

# An Explanation of Curriculum-Based Measurement

## Assessment of Students' Performance in Critical Learning Skills

The purpose of Curriculum-Based Measurement (CBM) is to improve student performance. Using CBM, teachers are able to create a database for each student to allow the teacher to evaluate the effectiveness of the student's individual education program. Within this framework, the teacher can systematically test alternative approaches with a student to discover which approach yields the greatest gains. The data also can be useful in problem solving. Finally, CBM data have been useful in screening students who are at risk for school failure, and for evaluating placement in special education and reintegration into the regular education programs.

Sometimes a better technology comes along and we should do what's "best." CBM technology has been investigated and developed over the last 20 years. It is better than conventional tests. It provides cheaper, faster, and better assessments.

## An Analogy

Galileo and three others invented the thermometer in the late 16<sup>th</sup>-early 17<sup>th</sup> century. Scientists used it for meteorological purposes but medical practitioners rejected it. At the time, medicine relied heavily on the patient's description of the illness. The common sense of the day argued the thermometer was worthless since one could not feel cold (shivering) and have an elevated temperature at the same time.

In 1868, Wunderlich published "Quantification as a Foundation of Diagnosis. In this, he advised physician's to begin basing the practice of medicine on normative data from healthier people and the measurements of temperature as a way of recognizing disease. When the person's temperature was different from the norm, it was a sign of a problem. Within 20 years, every physician carried "a thermometer, not only to aid in diagnosis but to aid in curing people by heightening their confidence...."

## A Thermometer for Basic Skills

We now have a well-developed technology to measure academic progress.

We have the power for more straightforward and efficient diagnosis.

We have the power to heighten confidence.

"Why don't any schools I know use this technology?" you may ask. Lack of awareness may be one explanation. Lack of demands or mandates to use this improved technology may be another explanation. Conventional education wisdom may be one of the biggest roadblocks, "wisdom" which asserts that longer, more complicated, less frequent, more expensive, and harder to interpret tests are better. In education, nearly all standardized tests are too long, too complicated, too expensive, too infrequent, and too difficult to interpret. Further, each discipline (regular classroom teacher, regular education specialist, special education teacher, parent, school psychologist, speech-language therapist, occupational therapist, etc.) sees things differently.

## Medicine Revisited

In medicine, shorter, less complicated, more frequent, easier to interpret and less expensive tests are "better." Growth and development over time is critical.

A test as simple as taking a person's temperature can reveal much:

- Whether there is a problem worth watching — above average temperature
- Whether the problem is serious — temperature above 104°F
- What our goal for intervention should be — reduce temperature to 98.6°F
- Whether our intervention is effective — temperature is going down
- When our intervention is no longer needed — temperature is normal

With the proper tools, we can do the same sort of problem identification and measurements of progress and effectiveness in education.

## A Special Type of Assessment

A curriculum-based assessment or a classroom assessment is any testing strategy that uses testing materials taken directly from the curriculum students are expected to learn. Most often, this

includes teacher-made tests, and quizzes and tests provided by textbook authors. Curriculum-Based Measurement is a special type of curriculum-based assessment using a specific set of testing strategies with important key features. CBM uses short-duration fluency measures of basic academic skills in reading, arithmetic, written expression, and spelling. These testing strategies are designed to produce the “best” data in the shortest period of time.

### What’s In It for Us Educators?

Are we now using the best assessment technology to inform teaching and assure accountability? Are we using the best intervention practices and a validated curriculum to enhance learning? Are we using the best and most efficient service delivery system to meet the needs of students? Sadly, in most schools the answer to all of these questions is “No, but we’re doing the best we can with the resources we have.”

By using CBM, we can index student performance with in the curriculum for *all* students on a timely basis. In this way, we can *know* what to actually expect regarding the rate of student progress, *document* when students are learning, and *make changes* in general education when learning is not occurring at the pace we expect. We can communicate to parents and tell them about their child’s growth over time, relative to that of other students, and compared to the general curriculum the child is expected to be learning. The measures are more sensitive to improvement in student achievement than other available technologies.

