

Assessment Literacy in a Standards-Based Urban Education Setting

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Abstract

This is a report of ongoing work in Milwaukee Public Schools (MPS) in the area of assessment literacy. An increase in mandates from both state and district and the MPS decentralization of assessment functions to schools has placed a greater demand on teachers and principals to effectively implement and use assessments. Although the district has a history in the last decade of using performance assessments and developing curriculum standards, high teacher turnover and expanding assessment responsibilities for teachers have increased the number of teachers with only a minimum knowledge of assessment and little understanding of how to apply assessments in a standards-based system. Assessment Literacy is defined as the knowledge of 1) the means for assessing what students know and can do, 2) the interpretation of the results from these assessments, and 3) application of assessment results to improve student learning and program effectiveness. The district has transformed its assessment system into a Balance Assessment System, including both external norm-referenced assessments and criterion-referenced, classroom-based assessments. Teachers and schools are confronted with applying and using the classroom assessments to judge a student's proficiency in a content area in relation to district standards. They have to make sense of the results they obtained from the assessments they administer in their classrooms and correlate these with their students results on the state and district external assessments. Working the Division of Research and Assessment, we have designed a workshop on the assessment basics to be given this Spring (2002). This workshop has been designed to respond to the most immediate needs of the district in this area, while providing more information about the needs of teachers and schools.

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Milwaukee Public Schools (MPS), like other large urban districts, is facing increasing pressure to administer a greater number of assessments in the district and to have teachers validate improved student learning with assessments. This pressure comes from multiple levels, including the state, the district, and the schools. The Center for the Study of Systemic Reform in MPS, working with the district, has identified assessment literacy as one of the critical needs of the district, along with related needs of achieving accountability and data-based decision making. However, understanding what is most needed by the district in the area of assessment literacy has been an evolving process that has had to take into consideration the recent history of assessment in the district, current state and district mandates, and the changing teaching force.

Over the past 10 years, the enrollment in nearly 200 MPS district and alternative schools has remained nearly 100,000 students. The proportion of total enrollment of African American students has increased from 5% to 61%. The proportion of Hispanic has increased from 10% to 14%, while the enrollment of Whites has steadily declined from 27% to 18%. Over 80% of the elementary students are eligible for free and reduced-cost lunch. There has been a decline in the mobility rate of students, students who move from and to a school during the year, from 25-30% to 20-25%. The district employs more than 12,000 staff members, including about 10,000 who work in schools.

Assessment Literacy

Assessment Literacy is defined as the knowledge of means for assessing what students know and can do, how to interpret the results from these assessments, and how to apply these results to improve student learning and program effectiveness. Those in MPS who are literate in assessment will have clear knowledge of the MPS Standards and what students are expected to know at the different grades. They will be able to develop and select assessments to fit a context that reflects the specific achievement goals and objectives. For Stiggins (1991), assessment literates ask two key questions about all assessments of student achievement:

What does this assessment tell students about the achievement outcomes we value?

What is likely to be the effect of this assessment on students? (p. 535)

There are two reasons why the concept of assessment literacy has received increased attention over the past decade. First, the advent of standards-based reform has made student expectation for learning more explicit and has increased the need for measures to

determine whether students have attained those learning expectations. Second, there has been a greater acceptance for using different forms of assessments, such as norm-referenced assessments and criterion-reference assessments. However, both a greater emphasis on learning expectations and the more formal use of alternative assessments has increased the burden on teachers and principals to understand how student learning can be adequately assessed and what meaning should be given to the information produced.

Information about assessment is not lacking (Stiggins, 2001; Chase, 1999; Ebel & Frisbie, 1991; Gronlund & Linn, 1990). Still, teachers and principals have received very little formal training in assessment and report that they are ill-prepared to assess students (Quilter, 1999; Stiggins, 1988). New teachers enter MPS with very little background in assessing student learning. Each summer MPS conducts an academy that is mandatory for new teachers to the district—nearly 800, or 15% of the teachers in the district each year. At this academy, new teachers are given some instruction on assessment and the district Standards. But there still is a considerable amount of information about the different forms of assessments being used in the district, the various purposes of the different assessments, and what teachers can and cannot gain from the assessments that teachers do not have that would enable them to know more about their students' progress.

