Case Study of a Mathematics Teacher at Lakewood High School

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**Opening vignette**

There are still three minutes left before the bell rings. The Teacher of the Year, Mrs. Pall, has three “Do Now” problems on the board. The objective for this seventh period HSPA preparation class is, “To apply the Pythagorean Theorem.” The State Standard 4.2 (Geometry) is written prominently on the blackboard next the objective.

Students enter the class as one by one as Mrs. Pall stands by the door greeting them.

“I feel sick,” said one student entering the classroom.

“If you can’t do anything, put your head down for a little while,” she said to him as he took his seat.

“If you do the “Do Now” there won’t be any homework,” Mrs. Pall announced to the class.

It was Wednesday November 23, the day before Thanksgiving. Mrs. Pall had traced the shape of her hand onto the board with brown chalk into the shape of a turkey.

“Why else would there be brown chalk? I guess everything has a purpose.”

The bell rang and students diligently worked on the three problems. The teacher walked over to her desk to take attendance.

“Where is everyone?” She looked at me. “I have eight kids absent.” There were only twelve students in class.
“Must be allergies,” she said after a student coughed. “So many are complaining of allergies. Okay, take out you homework.”

She made her way around the classroom with an occasional positive comment. She progressed from student to student at a steady, quick pace, not to lose valuable time.

A student asked if they had to copy the questions from the board.

“It’s a good idea since these questions are coming from the HSPA workbook.”

**Purpose and methods:**

This study has been undertaken as a project in an Educational Philosophy course. I decided to observe Mrs. Pall, not only to fill requirements, but also to learn how I too can properly teach my students to pass the New Jersey mandated High School Proficiency Test (HSPA). The results are a stunning documentation of how education is affected by the federal No Child Left Behind Act.

All veteran teachers in our Math department must teach a HSPA class one period, which most students in our high school must take. All other math classes must dedicate Mondays for HSPA practice. Findings in this study are based on classroom observation and interview with Mrs. Pall. Additional insights were gained from speaking with the former and current principals of our high school and several students.

Mrs. Pall is a teacher with a definite teaching philosophy. However, she feels that she has become merely a tool of the State, rendering all her beliefs about education moot. The central issue in this report is to question whether educators are doing students a disservice by being forced into “teaching to the test.” Because schools suffer sanctions when they have inadequate test scores, and because ours is a minority school, we are under enormous pressure to prepare our student for the State test administered in eleventh grade.
Narrative description

“Your homework was simply doing problems with the Pythagorean Theorem. Today we will apply it to word problems. It will be embedded in a problem. It will not be as straightforward on the HSPA. But, once you recognize it, it is simple.”

“All you had to do here was plug in the numbers and use calculators. The directions say to round to two decimal places. If you did only one, okay, but please read the directions.”

After giving some answers, she said, “Now I am going to read the rest of the answers, but I will make a mistake on one of them. You have to tell me which one I made mistake on.”

“They did not say to round off. You had to rationalize. Do you remember what that is? How many remember who went out on Saturday night?”

She made a factor tree out of the number 700. She then put all its prime factors under a radical.

“Who is going out on a Saturday night? Two who look alike can go as a couple. The two and five have couples and they go out.” She put two and five outside the radical. “Seven is a loser. He stays in alone. The answer is two times five, which is ten times the square root of seven.”

“I don’t remember seeing that kind of question too much, but who knows what they’ll throw into the test.”

She wrote the following problem on the board: “Ray lives twelve miles due south of the YMCA. Jay lives five miles due west of the YMCA. What is the distance of a straight line which would allow Ray to go directly Jay’s?”

Mrs. Pall waited about forty-five seconds for an answer.
“Do you remember your directions? Think of the United States. Florida is in the south.”

She drew an arrow pointing down on the board and wrote an “S” next to it. “Maine is in the north, California is in the west and New Jersey is in the east.”

She then drew a diagram for solving the problem.

“They struck in the word “due.” That means that your lines must be perpendicular.”

She then proceeded to another problem.

“You remember that I told you yesterday that there are about five Pythagorean triples that you should remember. They are used over and over again. This way you don’t have to use the formula every time you see them.”

She then drew a triangle on the board with a leg of six and a hypotenuse of eight. A student answered that the missing leg had a length of ten.

“Good, you fell for it.” It was the wrong answer. “Yes, 6, 8, and 10 are Pythagorean triples, but your biggest number must be the hypotenuse. Be real careful.”

Development of philosophic profile

“What is your education philosophy?”

“When I went to school, the discovery method was the big thing. You put an aim on the blackboard and kids were told what they had to discover. I was originally a first grade teacher. When I taught kids to tell time, they had to come up with their own method.”