The data gathered from individual students can be amassed to evaluate overall program effectiveness and systems level changes. In this way, changes can be made and evaluated on the basis of information instead of guesses and suspicions.

Further, by using CBM we have a time efficient, reliable way of identifying students with needs, the students who may not be “making it.” We have the means to decide if additional resources are necessary. We then can have an efficient referral system that allows us to use our limited assessment resources to help decide what to do to help the child. This frees up our specialists to provide more help to teachers, students, and parents, more direct and indirect service.

Wouldn’t it be nice to have meetings that are shorter and more focused? Meetings in which

participants get rid of jargon and communicate about the problem with pictures or graphs? Meetings that are about solutions to the problem instead of endlessly speculating on what may or may not be “causing” the problem? Meetings that are more substantive and less procedurally oriented? With CBM and a problem-solving model, these wishes are possible.

### Analyzing the Situation

Educators and administrators know that we could be doing more to improve students’ performance in general and special education by providing more direct, effective intervention services. Instead most educational specialists are tied up in the role as special education testers. The primary purpose of this testing is to determine whether a child qualifies for special education. Despite numerous arguments, there is no compelling evidence to suggest that this eligibility testing contributes meaningfully to improving programs. Instead, evidence suggests that this eligibility testing distracts from developing effective intervention strategies and reduces the possibility of assessing program effects. Without evaluating program effects, we will not challenge ourselves to change programs rather than blame the disability or the student.

Nationwide, literacy rates are falling, social violence is rising, and consumers (parents and students) are becoming increasingly dissatisfied. To provide more effective services, we need to shift to an explicit, needs-based special education model with attention to documented outcomes. The center of assessment activities should be what the students need to be successful in General Education. Special Education and other remedial services like Title I, including identification and service delivery, revolves around expectations for success in General Education.

### Better Assessment Guidelines

When assessing student progress, it is important to choose carefully what to measure. Is what you are measuring important to know? If not, then don’t measure it! Think about the general curriculum and focus on instructional problems or social-emotional problems. Choose authentic tasks; your assessment tasks should require students to do what they will learn. Use measurements that will help you determine if the student who is having learning difficulties lacks the preskills or strategies.

Nationally normed achievement tests are “wide band” tests. Because they test such a broad spectrum of skills, they cannot provide enough test items to effectively pinpoint the child’s instructional needs. For this, you need a narrow-band test, one that provide enough items so you can analyze the errors the student makes.

### Key Features

CBM yields qualitative in addition to quantitative information. This is like the physician who not only takes your temperature but who notices your glassy eyes, lethargy, and red spots. The combination of different types of information is more effective than any single type of information.

Standardized measurement procedures ensure that today’s test results are comparable to yesterday’s, last week’s, and tomorrow’s.

Because the test items are drawn directly from the general education curriculum, they have intrinsic content validity. In other words, because you measure skills using tasks from the child’s curriculum, there can be no doubt that your measure has meaning in the child’s day-to-day academic world.

Short duration fluency measures are more economical and efficient than traditional achievement tests. Collecting student performance information is easily repeatable. Information can be collected from numbers of students or from a single

student over time without significant distractions to teaching.

Students must actually perform the skills we are measuring rather than selecting, pointing or underlining. The tasks are authentic. This means that the information can be used for intervention planning.

Further, fluency is measured because the desired outcomes for any basic skill are fluent, integrated acts. For example, reading may involve an array of complex perceptual and cognitive processes; these processes must eventually come together in the fluent decoding of text. Without this, a mastery of reading is impossible.

Showing our effectiveness is easy because the measures can be frequent enough to show differences within a student over short periods of time. The measures are equally sensitive to differences among individuals. No longer is it necessary to wait a whole year to find out if your intervention is working.

Curriculum-Based Measurement is a useful tool in a Problem-Solving Model because it allows us to focus on data-based problem solving.

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12/12/98