Indicator: All teachers use test scores, including pre- and post-test results, to identify instructional and curriculum gaps, modify units of study, and reteach as appropriate. (244)

Evidence Review:
Schools have invested heavily in curriculum alignment, mapping their curricula to standards, benchmarks, and specific items of standards-based assessment. The resulting alignment is a set of data, a body of information carefully organized, that helps answer the question “What do we expect a student to know?” The challenge that lies ahead for most schools is to draw further connections between the aligned curriculum, the taught curriculum, the most efficacious instructional strategies, and the mastery evidenced by the individual student. This must be done in a way that assures that all students achieve the expected level of mastery while allowing each student ample opportunity to soar beyond that minimum expectation. The linkage from curriculum to instruction is tenuous in many schools, and insufficient systems are in place for capturing information about what is taught, how it is taught, and how it might best be learned by an individual student.

The research literature provides a wealth of information on instructional practices, but the usefulness of this information cannot be assumed from its abundance. Matching particular practices to the subject area, grade level, and students’ prior learning can be a massive undertaking, leaving too much unproductive chaff in the bushel of productive grain. In the end, the teacher must hit the target where content, instructional mode, and learner requisites optimally meet. A DBDM (Data-based decision-making) system can help a teacher hit the target. Monitoring the application of targeted learning strategies by teachers can help a school refine its professional development processes and improve its teachers’ effectiveness.

Some decisions are best made by the teachers responsible for particular groups of students—grade level teams or subject area teams, which we will call "instructional teams." Instructional Teams are manageable groupings of teachers by grade level or subject area who meet to develop instructional strategies aligned to the standards-based curriculum and to monitor the progress of the students in the grade levels or subject area for which the team is responsible. Instructional Teams need time for two purposes: 1) meetings, and 2) curricular and instructional planning. A 45-minute meeting twice a month is ideal for maintaining communication and organizing the work at hand, operating with agendas, minutes, and focus. In addition, a block of 4 to 6 hours of time once a month is necessary for curricular and instructional planning, and additional whole days before and after the school year are a great advantage.

The unit plan is developed by the Instructional Team to define a unit of instruction and outline the standards and target objectives (typically grade level) addressed in the unit of instruction. A unit of instruction is typically three or four weeks of work within a subject area. The Instructional Team:
1. Determines the concepts, principles, and skills that will be covered within the unit.
2. Identifies the standards/benchmarks that apply to the grade level and unit topic.
3. Develops all objectives that clearly align to the selected standards/benchmarks.
4. Arranges the objectives in sequential order.
5. Determines the best objective descriptors.
6. Considers the most appropriate elements for mastery and constructs criteria for mastery.
7. Develops pre/post test items that are clear and specific and would provide evidence of mastery consistent with the criteria established.

The unit plan aligns the curriculum to standards and benchmarks. The next step is to align the curriculum to instruction. This is where the real fun begins—teachers sharing their most successful instructional strategies for meeting each objective in the unit of instruction. Learning plan grids level each objective into three tiers—target, enhanced, and prerequisite. The learning plan grid also differentiates learning activities among various modes of instruction—Independent work, activity center, cooperative center, teacher center, co-teacher center, and homework. The learning plan grid records ideas for the exploratory center. An activity may appear on more than one grid. Once learning plan grids are prepared for all the objectives in the unit of instruction, activity instructions are prepared for each cell on the grid. The activity instructions provide the detail that enables any teacher to use the learning activity, and also become a means of explaining the activity to students.

The Instructional Team’s Preparation

To begin its work in developing units of instruction, the Instructional Team gathers all resources that support and guide instruction in the classroom:

- state academic standards,
- grade level benchmarks and performance indicators,
- district curriculum,
- scope and sequence of district curriculum,
- expectations of state assessment for relevant grades and subjects,
- district assessments,
- individual classroom lesson plans,
- textbook series resources, and
- other specific grade level/subject resources.

With this information at hand, the Instructional Team begins to knit together units of instruction, integrating curriculum, assessment, and instruction and aligning it all with standards. In some districts, a curriculum map or scope-and-sequence has already defined unit topics and clustered benchmarks within them. The district curriculum guide may even organize grade-level performance indicators to provide the stepping stones to the benchmarks. Since benchmarks are provided at grades clusters (such as 3rd, 5th, 8th, and 11th), other grades need to “design down”—planning the appropriate steps leading to the benchmark. Depending upon the degree of specificity provided by the district curriculum, the Instructional Team will adopt or develop unit topics and benchmarks for each grade level and subject. Instructional Teams will then “articulate” the units from grade level to grade level, seeking appropriate sequence and fluency. In middle school and high school, course sequence may be more significant than grade/class level.

