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Texas Senate Education Committee 1/31/13 Public Hearing

For the Texas Senate Education Committee

In finding for the plaintiffs in *Brown vs. Board of Education*, the Supreme Court of the United States stated that "Education in public schools is a right which must be made available to all on equal terms."

What students experience with CSCOPE first-year algebra is not education. What students are given with CSCOPE first-year algebra is hollow and inadequate conditioning to take an exam, devoid of learning needed for life, liberty, and the pursuit of happy self-reliance after high school.

A good algebra or geometry course is a beautiful tapestry of elements, ideas, thinking processes, and discoveries. Whoever created CSCOPE algebra blasted that tapestry apart with a shotgun, and randomly taped the remaining pieces together with duct tape.

Which is to say that CSCOPE algebra is

- weak in content
- disorganized, and
- disconnected.

In comparing CSCOPE Algebra One with two other first-year algebra programs, each having twelve chapters, CSCOPE first-year algebra was seen to be missing at least half of five chapters. The missing topics appear to have been replaced by experiences with calculators, or with ineffective "hands-on" fluff.

CSCOPE has only 25% of the usual introductory work of the first two chapters of the textbooks. This CSCOPE weakness agrees with weakness in the Texas state standards, which were revised in 2006. Details of these first two chapters are found on page seven of this handout.

There will be consequences to the content weakness:

- Students attempting entry in academic programs or technical careers requiring basic algebra skills will find progress slow and intimidating, and may need to spend time and money with catch-up courses before credit-level courses can be undertaken -- even those with good STAAR test scores.
- Disadvantaged students will remain disadvantaged.
- Politicians will cry for more money for the usual non-remedies.

CSCOPE is the ultimate teaching only for a test. CSCOPE prepares students for a test that is not higher-level as advertised, but is instead a shift away from meaningful learning, toward a gee-whiz agenda that

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keeps disadvantaged students from understanding what they learn and from standing on their own in life after school.

Adding to the CSCOPE mathematics misery are poor and even misleading explanations, weak and confusing vocabulary, lack of helpful sequence, and distracting clumsiness in worksheet layout. Clearly, the material was written hastily and carelessly, and with no regard for the students deserving of a chance for an education as intended by the Supreme Court.

One geometry lesson confuses the important distinctions between classification and relationship, needed to help students navigate the large amount of important vocabulary in geometry. The CSCOPE answer key for one algebra problem states that the proposed triangle has sides of 6, 18, and 28 -- an impossibility that my Luling freshmen detected.

The worst part of CSCOPE is the testing program.

- o Test items are often unrelated to the material in the unit associated with the exam.
- o Several questions are repeated verbatim from one test to another.
- o Other oddities suggest that the writer was about to miss a deadline and had to improvise quickly.
- o Luling ISD attempted to compensate for this mess by telling the teachers not to count the test scores. Students are left to wonder what they are working for.
- o Test validity (testing what was taught) and reliability (consistency of scores) are important issues to true professionals in any field. CSCOPE exams are neither valid nor reliable.

Bad test question CSCOPE, from the Unit 4 exam:

3. What is the effect of changing $y = 3x - 2$ to the equation $y = 3x + 2$?

Several students representing all four classes answered that the -2 was changed to a positive 2.

In a sense, this trivial answer is correct. What the question writer clearly intended was

3. What is the effect **on the graph when** changing $y = 3x - 2$ to the equation $y = 3x + 2$?

The answer key verifies that the edited version was the question writer's intent.

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The above is additional evidence that CSCOPE is slop that was never field-tested, and that it does not improve from year to year.

Teaching CSCOPE at Luling High School, I was as a surgeon forced to use filthy scalpels. So long as I cooperated, I was guilty of malpractice.

But a teacher should have access to tools that work. My school district did not provide. My tools occasionally worked superficially. I was supervised closely to insure that I didn't wipe any filth from any scalpels.