What teachers need to know about assessment depends on a number of factors, including grade level and content-areas teaching, assessment systems being used within the district, and district and state requirements. In 1990, the American Federation of Teachers, National Council on Measurement in Education, and National Education Association issued standards for teacher competence in educational assessment of students (AFT, NCME, & NEA, 1990). Currently, student evaluation standards (<http://jc.wmich.edu/ansireview/>) are being prepared that also will provide information on what teachers and others should consider when assessing students. The standards for teacher competence list seven as a conceptual framework for what teachers should be skilled in doing:

- 1) choosing assessment methods appropriate for instructional decisions;
- 2) developing assessment methods appropriate for instructional decisions;
- 3) administering, scoring, and interpreting the results of both externally-produced and teacher-produced assessment methods;
- 4) using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement;
- 5) developing valid pupil grading procedures, which use pupil assessments;
- 6) communicating assessment results to students, parents, other lay audiences, and other educators; and
- 7) recognizing unethical, illegal, and otherwise inappropriate assessment methods and uses of assessment information. (pp. 31-32)

These standards explicitly address the areas in which teachers should be well versed in order to assess student learning. Assessment standards for mathematics and science provide more focused recommendations for assessments in those content areas and what teachers should be versed in knowing (National Council of Teachers of Mathematics,

1995; National Research Council, 1996). In 2000, the American Youth Policy Forum produced a glossary of testing terms for teachers and the general public. In a very basic way, this glossary introduces statistics essential to understanding testing concepts (e.g., normal curve, statistical significance), fundamental terms of testing (e.g., norm-referenced, criterion-referenced), and testing issues (e.g., teaching-to-the-test) (Bracey, 2000). There is now more attention being given to not only knowing about assessing student learning, but also how to use this information and other data to more effectively teach students and improve schooling (Nichols & Singer, 2000).

There are a variety of means for assessing what students know and can do including standardized norm-referenced tests (generally, multiple-choice tests), performance assessments, portfolios, individually administered assessments, end-of-chapter tests, quizzes, and observations. Those who are literate in assessment practices will understand the different purposes for using each of these and other forms of assessment, the benefits and disadvantages of each, and how each can provide information about student learning of curriculum standards and other desirable learning outcomes. They will be able to distinguish between assessment instruments of high quality from instruments that lack validity and reliability and that are biased. They also will know about appropriate accommodations for specific groups of students and how valid assessment results can be attained from students with disabilities and English-as-a-second language (ESL) students.

To accurately interpret and report results from different assessments requires an understanding of what an assessment measures and what an assessment does not measure. It requires being able to interpret statistical and psychometric terms such as means, standard deviations, normal curve equivalency (NCE), stanines, percentiles, variance, standard error, confidence intervals, grade equivalence, and rubrics. Many of these assessment characteristics apply both to large-scale assessments and classroom-based assessments. At the classroom level, as well as for large-scale assessment, those who are assessment-literate will understand what body of knowledge a sample of items on an assessment instrument represents and what can and cannot be concluded from the assessment results. For example, they will understand the problems that arise when a set of items are frequently drawn from a limited item bank. Soon, students will be taking the same items over again. Those who are assessment-literate also will be able to make confident generalizations about student competence.

In a standards-based system, assessment literacy goes beyond knowing about test instruments and how to interpret results to include knowing how information from assessments can be used to determine students' progress in achieving the standards, to improve instruction, and to improve the effectiveness of programs devoted to helping students learn. Those who are literate in assessment will understand how assessments and the consequences of assessments create incentives and disincentives to students, teachers, principals, and staff to perform at their best. They understand how assessments can be used to motivate and inform these critical stakeholders. They also will be accomplished in knowing what learning is expected by the standards, how the standards are organized, what the links are among the performance objectives, and how to set priorities for student

learning. Then those who are literate in assessment will be able to develop an assessment plan that can be used to select and develop appropriate assessments that will accurately inform, but not overburden, students and teachers and how students are making progress towards achieving the specified standards.

A Short History of Assessment in Milwaukee Public Schools

Since 1990, the attention to assessment and standards in MPS has changed significantly. What has happened in Milwaukee mirrors what has taken place in other large urban school districts and states. Over the 12 years, the district has undergone a change in leadership more than five times. Each change has brought on new initiatives. However, standards and assessments in MPS have evolved steadily over this period, driven in part by state mandates.

MPS engaged in a major effort, involving over 1,000 people from the district and community, to develop K-12 Teaching and Learning Goals in 1991. The objective of these ten very broad goals is to offer all students an equitable, multicultural education, while teaching them to think deeply, critically, and creatively (Doyle, Huinker, & Pearson, 1995). This reform initiative was followed in 1993 by the vision of a School-to-Work program, a form of standards-based education. The School-to-Work initiative was based on the idea that what K-12 students are taught should be driven by what they will be doing after they leave school, including post-secondary education or employment. Over its course, the School-to-Work initiative had to battle the image its name presented as vocational education, rather than a program designed to prepare students for rigorous academic studies.