When developing unit topics and benchmarks clusters, the Instructional Team reviews ALL of the standards/benchmarks. The team considers the key concepts. The team examines the principles and skills suggested within each standard/benchmark. The team thinks about how the essential ideas can be clustered within a unit of instruction (i.e., How can reading and writing standards work together? or How do computation and problem-solving connect?).

Instructional Teams think about what the benchmarks are suggesting as the “target” for that grade level. They consider the verb that defines exactly what students should be able to do (i.e., identify, distinguish, write, use, present, demonstrate) at that grade level. They discuss and define
what level of student action is expected toward the benchmark. The Instructional Team develops objectives to reflect the appropriate level of students’ action. They discuss how students will show their mastery of that target objective.

A target objective is specific and:

- aimed at the benchmark and appropriate to the grade level
- sufficiently specific that it can be taught and mastered within a week
- specific to one student
- expressed as “The student will be able to . . .” SWBAT (this may be an “assumed” prefix
- of each objective when writing the objectives)
- expressed as observable or measurable student action
- descriptive of the student’s performance behavior—what the student shows

Criteria for Mastery (Conditions and Level of Accuracy)

The objective itself simply states what the student will be able to do: “The student will be able to identify nouns.” The criteria for mastery give the conditions under which the objective will be met and the level of accuracy that is expected. The pre-test is for quick and convenient diagnostic purposes. The criteria for mastery is harder evidence of mastery, more likely to be exhibited by assignments completed during the week rather than on a pre-test or post-test. The exception to this rule is often found in middle school and high school, where the teacher may give a more thorough pre-test and post-test, serving the purpose of diagnosis as the pre-test and more thorough demonstration of mastery on the post-test.

Consider the target objective, “The student will be able to add a series of 4, single-digit numbers.” The criteria for mastery might say: “Given 10 problems to solve, the student will answer 80% correctly.” The “given 10 problems to solve” is the condition part of the statement. The 80% is the level of accuracy. Some objectives lend themselves to a level of accuracy that is less than 100%, and some do not. If the objective is to divide fractions, the teacher may decide that if a student gets 8 out of 10 problems correct, he or she has probably mastered the objective but made a couple calculation errors. However, if the objective is to print the student’s first name, the teacher may expect 100% accuracy. “Asked to print name three times, the student spells it correctly and forms letters properly all three times.”

Criteria for Mastery often use references to time (“within 10 minutes”), quantity (“list 5 nouns”), accuracy (“to the nearest 100”), and/or quality (“with 3 or fewer punctuation errors”).

Pre-Test/Post-Test Items

The pre-test is used as a quick assessment, a way for the teacher to assess each student’s readiness for an objective. Likewise, the post-test is a way to get a quick read on students’ mastery after completion of the unit or after completion of the period of instruction allotted for the objective. The pre-test and the post-test are the same—a before and an after, or parallel items of the same level of difficulty. In other words, the post-test isn’t “harder” than the pre-test. The “items” need not be pencil and paper test items. The teacher may give the pre-test for a unit all at one time or in chunks, prior to addressing each new set of objectives. If the items are taken from a chapter test or other material, the Instructional Team indicates the specific items that correspond with the objective. The chapter test may include more items than the pre-test/posttest, of course. Pre-tests should not be graded. Post-tests may be graded, or included as part of larger graded tests. Between the pre-test and the post-test, students complete a variety of learning activities, including independent work and homework. They may also take other graded tests.
Teachers have several ways to determine mastery through the instructional process. The pre-test and post-test address only target objectives. The teacher assesses for mastery of prerequisite and enhanced objectives through learning activities.

When writing pre-test/post-test items, it is important to note the level of the objective within Bloom’s Taxonomy: Knowledge, Comprehension, Application, Analysis, Synthesis, or Evaluation. The test items should match the taxonomy level of the objective.

Prerequisite Objectives
Sometimes the pre-test and/or subsequent work by the student demonstrates that the student is not ready to tackle the target objective. The teacher’s goal is always to get every student to mastery of the target objective by the end of the unit, but students do not start in the same place. Bloom’s Verbs are one way to “level” an objective by establishing a prerequisite step to the target objective. Another way is to look at the target objective for the next lower grade level (or course sequence) and adjust it up a little closer to the target objective. The prerequisite objective is a building block to the target objective.

Enhanced Objectives
Some students demonstrate early mastery of an objective and are bored if kept with the rest of the class. The enhanced objective is based on the target objective but is more demanding of the student. Bloom’s Verbs are one way to “level” an objective by establishing an enhanced step above the target objective. Another way is to look at the target objective for the next higher grade level (or course sequence) and adjust it down a little closer to the target objective.

Examples of Objectives
Target Objective: The student will be able to name the four primary directions on a navigational compass. (This is an objective at the level of general knowledge.) Criteria for mastery: Given a blank compass face, the student will write the name of the four primary directions in the correct locations.