I went to Luling this year hoping to teach another ten years and help disadvantaged students overcome obstacles that were not removed by Brown vs. Board of Education. I resigned as soon as I could find another job. I felt that I was aiding and abetting a crime, a fraud, a violation of civil rights and of human rights.

Educators and students must overcome two persistent enemies of learning: time and further learning.

Time causes forgetting, or extinction. Even though I taught the chords and very meaningful words to Simon & Garfunkel's song, "Sounds of Silence", for several consecutive night-school semesters in the 1970's, I struggle to recall the words now. Time causes forgetting.

Further learning causes confusion, or interference. Learning the next Simon and Garfunkel song meant more practice on the "Sounds of Silence"; else, I would get the songs confused.

Forgetting and confusion are overcome by the three weapons of recall:

Association: links to prior learning

Review: reactivation after inattention - - not drill

Stress: in helpful doses

Of these, CSCOPE has only stress, and not in helpful doses. CSCOPE stress is mystifying exams.

One need look no further than North Dallas High School in the 1980's and 1990's to see what can be done when these simple, common-sense principles are applied in mathematics classes populated with disadvantaged students.

Attempts are made by CSCOPE administrators to compensate for the forgettable, confusing experiences in the CSCOPE algebra class. One recommendation is the small-group, meaningful dialog strategy.

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In a first-year algebra class, such a strategy produces the same results as throwing a group of non-swimmers into the deep end of a swimming pool, expecting those drowning the least to save those who are drowning more.

What must be understood is that a football team or a school band won't get far by replacing honest practice with small-group, meaningful dialog. Imagine your school's football team sitting in the locker room, engaging in meaningful, small-group dialog instead of suiting up and hitting the practice field. Meaningful small-group discussion is no replacement for direct instruction and real practice in athletics, in an algebra class, and in many other situations.

I see no room here for limp politicking. We are faced with a complex mess demanding decisive action by true leaders. At North Dallas High School and elsewhere, disadvantaged students were given more than empty hope and negative change. Until the Dallas ISD administration took it away, North Dallas High school students saw empty hope and negative change replaced by learning, confidence, and opportunity, the education envisioned by the majority opinion in *Brown vs. Board of Education*.

Unlike the deprived CSCOPE algebra students, whose frustration became my daytime and nighttime pain, the North Dallas students could sail through algebra homework, with a song from their ancestors' time ringing from the same skies that gave Brown the victory over the Board of Education:

Oh, Freedom Oh, Freedom Oh, Freedom over me

And before I'd be a slave, I'll be buried in my grave,

And go home to my Lord, and be free.

Supplementary material follows.

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CSCOPE Algebra 1 Issues

- I. Narrow focus on function is manifested in first lesson before students have sufficient exploration skills and language.
 - A. Algebra has many focal points besides function: problem-solving, equation, variable, and induction from arithmetic.
 - B. Needed skills: graphing coordinates, order of operations, integer operations.
 - C. Needed vocabulary: set, coordinate, quadrant, horizontal, vertical, term, coefficient.
 - D. Needed notation: careful introduction of $y = f(x)$.
- II. Accuracy issues through Unit 3
 - A. Definition of function (see attached).
 - B. Consecutive *numbers* instead of consecutive *integers* -- no such thing as consecutive numbers.
 - C. Unit 2 solving procedure: "...move the numeric value or constant. The value on the same side of the equation and farthest away from the variable." [Sentence fragment is in the original.]
 1. Adding opposites is the needed procedure. "Moving" is a misleading direction that endures, sadly.
 2. "Farthest away" avoids needed concept of *term*.
 - D. Unit 2 solving procedure: "Isolate the variable."
 1. Variable term has been isolated already.
 2. Needed next is "finding the value of *one* of the unknown variable." This is not isolation.
 - E. Steps in Unit 3: Solving Inequalities are likewise problematic.
 - F. Sea-shell calculator directions are sketchy.
- III. Grammar/punctuation
 - A. Questions are missing question marks (Exam 4 #14).
 - B. Commas are used excessively or incorrectly on exams (Exam 3 #5, Exam 4 #18, Exam 5 #7a, Exam 5 #17).
 - C. A sentence fragment appears in Unit 2: Two-Step Equations.
 - D. "Affect" vs. "effect"
- IV. Sequence/organization missing
 - A. First lesson: Sea-Shell drawing by calculator; other calculator orientation needed more.
 - B. First unit: functions. Support needed for several aspects due to premature introduction of sophisticated concept.
 - C. Good algebra course schemas are desirable; many exist.
- V. Worksheet and exam layout is cumbersome
 - A. Excessive room for short answers in places; in other places, room is insufficient and misplaced for showing steps
 - B. Tables and graphs are inefficiently placed.