On February 28, 1996, the Milwaukee Board of School Directors adopted new graduation requirements, as well as a series of high-stakes middle school proficiencies. One feature of this new regulation was that grade 8 students, beginning in the school year 1999-2000, would be required to demonstrate their proficiencies in order to be promoted to grade 9. More information on the proficiencies is reported by Clune, Mason, Pohns, Thiel, and White (2002). The high school graduation requirements specified that students will demonstrate mastery of mathematical proficiency equivalent to three years of study at or above Algebra I; demonstrate mastery of the written and spoken expressions by writing, presenting, and defending a clearly reasoned, persuasively argued research paper; an understanding and use of technology resources in the research and presentation of the paper; a high level of proficiency in science, equivalent to three years of high school study including the physical, biological, and chemical sciences; an understanding of scientific inquiry and its application to real-life situations; through the study of high school disciplines of government, economics, geography, and history, demonstrate the knowledge and skills necessary to make informed and reasoned decisions as responsible citizens of a culturally diverse, democratic society in an interdependent world.

As part of the School-to-Work initiative, curriculum specialists in the content areas led the development of grade-level expectations in 1994. Committees of teachers were formed under the supervision of a curriculum specialist to identify what objectives students should achieve for each grade level. The work on the grade-level expectations

served as the basis for academic standards. In November, 1998, the Board of School Directors adopted the K-12 Academic Standards and Grade-Level Expectations for the content areas of English language arts, mathematics, science, and social studies. One year prior to this time, in October 1997, the state had mandated that all districts adopt academic standards in these four content areas, to be developed by the state or in their district. Work leading to the specification of the MPS standards began as early as 1994 and was derived from the district's K-12 teaching and learning goals. MPS curriculum specialists and teachers were well informed of the state's efforts to develop curriculum standards and made special efforts to assure agreement between what were included in the MPS Standards and the state standards.

The evolution of the MPS Science Curriculum Framework illustrates how standards developed from efforts expended over a number of years. In 1993, a science committee was formed that included about 60 K-8 teachers, 26 high school teachers, and others. Prior to this, the Milwaukee Science Materials Center, established in the late 1980s, had provided science kits to elementary teachers for each activity in the grade-level textbooks, a support teacher who was on call to work with teachers in their classrooms, and a supervisor who provided inservices by grade level. In 1992-93, an evaluation under the coordination of the science specialist was conducted of the district's science program prior to a K-5 textbook adoption in 1993-94. The Addison-Wesley series was adopted, in part, because it provided an inquiry-based approach to teaching science. This was prior to the publication of national science education standards that emphasized inquiry as the central strategy for teaching science (National Research Council, 1995). At the time, professional development programs emphasized these teaching strategies deemed appropriate. However, the dominant approach used by MPS elementary teachers was activity-based, where students would carry out a sequence of steps. Through inservices, teachers learned to use one or two general kits, but teachers failed to become effective users of the kits because they did not organize their teaching around big ideas that could be developed through use of a range of kits. The science curriculum specialist interviewed teachers, observed classrooms, and administered surveys to better understand how elementary teachers were teaching science, how their teaching supported students actively engaged in learning science, and what teachers' professional development needs were.

The science committee prepared grade-level expectations and then aligned the science kits with the expectations for each grade, K-5. Together, the grade-level expectations and science kits—balanced among life, physical, and earth sciences—represented the core content knowledge for students. The district was provided funds by the National Science Foundation to create the Milwaukee Urban Systemic Initiative (MUSI) in 1996-97. The goals of this initiative were compatible with the ongoing MPS work in science at the time, improvement in science and mathematics achievement. The Board's adoption of proficiency requirements for grade 8 students in 1996 and the implementation of performance assessments increased the attention that more resistant teachers gave to implementing the science grade-level expectations and kits. The MPS science committee prepared curriculum modules aligned with the grade 8 science proficiencies. These modules were piloted for the first time in the summer of 1998. The 1998-99 school year was the first year for the full implementation of the modules. Middle

schools were grouped into seven clusters of ten schools. Those teaching science in all of the middle schools were to meet once a month with those from the other schools in their clusters. At these meetings, teachers were expected to discuss the implementation of the prepared modules. These discussions were facilitated by three trained teacher-facilitators for each cluster, one for each grade, 6, 7, and 8. The mathematics teachers engaged in a similar process, with monthly meetings of school clusters. The cluster design was employed to reach all middle school science and mathematics teachers in the district. The facilitators and mathematics and science resource teachers (MSRT—funded through MUSI) provided a communication channel between teachers and the mathematics and science curriculum specialists. But funding for these resource teachers' positions ended along with the end of funding of the MUSI by NSF in 2000.