“Then you’re not really such an essentialist after all. You seem to be a pragmatist.¹”

“I don’t agree with how I teach. I’m forced to teach this way. I used to take spaghetti into the classroom and tell the kids to break it into three pieces and make triangles. Who has time for that now? They tell me to do this, so I do it. We’re just teaching them to pass a test. After they take the test in March, that’s when I can really teach.”

¹ See Dewey pages 78-81
As mentioned, Mrs. Pall was our high school teacher of the year in 2005. She has a reputation of being a no-nonsense teacher. The administration has confidence in her ability to get our students through the test. Last year, we hit our targets in mathematics with an increase of seven percentage points.

“How are you so successful in preparing for the HSPA class?” I asked. “So many different skills are thrown together. How do you present everything so coherent?”

“After doing it for so many years, it is not so overwhelming. I prepare all my lessons on Sunday. I have files of worksheets. I keep them working from the beginning of class to end. If we finish something early, then I give them a worksheet that I have ready.”

Yet, Mrs. Pall hates what she is doing.

“Some of our kids don’t know how many days are in January. They don’t know the difference between the words ‘fourteenth’ and ‘fortieth. The Department of Education is destroying these kids. Let’s face it, not all kids can comprehend. When I went to school, they had a technical track, a commercial track and an academic track. Now we require all kids, even vocational education kids to pass the HSPA.”

“I don’t think anyone making these testing policies ever taught. How can anyone think that all kids should be held to academic standards? Our former principal was the best English teacher we ever had. After becoming principal, he replace a teacher who taught a HSPA class in language arts. Not a single kid passed the test.”

“All I’m doing now is reviewing what kids should have already learned. There is no teaching anymore. I don’t mind; it’s easy teaching. It’s all cut and dry, not stimulating. But let’s

\[2\] See Ravitch’s comment on page 274
face it; our kids do not know how to apply a skill. They cannot interpret a question. You have to go over every possible wording of a question and practice it step by step.”

“You go to seminars on how to get them to pass. These guys are making millions of dollars. They’re not in the classroom. What do they know?”

**Assertions**

Three years ago, one of those speakers came to our school to explain his success in educating minority children. He pointed out that the kids will interpret a prompt such as, “Trace the events leading to the Civil War,” to mean actually to trace something with a pencil.

When I teach mathematics, I have to use non-technical words in order to connect. I do connect, and the students do fine on practicing the skill that I teach, but when it comes to an open-ended question that requires them to decide upon which skill to use, they get stuck.

Mrs. Pall understands these problems in educating minority children as she attempts to cover every single possible question. It is almost as if the students are merely being trained, not educated. This is indeed a disservice in my opinion.

“Districts in areas of low socioeconomic standing, like ours, have low-test scores, to nobody’s surprise, but the scores are publicized, furthering the divisions,” our principal said during an interview. “They want you to think that the testing makes the playing field equal. The balance between content and process has been lost in a crazy situation. They (students) can’t succeed because they have no confidence, so we give them calculators. Then they barely pass the test but will they really know algebra? It’s smoke in the mirrors, not legitimate. Testing could be used to monitor if the minimum is taught, but now it’s just to know who has best scores.”

Mrs. Pall is teacher who loves and respects her students, which is apparent from the opening vignette, and is concerned for their welfare. Her students also love and respect her. It is
not out of any disrespect that she doubts their capabilities. They are human beings that are entitled to education, but not to be forced into some mold dictated by the State. Nonetheless, she is frank with her students, that they must pass the test.

Closing vignette

Mrs. Pall read out a problem from a HSPA book and asked the class to write it in their notebooks. It was a distance problem that required them to draw a diagram.

“Remember a few weeks ago we had a test in which you saw the word ‘vector?’ I want to give you a question in which you have to draw with vectors.”

She looked through her drawer for about a minute and for another minute in a milk crate filled with papers. “I will have to find it. But here’s a similar question.”

“A boat starts at point A travels six miles east and then turns and travels eight mile south. Draw a diagram using vectors and find the total distance.”

After completing the problems she comments, “This use of the word ‘vector’ scares everyone. It just simply asks what is the distance and to draw a triangle. That’s how they can throw in the Pythagorean Theorem and vectors in a simple problem. It’s tricky, but you are smarter than that.”

She then proceeded to a scale drawing problem.

“See how they want to cover every skill in only thirty questions and six open ended questions. There are zillions of skills and they put so many of them in to a single question.”

If students have no problem solving right triangles with the Pythagorean Theorem, then is it really worthwhile to spend a full year and one day every week in every other year, just to teach kids to interpret questions and words like “vector?” Mrs. Pall and I do not think so.