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- C. x - axes are consistently shown faintly.
 - D. Important horizontal aspect of exam graph (Unit 1) is difficult to distinguish.
 - E. Many graphs use inappropriately tiny grids -- hard to use. Difficult to determine intercepts for lines nearly parallel to either axes. (Exam 6 #7)
 - F. Issue: if worksheet layouts weren't classroom tested, neither were the instructional strategies.
- VI. Answer key incorrect and misses a great domain/range issue in Unit 3, Problem Solving with Ratios, page 4 #5. (Answer is impossible.)
- VII. Exams have strangely consistent themes, inviting rote preparation.
- A. Hourly wage means linear function
 - B. Compound interest means exponential function
 - C. Initial value = b , plus-or-minus linear change
- VIII. Some different unit exams have exactly the same questions.
- A. Unit 2 Question 5 is the same as Unit 3 Question 14.
 - B. Unit 1 Question 18 is the same as Unit 8 Question 10.
 - C. Unit 7 Question 2 is the same as Unit 6 Question 2.
 - D. Unit 6 Question 7 is the same as Unit 7 Question 9.
- IX. Some exam items/answers are misleading or incomplete
- A. Unit 3 Question 7: "feet of yard" could be "feet of lawn."
 - B. Unit 4 Question 14: table is misleading
 - C. Unit 4 Question 10: alternate answer: $k = \frac{y}{x}$
 - D. Unit 5 Question 10: possible stair-step interpretation is not noted in answer key.
 - E. Unit 8 Question 5: Picture suggests unrealistic value of x .
- X. Some exam variables are not identified.
- A. Unit 3 Question 11: w is not identified
 - B. Unit 7 Question 1: w and p are not identified. (This question is otherwise twisted, and uses theme and answer setup from Unit 3 Question 11. Very strange.)
- XI. Many exam questions are unrelated to the unit studied. Most glaring so far is the Unit 1 Exam.
- A. Exam 1: Inverse variation (twice), exponential growth and decay.
 - B. Effect: very discouraging to students, and inspiring of suspicions in others: how is this mess helpful for STAAR exam scores? Are CSCOPE users to get better scores without getting an education?

With the sloppiness above is the appearance of sloppy contempt for students and their learning opportunities. As a graduate student at UT-Austin, I was told to leave disadvantaged students to their disadvantages. I resist.

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Regarding CSCOPE first-year algebra:

What is bad:

- content
- sequence
- explanations
- examples
- practice quantity
- practice structure
- exams reliability
- exam validity
- worksheet layout
- thinking opportunities
- connections to arithmetic
- thematic singularity
- consequences
- reference tools

What is good:

- practice variety
- function applications
- thematic consistency

CSCOPE Algebra violates learning principles, teaching experience, accommodation laws and efforts, certification purposes, pedagogical training, and the civil rights of the historically disadvantaged.

**Standard Introductory Topics Missing as Lessons
in CSCOPE Algebra**

Variables

Translate words to symbols

Translate problems to Equations

Number Lines

Symbols of Inclusion

Translate sentences to equations

Problem Solving Plan

Opposites and Absolute Value

Properties: closure associative commutative

Integer & real number addition

Distributive property

Consecutive Integer Word Problems

Reciprocals

Integer & real number subtraction

Integer & real number multiplication

Integer & real number division

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A Few Issues with CSCOPE Geometry

Points, Lines, and Planes lesson

CSCOPE Geometry gets off on the wrong foot with the first sentence of the first lesson.