For the high school science programs, the department chair was the conduit of information for the science specialist. During this time, the high school science curriculum changed by introducing a grade 9 integrated science course that exposed students to life, physical, and earth sciences. The science team continued to struggle with ongoing issues in the MPS high school science program, including establishing the balance between presenting science as a fixed body of knowledge, where students do prescribed activities to reveal specific results, and science presented as a means for understanding the world, where students design their own experiments to understand better the process of science.

The MPS Assessment System

Milwaukee Public Schools, since the February 28, 1996, adoption by the Milwaukee Board of School Directors of new, higher graduation requirements, developed an assessment system for the district that incorporated multiple measures of student learning. In addition to requiring students in the high school graduation class of 2004 to pass assessments in writing and mathematics, Middle School Proficiencies were set that this same cohort of students was required to pass for promotion to grade 9. These proficiencies, effective for the first time with grade 8 students in the 1999-2000 school year, required students to demonstrate an acceptable level of accomplishment in communication, mathematics, science, and research. Recently, the governor has put a hold on expenditures for the development of the high school graduation test, making it questionable whether the test will ever be implemented. MPS as well as other districts in the state have complied with state legislation requiring districts to develop regulations for determining students' eligibility for high school graduation that considers having a high school graduation test.

The current district assessment program has consisted of state-mandated tests, proficiency assessments, performance assessments, and portfolios. Students in grades 4, 8, and 10 are required by the state to take the Wisconsin Student Assessment System (WSAS) Knowledge and Concept Examinations. Grade 3 students are required to take the Wisconsin Reading Comprehension Test (WRCT). In addition to these assessments, an MPS mathematics proficiency assessment and a writing proficiency assessment are administered to students in grades 11 and 12 as a high school graduation requirement.

MPS performance assessments were given in writing, science, fine arts, and oral communications up to the 2001-2002 and now have been incorporated into the classroom-based assessments. In the Spring, students in grades 4 and 5 were required to write an essay to a specific prompt. Science performance assessments were administered to students in grades 10 to 12, grade 9, and grade 5. Each high school had a plan that assessed about a third of the students in that grade range each year. Each school was required to administer either a fine arts assessment, or an oral communication assessment. High schools and middle schools determined when the fine arts or oral assessments were administered. Elementary schools were to administer these assessments to students in grade 4 or 5. Portfolio assessments can be completed in writing and in mathematics as an alternative means for meeting the district graduation requirement by students who do not pass the proficiency assessments in these two content areas. These assessments are described in more detail below.

State-Mandated Testing

Since the 1993-94 school year, the Milwaukee Public Schools, and all other school districts in the state, are required to administer the Wisconsin State Assessment System's Knowledge and Concepts Examinations (WKCE) (TerraNova, developed by CTB/McGraw Hill, has been used since 1996-97) at grades 4, 8, and 10. These tests measure achievement in the areas of reading, language arts, mathematics, social studies, science, and writing. All students in grades 4, 8, and 10, except those exempt under Exceptional Educational Needs and limited-English speaking guidelines, are required to take these tests, which have been administered during the spring semester of each academic year.¹ Beginning in November 2002, the WKCE is to be given in the fall.

Student scores for the WSAS Knowledge and Concepts Examinations are reported by four proficiency categories:

Advanced: Distinguished in the content area. Academic achievement is beyond mastery. Test score provides evidence of in-depth understanding in the academic content area.

¹ Roughly 75% of each test contains multiple-choice items and 25% constructed-response, or short-answer, items. Each student also completes an on-demand written essay after reading a short passage about the assigned topic. The multiple-choice items are machine-scored. Trained scorers hired by the testing company score the short-answer items. Each item is rated by one professional reader and is assigned a specific performance level. Responses on the short-answer items are scored using a 2-point scale (0-1) up to a 5-point scale (0-4). The written essays are scored holistically. Two professional readers independently rate each essay and assign a rating using a 6-point scale (1 to 6). The ratings of the two readers are averaged to produce a single score. If the readers' ratings differ by more than one point, a third reader assigns an independent rating. The reported holistic score is then the average of the two closest scores. The total WSAS test time for all five content area tests is approximately six hours.

