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**What Every Teacher
Should Know About**
Student Assessment



Contents

| | |
|---|-----------|
| About the Author | vii |
| Acknowledgments | viii |
| Introduction | xi |
| Vocabulary Pre-Test | xv |
| | |
| 1. Making Decisions About Assessment | 1 |
| Examining Declarative and Procedural Information | 2 |
| Building Brain-Compatible Assessments | 6 |
| Alignment and Standards | 10 |
| | |
| 2. Identifying and Enhancing Student Understanding | 13 |
| Traditional Ideas on Checking for Understanding | 14 |
| How Do We Know That Students Know? | 16 |
| Using Brain Research to Enhance Retrieval | 26 |
| Text Anxiety and the Brain | 31 |
| | |
| 3. Formats for Teacher-Made Tests | 35 |
| Forced-Choice Questions | 36 |
| Essays | 40 |
| Oral Reports | 42 |
| Performance Tasks | 43 |
| Teacher Observation | 43 |
| Student Self-Assessment | 44 |

| | |
|--|------------|
| 4. Testing for Intelligence | 45 |
| Types of Intelligence | 47 |
| Using the Intelligences to Enhance Classroom Activities | 54 |
| 5. Performance Tasks | 57 |
| Portfolios | 58 |
| Teacher Observation | 59 |
| Student Self-Assessment | 59 |
| Independent or Group Projects | 60 |
| Bloom’s Taxonomy | 61 |
| Applying the Formula | 68 |
| 6. Using a Matrix or Rubric | 69 |
| Using a Matrix to Describe the Desired Results | 69 |
| Using and Building Rubrics | 70 |
| 7. Building Aligned Assessments | 75 |
| Step One: Choosing Classroom Goals | 75 |
| Step Two: Writing the Objectives | 76 |
| Step Three: Monitoring Student Understanding | 77 |
| Step Four: Creating a Rubric | 77 |
| Step Five: Preparing Assessment Tools | 78 |
| Step Six: Assessing the Assessment | 78 |
| Some Final Thoughts | 79 |
| 8. State and National Assessments | 81 |
| How Can We Raise Test Scores Now? | 82 |
| The Silver Bullet | 83 |
| Vocabulary Summary | 89 |
| Vocabulary Post-Test | 101 |
| References | 107 |
| Index | 109 |

1

Making Decisions About Assessment

The standard dictionary definition of learning is simple. Learning is related to knowledge and understanding. Yet, many of the world's top neuroscientists would have a tough time defining how to measure learning. Why? Much of what is important learning cannot be measured at this time. Examples of the hard to measure include our so-called mental models of how things work, critical neuronal connections, our values, our capability beliefs, the degree of personal transference and depth of meaning.

—Eric Jensen, *Completing the Puzzle*

Assessment is a fact of life, whether we like it or not. We are all being assessed daily according to the decisions we make and the way that we carry out those decisions. Our students are being held accountable to the public for declarative and procedural information through a myriad of tests designed to show competency and used at the state and national level for comparison of schools.

Much of the controversy regarding testing is due to the fact that most assessment measures used for state and national standards rely heavily on declarative information (e.g., facts, formulas, places, people, and names) rather than procedural information (e.g., the ability to use declarative information). Many educators argue that testing primarily declarative information does not give a true picture of how well students understand the learning. Procedural knowledge, however, is difficult to measure on standardized tests and, although test makers have made significant progress in the last few years, most standardized tests do not truly measure the depth of knowledge required for real-world application.

EXAMINING DECLARATIVE AND PROCEDURAL INFORMATION

Declarative information is the factual information that is a part of every subject's curriculum. Declarative information is what students know in terms of facts, dates, names, concepts, and so forth. An example of a declarative objective for a lesson might be, "Students will know the steps necessary to check subtraction." Note that at the declarative level, students can repeat the steps on paper or orally; it does not mean they can perform the steps. Being able to use the information in some way comes under the classification of procedural objectives. For example, a procedural objective might say, "Students will execute the steps necessary to check subtraction in a given problem."

I make this distinction because what we test most at this time is the declarative rather than the procedural. Just being able to write the steps does not mean that the student understands them or that he can use them. As Jensen (1997) said, we still do not know if the student has a mental model of how to execute the information. For that matter, we do not know that the student even understands the factual information he or she has learned. This is an important distinction as we look at meaningful assessment. What do we really want to know as a

result of the assessment? Do we want to know that our students know the steps, or do we want to know that they can use those steps in a meaningful way—or both?

Designing Assessments

One of the dilemmas that we face as teachers is how to design an assessment that will tell us our students' level of understanding. So many times, classroom assessments that depend solely on paper and pen measure only show surface understanding of the principles involved in the learning. How, then, can we build assessment instruments that effectively measure student learning?

When designing assessment for the classroom, there is a series of questions that needs to be answered.

What is important for students to know and be able to do? This question is not just about assessing knowledge at a given grade level or in a subject sequence, but goes beyond to ask what students need to know and be able to do *in life*. Wiggins and McTighe (1998) say that learning should have “enduring value beyond the classroom.” What do they mean? Assessment should do more than determine facts, dates, times, and formulas. Assessment should provide information about what the students know and whether they can apply that information in a real-world context

Is the knowledge or process critical to the discipline? Teaching the genres of literature goes to the heart of the subject matter and would be important to assess in terms of declarative knowledge (being able to identify various genres and their characteristics) and procedural knowledge (being able to write in various genres). At this early stage of developing assessment instruments, it is important to use both declarative and procedural formats. Having students just repeat information learned is not enough; we must ask how students can use the information to make them better citizens, better readers, more effective leaders, more productive, and successful adults.