Pre-test/Post-test item: Mark the four primary directions on the blank compass face.

Prerequisite Objective: The student will be able to identify the four primary directions on a navigational compass by matching the points to a list of North, South, East, West. (This is an objective at the level of general knowledge.)

Enhanced Objective: The student will be able to write a short paragraph explaining the positions of the four primary directions on a navigational compass. (This is an objective at the Comprehension level.)


Evidence Review:
A unit test is an assessment device, aligned with each standards-based objective covered in the unit, and administered to all students before and after the unit of instruction (or smaller parts of the unit). The pre-test and post-test are the same test, or parallel items for the same objectives, given at the beginning and end of a unit. In some cases, especially in the lower grades, the unit test is divided into a series of smaller tests, given before and after instruction in the objectives covered on the smaller test. Unit tests are constructed to give teachers a good idea of a student’s current level of mastery of the objectives without taking a great amount of time to administer. A unit test need not be a pencil and paper test, especially in the lower grades, but is a way for the teacher to specifically check each student’s mastery of each objective in a manner that is not time consuming.

Source: Sam Redding, Handbook on Restructuring and Substantial School Improvement.
Evidence Review:
Assessment is the process of testing (written, verbal, or by examination of work) to see: (1) what a student knows and can do, and (2) patterns of strengths and weakness in what a group of students knows and can do. Assessment includes: (1) diagnostic-prescriptive assessments, such as unit pre-tests and post-tests, used by teachers and teams; (2) embedded assessments that are part of learning activities by which the teacher determines mastery of objectives by the student’s successful completion of the activity; (3) periodic assessments, such as those provided by testing firms or developed by the district or school to gauge student mastery of standards-based objectives at several points through the school year; and 4) annual assessments such as state standards assessments and standardized achievement tests.

Source: Sam Redding, Handbook on Restructuring and Substantial School Improvement.

Evidence Review:
Assessment is the process of testing (written, verbal, or by examination of work) to see: 1) what a student knows and can do, and 2) patterns of strength and weakness in what a group of students knows and can do. The value of an assessment is determined by what happens as a consequence of it. The National Academy of Science (1996) explains the evolution of assessment, as it has come to take a more prominent role in school improvement:
Ideas about assessments have undergone important changes in recent years. In the new view, assessment and learning are two sides of the same coin. Assessments provide an operational definition of standards in that they define in measurable terms what teachers should teach and students should learn. When students engage in assessments, they should learn from those assessments. (pp. 15-16)
It should be noted that teachers assess students informally in ways that we will not discuss here, but that are made obvious later when we discuss instruction. This informal assessment includes the teacher’s scanning of the classroom during whole-class instruction, reading the faces of each child, questioning, and then changing course to re-teach or reiterate. The same skillful assessment occurs when teachers interact individually with students, taking the pulse of understanding, knowing what each child knows.

Diagnostic-Prescriptive Assessments
Diagnostic/prescriptive assessments are quick, diagnostic tests used to “prescribe” appropriate learning activities for a student or group of students to help them meet objectives. The Mega System includes unit pre-tests and post-tests for this purpose. The test may be a pencil and paper test, oral quizzes, or “show me” assessments that a teacher can quickly and conveniently administer to determine each student’s level of mastery of the unit’s objectives. The unit tests are created by the Instructional Teams. Unit tests are further discussed later in the section on Instruction.

Embedded Assessments
Embedded assessments are learning activities aligned to objectives with criteria for mastery which enable a teacher to check mastery within the context of instruction. By completing these assigned activities, the student demonstrates a level of mastery of the objectives the activities are designed to teach or to reinforce. The embedded assessments also serve the purpose of diagnosis, so that the teacher can modify the Student Learning Plan through the course of a unit of instruction.

Periodic Assessments
Periodic assessments, administered for each grade level two to four times a year, enable the teachers and teams to see how students are progressing toward mastery of standards that will be included on state assessments. Periodic assessments may be teacher-made, part of a published curriculum, or created by psychometricians at testing firms. The periodic assessments help teachers modify their diagnostic/prescriptive assessments and their learning activities to bring a closer alignment between instruction and the annual standards-based assessments.

**Annual Assessments**

State standards assessments (criterion-referenced) and norm-referenced achievement tests provide an annual appraisal of each student’s progress and the school’s progress by grade levels and subject area. The timing and nature of these tests make them most useful to the Leadership Team in making program and placement decisions. The Instructional Teams use the annual assessments to improve their unit pre- and post-tests and their learning activities to address areas of general weakness on the annual assessment. Using the same achievement test in basic subject areas for all students in the school is important so that each student’s year-to-year progress (value added) can be measured.


**References and other resources:**


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