Proficient: Competent in the content area. Academic achievement includes mastery of the important knowledge and skills. Test score shows evidence of skills necessary for progress in the academic content area tested.

Basic: Somewhat competent in the content area. Academic achievement includes mastery of most of the important knowledge and skills. Test score shows evidence of at least one major flaw in understanding the academic content area tested.

Minimal Performance: Limited in the content area. Test score shows evidence of major misconceptions or gaps in knowledge and skills basic to progress in the academic content area tested.

MPS is required by the state to administer the Wisconsin Reading Comprehension Test (Office of Educational Accountability, Wisconsin Department of Public Instruction) to all grade 3 students. This state mandated standardized achievement test is used to determine the level of reading proficiency of 3rd grade students. The state requires districts to provide remedial service for pupils who do not score above the performance standard on the Wisconsin Reading Comprehension Test.²

MPS Performance Assessments

Performance assessment responsibility is being transferred to the jurisdiction of the schools in the system. Since the Board of School Directors passed the MPS Balanced Assessment System in October of 2000, schools have the greatest responsibilities for administering, scoring, and setting proficiency levels on performance assessment activities. The district is making the transition from over five years of aggressively using district-developed and scored performance assessments. Grade 8 students in 2001-2002 will be the last group of students to be required to demonstrate proficiency in the four areas of communications, mathematics, science, and research. This group of students will be the third group of students who had to meet these requirements.

The high school mathematics proficiency test and the writing proficiency test that have been required for high school graduation will no longer be a requirement after the current school year, 2001-2002. For both writing and mathematics, students had three ways to satisfy the graduation requirement—achieve a proficient score on the performance assessment, achieve a proficient score on the respective subtest of the WKCE (state test), or demonstrate comparable knowledge and skills in a school-based

² The test is administered in three sessions, each session lasting approximately one hour, and consists of three reading passages, two narrative stories of about 1,200 words each, and one expository report of about 700 words. In addition to 60 comprehension questions, students are asked a number of questions that measure reading strategies and prior knowledge. There are a total of 100 questions on the test, though only scores on the 60 comprehension questions are used to establish a performance standard. Results from the remaining 40 questions are used locally to interpret comprehension scores. All answers to questions are in a multiple-choice format. However, the 1998-99 test will include one question that requires a short written answer.

portfolio. Students were given these tests in grade 11, or in grade 12 for those who did not demonstrate proficiency in grade 11. These performance assessment instruments, scored centrally by district teachers, were developed by committees of district teachers. In mathematics, the assessment included from two to four open-ended items. For example, in November, 2000, the four items included:

1. The New Container—Students are shown a rectangular prism-shaped container with its dimensions and are given the amount of fluid in ounces it contains. Students are to determine the number of cubic inches per fluid ounce. Then students are to compute the height of a new cylinder container, given diameter and volume, and compute the cost per fluid ounce, given the cost of the original container. (Note: Students are given a sheet with needed formulas, measurement conversions, and other related facts.)
2. Jana's Garden—Students are to determine the scale for a diagram of a garden and draw a rectangular garden with an area of 64 square meters and length of 10 meters. Then the students are to show placement of fence posts no more than 1.5 meters apart and determine the total cost of fence, on the basis of a price list provided.
3. New Home—Students are to create a scale graph and draw a straight line of fit, given a table of area and price for seven houses. Then students are to write the equation for the fit line, use this equation to estimate the area given the price of a house, predict the price given the area, and compute the price increase for every increase in area of 100 square feet.
4. Renting a Copy Machine—Students are to identify the company represented by a line, given a graph with three linear lines representing the rental costs per number of copies of three companies, and given a table with each company's fee structure. Then students are to write an equation for each of the three lines. Next, students are to find the exact coordinates of a point of intersection of two lines given the other two points of intersections of the systems of three lines. Finally, students are asked to identify when one company charges less than the other two companies.

These mathematics assessments were scored using a five-point generic rubric:

- 4 An effective strategy is used. The response is organized. Documentation/justification is clear. Accurate use of mathematics is evident. A correct solution is presented.
- 3 An appropriate strategy is used. The response is somewhat organized. Documentation/justification is evident. Appropriate mathematics is applied with only minor flaws. A basically correct solution is presented.
- 2 A strategy is poorly carried out. The response is poorly organized. Documentation/justification is incomplete/unclear. Some of the mathematics used is inappropriate or flawed. A partial or incorrect solution is presented.

