

## My Teacher In My Pocket: Accessing Teacher Instruction on an As-Needed Basis

### Overview

According to the U.S. Department of Education (2004), the average length of the school day—both public and private, across all grade levels—is 6.75 hours. (Approximately one hour each day is spent at lunch and passing between classes). The Department of Education (2007) also reported that 37% of high school sophomores spend more than 10 hours each week on homework, with an additional 26% spending between 5 and 10 hours per week.

Given these facts, a conservative estimate suggests that homework accounts for one-fifth of the time that students spend on academic activities. Yet students work on their homework in environments where their teachers have no control and are not available to support their students. Since many students experience learning difficulties, this creates a serious issue for concerned teachers and parents. Epstein, Munk, Bursuck, Polloway, and Jayanthi (1999) recommend that “Teachers and parents of students with disabilities must communicate clearly and effectively with one another and with students about homework policies, required practices, mutual expectations, student performance on homework, homework completion difficulties, and other homework-related concerns.”

The Livescribe Pulse smartpen provides the means for students to capture a complete record of their teacher’s in-class instruction as well as their teacher’s directions for homework assignments. Without requiring any modifications to standard practice, or additional effort on the part of teachers, students, and parents, an effective and efficient means of communication and instructional support is provided.

### From Theory to Practice

Tanis, B., Burstein, K., & Byran, J. (2001). Students with learning disabilities: Homework problems and promising practices. *Educational Psychologist*, 36, 167 – 180.

Students with learning disabilities are more likely than other students to have problems doing homework. We describe family and school factors that may exacerbate-or ameliorate-their problems. At this point, there appears to be a huge gap between the strategies successfully applied in intervention studies and teachers' preferences for interventions, a serious issue that spills over and has a negative influence on family life.

**Nonetheless, an emerging area of intervention research suggests that effective efforts to improve homework completion, accuracy, and test performance may require parental involvement, peer cooperation,**

**self-monitoring and graphing, “real-life” assignments, teacher collaborative problem solving, or all.**

## **Guiding Student Notetaking**

Students who take notes using Livescribe’s Paper Replay application can be confident that the entirety of the teacher’s lesson, as well as directions regarding homework assignments, will be captured in audio. Abowd (1999) argues, however, that “Capture is meaningless without access.” The key to effective and efficient use of audio is in the ink index created during class, or later while the notes are reviewed and annotated. If the student (or parent-tutor) cannot navigate quickly to the desired moment in the lecture, they are likely to give up, making the effort of recording the lecture meaningless.

The following lesson provides a number of examples of what teachers can do to support their students’ efforts to take notes, and most importantly, take notes that provide semantically appropriate index points to significant moments within the lesson.

## **Lesson Example: Words with a VCe Pattern**

The majority of students have not been trained on how to take complete and accurate notes. And even when training does occur, it typically takes place during the middle school or high school years. The lesson presented below was specifically chosen because it is taught to young students with little notetaking experience. This provides the most challenging situation for a teacher who wants their students to reengage with the instruction, outside of class, in a productive way.

### **Preparation for the Lesson**

It is assumed that the teacher will have instructed her students on the basic use of the Livescribe smartpen. Fortunately, this is not a difficult process. Dr. Scott Paris of the University of Michigan, an expert on children’s literacy, found in a recent study that children only five weeks into the first grade could be trained to use the smartpen with just a few minutes of instruction.



Figure 1: First grade student using the smartpen for a diagnostic reading test.

Teachers should ensure that students are able to:

- Turn the smartpen on
- Tap on the Paper Replay *Record* and *Stop* buttons
- Write with sufficient pressure to make a normal mark on the page
- Turn the smartpen off

### **During the Lesson**

The teacher writes on the board: game, rope, mine, tape, note.

The lesson begins with the teacher asking her students to take out their spiral bound Livescribe notebooks and to open them to the first available blank page. They are also asked to take out their Livescribe smartpens and turn them on.

*Note:* in the instructional sequence below, instructions given by the teacher for the express purpose of created indexed notes are highlighted in yellow. All other statements and questions are part of a lesson plan authored by Carnine, Silbert, and Kameenui (1997). Pay particular attention to the instructions to the parents on line 16.

1. The teacher asks “Are your smartpens turned on? Please show me an OK sign if you see the word ‘Livescribe’ on the screen.” (The teacher waits for OK signs from all students and offers help to those who need it.)

2. “When I say “Record” I want you to tap the *Record* button.
3. “Record.”
4. “Does everyone see numbers on their screen? Show me an OK sign if you see the numbers.” (The teacher waits for OK signs from all students and offers help to those who need it.)
5. “Now I want you to draw the number 1 on the first line of your page.” (The teacher holds up a piece of paper and touches on the spot where she wants her students to write the number 1.)
6. When she sees that all students are writing the number one, she says, “Today we will learn the VCe rule.”
7. Now write the number 2 on the line right below the number 1.
8. When she sees that all students are writing the number 2, she states the rule, “Here is the rule for today: An *e* at the end tells us to say the name of this (point to *a* in game) letter.”
9. “Now write the number 3 on the line below 2.”
10. The teacher guides the student in applying the rule.
  - a. Teacher points to game. “Is there an *e* at the end of this word? (Signal.)
    - i. Students: “Yes.”
  - b. Teacher points to a. “So we say the name of this letter.”
  - c. “What’s the name of this letter?” (Signal.)
    - i. Students: “A.”
  - d. “Get ready to tell me the word.” Teacher pauses for 2 seconds, then says, “What word?” (Signal.)
    - i. Students: “Game.”
  - e. Teacher repeats step 2 (a-d) with the remaining 4 words.
11. “Now write the number 4 on the line below 3.”
12. The students will now read all the words without guidance from the teacher.
  - a. “You’re going to read these words.”
  - b. Teacher points to game, pauses 2 seconds, then signals.
    - i. Students: “Game.”
  - c. Teacher repeats steps 2(b) with remaining words.
13. “Now write the number 5 on the line below 4.”
14. Teacher calls on individual students to read one or more words.
15. “Now write the number 6 on the line below 5.”
16. “This is the end of the lesson on the VCe rule. **Parents: If you want to practice this lesson with your child, write out five words, preferably with four letters, that end in a vowel, a consonant, and then the letter *e*, just like the ones in today’s lesson. Work through the exercise following my script from steps 2**

**through 4. If you want me to review your practice session, write the word practice below the number 6 and use Paper Replay to record the session.”**

17. Teacher pauses and says to the students “Please tap on the *Stop* button at the bottom of the page and show me an OK sign when you’ve done it.”
18. Once all the students show the OK sign, the lesson is complete. The teacher may ask the students to begin an independent study practice session with the smartpen, or to conclude the session.

As can be seen in by the highlighted lines, the teacher has helped each student to create index points at the beginning of each major section in the lesson:

1. Name of lesson
2. State the rule
3. Practice the rule with step-by-step guidance
4. Practice the rule without guidance
5. Individual practice
6. End of lesson with instructions to parents

### **After the Lesson**

By explicitly instructing students on when to make index points in the lesson, the students or their parents can replay the lesson, attending to the sections they are most interested in. The teacher has also provided the means for parents to productively work with their children to reinforce what was learned. The teacher has also provided the parent with a way to document their practice session and to communicate with the teacher as though they were leaving them a voice mail message.

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