research review. *Theory and research in social education, 14*, 153-61.