- 1 A strategy is started. The response is not organized. Documentation/justification is inadequate. The mathematics presented has major flaws. A minimal solution is presented.
- 0 Documentation/justification is not shown. No use of appropriate mathematics is shown. Response is illegible.

(Scores of 3 or 4 were considered proficient.)

The writing proficiency test that students have taken in grades 11 and 12 and that has been required for graduation up to 2002 consisted of two sections. On one section, students were required, for example, to write a letter applying for employment. On the second section, students were required to write an essay to a specific prompt in a specific genre.

High School Graduation Requirements for 2001 and Beyond

The 1997 Wisconsin Act 27 (sections 118.30 and 118.33) mandates that “each school board operating high school grades shall adopt a high school graduation examination that is designed to measure whether pupils meet the pupil academic standards adopted by the school board . . . beginning in the 2000-01 school year.” Beginning on September 1, 2002, a school board may not grant a high school diploma to any student who has not passed the high school graduation test. If a student fails the test, the Department of Public Instruction has stated that the student must be provided with at least three opportunities to re-take the test. It is state-mandated policy that a school district may not use the state graduation test unless its board has adopted the 1998 State Standards; therefore, MPS is required to develop its own graduation test or secure a test from an outside vendor.

Prior to the state requiring the above high school graduation test (that the state has delayed implementation of this test beyond 2004), the Milwaukee Board of School Directors, at its February 28, 1996 meeting, adopted requirements for the graduating class of 2004. Those students will be required to demonstrate mastery in the following areas before graduation:

Mathematical Reasoning

Students will demonstrate mastery of mathematical proficiency equivalent to three years of study beyond Algebra 1. Students will be expected to show proficiency in first-year algebra by the end of 8th grade.

Scientific Reasoning

Students will demonstrate a high level of proficiency in science, equivalent to three years of high school study, to include the physical, biological, and chemical sciences. Students will demonstrate an understanding of scientific inquiry and application to real-life situations.

Communication

Students will demonstrate mastery of written and spoken expression by writing, presenting, and defending a clearly reasoned, persuasively argued research paper.

Community Membership

Through participation in a group project that benefits the community, students will demonstrate the capacity to analyze a social issue from multiple points of view and to interact as a constructive member of a team.

Exceptional Education Needs

MPS has strived to have all students tested. Its annual accountability reports now note for each school what percentage of the enrolled students were tested. The Middle School Proficiencies and the high school graduation requirements applied to all MPS students. Special accommodations are allowed for exceptional education students to take the test. However, at the present time, there still are discrepancies between the goal of having students with disabilities fully participate in the regular curriculum and their participation in the assessments. Some of the barriers that prevent full participation include the historical paradigms of individualized education (in which special educators generally created entirely separate curricular goals and objectives, and often entirely separate teaching materials, for students with disabilities), lack of knowledge among special educators regarding general education curricula and assessments, and some significant institutional barriers with respect to inclusion of students with disabilities in regular classrooms.

Balanced Assessment System

In part as a response to state graduation requirements, the MPS Board of School Directors adopted a Balanced Assessment System in October of 2000. The State of Wisconsin requires school districts to develop exit requirements for promotion/graduation for grades 4, 8, and 12. Districts had to use three criteria, including state assessments, teacher judgment, and student growth in achievement. However, what these criteria are to be was left to the districts to specify.

Over a period of two years, the MPS Division of Research and Assessment, with the input of staff from the our Center and others, developed specifications of the three criteria for graduation to meet the state requirement:

Criterion 1—met the standards in each of the subject areas of English/language arts, mathematics, science, and social studies on the Wisconsin high school graduation test.

Criterion 2—achieve a grade point average of 2.0 or above during the junior and senior years in English/language arts, mathematics, science, and social studies.

Criterion 3—achieve a yet-to-be-specified change in scores on the MPS longitudinal assessment system (TerraNova and WKCE scores) in the subject areas of English/language arts and mathematics.

If the students meet criterion 1 in each of the four subject areas, they do not have to meet either of the other two requirements. If a student does not meet criterion 1, then one of the other two criteria have to be met for the student to be eligible for graduation.

Requirements for promotion in Milwaukee from grades 4 and 8 have a similar structure. Students have to satisfy one of three criteria:

Criterion 1—achieve a proficient level in each subject area (reading, writing, English/language arts, mathematics, science, and social studies) in one of two semesters.