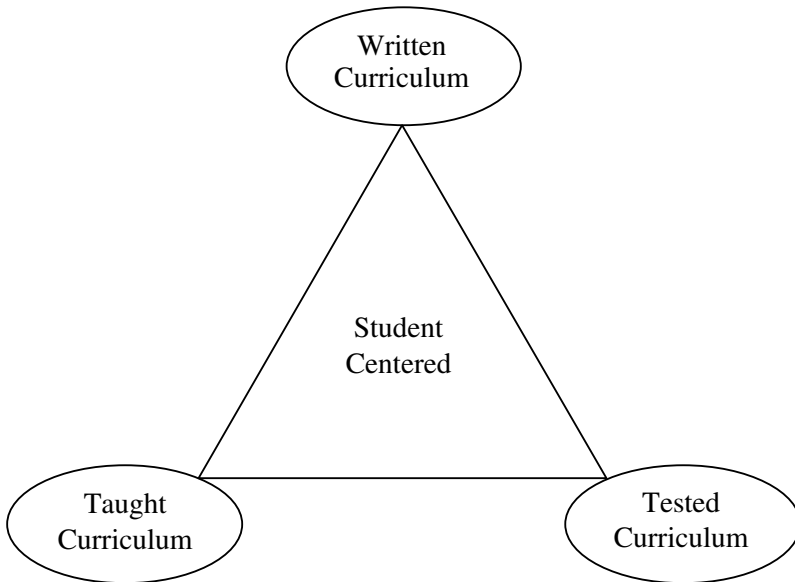
4 Student Assessment

How will we know that students understand the learning? We have all had the experience of reading a page from a book and then at the end wondering what in the world we read. Minds wander, and we may go through the motions without really knowing what we read or listened to or talked about. As a teacher, it is important to design assessments that get at the heart of the learning. What misconceptions might students have? What are the underlying principles or concepts that might be missed? Is there evidence that the items being assessed have been taught (not just introduced) in the classroom? Do the items being assessed relate back to curriculum that has been deemed to be important for students to know and understand? Are there written declarative and procedural objectives that relate directly to the items being assessed?

In trying to gauge whether students understand the learning, we need to consider reliability and validity. Reliability and validity are critical to effective assessment, whether the assessment is at the classroom, district, state, or national level. If a test does not truly measure what we intend for students to know and be able to do, it has no validity. We have just gone through the motions. Where there is no validity, we tend to just teach to the test. Reliability goes to the source of the information. Is the test tied to the curriculum, or to local, state, and national standards? Will the information and processes necessary for success on the assessment be taught sufficiently so that students will be able to apply them to any test on the subject? We want to move away from the “gotchas” where students are tested on information they have not learned.

Is the assessment in alignment with the written and taught curriculum? Figure 1.1 shows how assessment should be aligned with our written and taught curriculum. We often see the model presented in Figure 1.1, but we may not have considered the implications, whether it is the teacher, the curriculum department, or the state.

Let’s look at a sample test question and analyze it from the standpoint of the previous questions raised about creating

Figure 1.1 The Aligned Curriculum

good assessments. Suppose that a question over *The Great Gatsby* on a given assessment asks, "Was Nick a true friend to Gatsby? Give reasons for your answer." On the surface, this is a great question, because it asks the student to read between the lines of the story, to make inferences, to put information into perspective, and to be able to explain his or her answers. However, some questions must be answered to determine if the question is appropriate. Can this question be traced back to written objectives in the curriculum that require the learner to make inferences, to be able to interpret, or to see perspective? Were students made aware of the objectives and how was this done? Were objectives given to the students in written form, or were they put up in the room so that students could see the expectations? Were the objectives a part of the rubric for the learning? Were students taught how to make inferences, to interpret, or to see perspective? If the answer to any of these questions is "no," then the assessment is not

aligned with the written and taught curriculum. When we assess students on tactics or information that is not a part of the written or taught curriculum, we refer to the test question as a “gotcha.” Good assessments get rid of the “gotchas” by being aligned with the written objectives and the taught objectives for the learning.

I never give my students an assessment over anything for which they have not been given a rubric or a matrix that tells them exactly what the expectation is for the learning. I worked in a school that completely turned around the achievement level of its students, moving from being on the state’s endangered list for low test scores to absolutely knocking the top off of the state test. One of the things that we did that made the most difference in student success was to give students a matrix that told them what we expected—and we gave it to them in advance. We will discuss this more in Chapter 3 as we look at how to build a matrix or rubric.

BUILDING BRAIN-COMPATIBLE ASSESSMENTS

We cannot fully take away test anxiety, nor can we remove nervousness about being assessed, even informally. We can, however, lessen the anxiety. We do this first by being sure that the written, taught, and tested curriculum is in alignment. By doing that, we get away from the “gotchas” and come closer to really assessing what is important for our students to know and be able to do.

Second, we can lessen the anxiety by providing adequate time for students to learn and by using both massed practice (i.e., practice provided in a concise amount of time) and practice that takes place over a longer period of time. For example, as a teacher, I might introduce a concept and work with my students on that concept for three days as massed practice. I know that they are more likely to remember and use the learning, however, if I return to the concept over time.

Third, we can help our students by providing adequate time and support as they learn the skills necessary to use the