“Historically, much of geometry was developed as Euclidean geometry, or non-coordinate geometry.”

Euclidean geometry is distinct from other geometries by virtue of its inclusion of the Parallel Postulate: *Through a specific point not on a specific line, exactly one new line may be drawn that is parallel to the given line.* The TAKS tests used to test on this aspect of Euclidean Geometry, with my hearty approval.

Coordinate geometry involves algebra for study and application of geometric properties, operating on symbols defined in an x - y axis system (Cartesian plane). Coordinates are ordered pairs of numbers or variables assigned to points in the plane.

Page two treats the role of definitions roughly, defining terms hastily, then introduces a section named “Intersections of geometric terms.” Among the omissions/errors is, “All other terms in geometry must be definable...” Huh.

- There *are* other words that are not defined in high school geometry (but are defined in college geometry), such as between. The CSCOPE writer uses *between* on page three of this lesson without defining *between* or acknowledging that it is undefined.
- In geometry, *terms* are words. *Intersections* involve sets of points, not the words that describe them. The writer appears to have the noun “term”, meaning *word*, confused with “set of points.”

The writer asserts that “Two lines intersect at a point.” Any other geometry course shows two lines intersecting either at one point, or at infinitely many points (coincident lines), or not at all (parallel or skew lines).

The two intersection statements that follow have similar omissions.

The writer takes very risky liberties with standard symbols that distinguish the names of lines from the names of segments.

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Distance and Length lesson

"Betweenness Theorem" is called the Segment Addition Theorem in most courses and for a good reason - - there is a counterpart Angle Addition Theorem for which "betweenness" will not suffice.

Page 6: Answer key notation for a ray is poor and not standard. The standard notation has a good purpose in indicating the endpoint.

All about Angles lesson

Definition of angle is wrong.

"Congruent angles" is defined but is not called a definition. Another definition needs to be presented, a form definition, and this is absent.

"Angles can be named by ...a small number..." Small number can be .0001 or - 500000, both of which are inappropriate. The writer means a counting number between 1 and 10, most likely.

Students are asked to measure an angle with a protractor. No instruction is given as to how this is to be done. No examples are shown, either. Any geometry teacher knows that such needs to be included.

Alternate definitions (form vs. number) are given for supplementary angles but not complementary angles.

Page six: insufficient room is given for construction.

Summarizing this brief look at CSCOPE Geometry:

- Ray and line symbols are unclear and need to be changed.
- Punctuation problems persist.
- "Angle classification" is used correctly here. Later in the course, "triangle classification" and "triangle relationship" are erroneously mixed. This distinction is important in geometry, and shows again the writer's distain for vocabulary, clear instruction, and student potential.

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"Gifted with CSCOPE"

...in the manner of the candidate who described how the USA has been gifted with a new health care system.

Thanks to our Texas Regional Service Centers and Superintendents, and CSCOPE, we have been gifted with promises of better preparation for a tougher examination, but instead - -

- removes approved textbooks and essential coursework needed for life after high school
- scares teachers into trying to see new clothes on a naked Emperor
- subjects school districts to expensive subscriptions that squander tax money three ways
- provides parents with a phony portal that is more smokescreen than window
- features erroneous materials from nameless writers who don't know subject matter or students or learning, who probably flunked out of teaching
- includes Islamic scriptures while assigning cult status to Christian faith
- tests students on material not yet studied, inviting student despair
- reorients school administrators away from leadership, into dictatorial enforcement
- requires teachers to ignore their training, experience, sensitivity, and common sense
- suggests that important events and people in US History are questionable

... and CSCOPE leadership continues to resist scrutiny by the Texas Education Agency, and evaluation by the State Board of Education, and prevents prior inspection by the teachers who, under threat of extra duty, demotion, or dismissal, are to fit these square pegs into round holes.