Criterion 2—achieve a basic or better score on the WKCE in each subject area (reading, writing, English/language arts, mathematics, science, and social studies).

Criterion 3—achieve adequate growth as measured and defined by the MPS longitudinal assessment system (TerraNova) in reading, English/language arts, and mathematics.

Students who meet one of the three criteria in each of the content area will be promoted from grades 4 and 8. A grade 8 student will become a *transition student* if the criterion was not met in the required six content areas, but was met in the growth criterion in reading, English/language arts, and mathematics. A student will be retained if criteria 1 and 2 were not met in the six content areas and the student did not meet the required growth in reading, English/language arts, and mathematics. Grade 4 students who do not meet criterion 1 in all of six content areas will have to meet criteria 2. If they do not meet either criteria 1 or 2 in any of the six content areas, they will have to meet criterion 3. A school-based team will use district guidelines to recommend either promotion or retention.

The Balanced Assessment System that is now in place has evolved over a number of years and incorporates multiple measures of student performance (Figure 1). The state assessment, given in grades 4, 8 and 10, provides both norm-referenced data and criterion-referenced data using an external measure. The newly instituted longitudinal assessments (TerraNova) provide the same data for the off years through grade 9. Results from both of these assessments will be used to make promotion and graduation decisions. With both the WKCE and the TerraNova tests producing test results on the same scale, the district will have the capacity to monitor annual growth in scores at both district and school level. The majority of items on these assessments are multiple-choice, with some open-ended items inserted. These assessments have high reliability and are adequate for looking at growth over years. The state is in the process of conducting an alignment study of the WKCE with the Wisconsin standards that are very similar to the MPS Standards. From a preliminary alignment study we conducted, the alignment between the MPS Standards and the WKCE was good, with the exception of science (Clune & Webb, 1998; Webb and Pohns, 2000).

However, with all of the reforms across content areas that are intended to engage more deeply in rich learning activities that will improve their communication, reasoning, and analytic skills, the full range of learning expectations are not measured on the norm-

referenced standardized tests. The assessment history in MPS over the last decade, with its strong emphasis on performance assessment, is a testimony to the belief that alternative assessments are needed with stronger validity vis a vis desired classroom

Figure 1. The MPS Balanced Assessment System.

Elementary Schools	Middle Schools	High Schools
WI Reading Comprehension Test (WRCT): (+Spanish Form) (gr 3*) (Spring)		
WI Knowledge & Concept Exam (WKCE): (gr 4) Rdg/ELA*, Writing, Mathematics*, Science, Social Studies (+Supera)(Spring)	WI Knowledge & Concept Exam (WKCE): (gr 8) Rdg/ELA*, Writing, Mathematics*, Science, Social Studies (+Supera) (Spring)	WI Knowledge & Concept Exam (WKCE): (gr 10) ELA*, Writing, Mathematics*, Science, Social Studies (+Supera) (Spring)
MPS Writing Assessments: (grs 3, 5*) (Spring)	MPS Writing Assessments: (grs 6, 7*) (Spring)	MPS Writing Proficiency: (grs 11, if not 12*) (Spring)
TerraNova/Supera: (gr 3) Mathematics; TerraNova/Supera: (gr 5) Rdg/ELA, Mathematics (Spring)	TerraNova/Supera: (grs 6, 7) Rdg/ELA, Mathematics, Science, Social Studies (Spring)	TerraNova/Supera: (gr 9) Rdg/ELA, Mathematics, TerraNova: (grs 11-12) Mathematics (Spring)
Classroom Based Assessments¹: Reading, Writing, Mathematics (On-the-Mark) (grs K5-2), Rdg/ELA, Mathematics, Science, Social Studies (grs 3-5), Writing (gr 4) (Sem 1 & 2)	Classroom Based Assessments¹: Reading, Language Arts, Mathematics, Science, Social Studies (gr 6-8) Writing (gr 8))(Sem 1 & 2)	Classroom Based Assessments¹: English/Language Arts, Mathematics, Science, Social Studies (gr 9-12) (Sem 1 & 2)
	Middle School Proficiencies: (over gr 6-8) Communications, Mathematics, Science, and Research (2001-2002 Final Year)	

* Tier 1 system measures used in the accountability plan.

1 Classroom Based Assessments are being phased in. In the 2001-2002 school years, teachers in grades 2 and 3 and grades 6 and 7 should be administering the assessments each semester of the school year.

practices (Clune, Mason, Pohs, Thiel, & White, 2002). During the decade, a high percentage of MPS teachers engaged in developing, administering, and scoring performance assessments in writing, science, and mathematics. But the district's costs for funding performance assessments became too great. This, along with the increasing difficulty in getting teachers to score the assessments, has forced the district to seek other means for assuring assessments that are validated by the approaches to learning advanced in the reform documents (e.g. National Council of Teachers of Mathematics, 1989; National Research Council, 1995). The solution MPS has developed is to incorporate classroom-based assessments into its Balanced Assessment System. These assessments are to be given and scored by teachers in their classrooms in all of the grades, K5 through grade 12. The district's Curriculum and Instruction Division is responsible for developing a set of assessments that K5-8 teachers can choose from for their use. These assessments are distributed to teachers on CDs and, in addition to tasks, include scoring rubrics. For each semester, teachers are to rate student performance as proficient or not. Each content area does this differently. The writing assessments have been attributed to improving students' writing abilities and will continue as in previous years.

Assessment Literacy Needs and Actions

With the Balanced Assessment System, teachers at all grade levels within the district are responsible for assessing student knowledge using district-required assessments, in addition to their normal classroom assessments. Students will be taking both norm-referenced assessments and criterion-referenced assessments generating results from them. Teachers who teach more than one content area in scoring student work will have to use a different scoring rubric or scheme for each content area. Teachers who have been with the district for ten or more years and the middle school teachers will have experience in using rubrics and administering performance assessments. However, since the district acquires about 800 to 900 new teachers each year, about 15% of district's teaching force come to the district with little or no knowledge of the assessment system. The middle school principals have had experience in managing multiple-measures assessment, but the experience of principals at other schools varies.

Resources and conditions have not been available for doing an extensive study of the assessment literacy. We depend on district staff for their input into what knowledge teachers need. District staff members from the MPS Division of Research and Assessment have been visiting every elementary school to inform the principals and teachers about the Balanced Assessment System and have been able to provide some sense of the level of teachers' understanding of assessments from these discussions and the questions that are asked. The district has also conducted data seminars to enable school personnel to interpret the reports of the WKCE results they receive from the state through the district. The difficulty school staffs have had in interpreting these data has provided other evidence of the need for teachers to understand assessment reports more fully. In a study to investigate schools' use of software to better access data and use data, we found that schools had greater access to behavior data than to performance data (Webb, Mason, Choppin, Green, Thorn, & Watson, 2001). Of the six schools we worked

with, staff in two schools made some progress in having teachers use performance data to make judgments about students, but staff in four other schools had greater difficulty being able to acquire data, analyze data, and format it as it could be used by teachers and others.

In a meeting with five curriculum specialists from the different content areas, they were asked some questions about the state of assessment in the district and the needs that teachers have in the area of assessment literacy. One observation that the curriculum specialist made was the teachers were only now becoming knowledgeable about the district curriculum standards. The curriculum specialists believe that some teachers still are not aware that the district has standards. In estimating the percentage of middle school teachers who were using classroom-based assessments, the curriculum specialists felt that a high percentage of teachers were using these assessments and applying them to standards. The main reason they gave for this response was that these teachers had been trained in implementing the Middle School Proficiencies. They felt that the teachers in K-8 schools had missed out on such training and had less knowledge of both standards and assessments. The curriculum specialists noted that staff members in elementary schools have not received training in using assessments and relating these to the MPS Standards and are less likely to implement the classroom-based assessments. Since training has not been mandatory, only about 10% of the teachers have received training. Over all of the teachers, the curriculum specialists estimated only about 30% of the teachers are effectively working with the standards and classroom-based assessments. When asked about the greatest needs of teachers in the area of assessment literacy, they listed a number:

- Ability to write classroom assessments based on standards
- Using assessments to inform instruction
- Understanding that assessment is not just testing
- Different methods and strategies of assessment
- Aligning curriculum with standards
- Awareness of teaching standards
- Looking at student work and scoring it
- Lack of reliability and consistency among teachers in scoring
- Evaluating grade-level work

First Steps in a Program to Advance Assessment Literacy

Although there is a considerable amount that teachers need to know about how to translate standards into learning targets for students and how to use assessment data effectively to judge students' attainment of these targets, MPS is faced with the issue of where to begin in achieving assessment literacy. This has to be addressed by the Division of Research and Assessment along with many other activities, including operating the assessment system and working with schools to more effectively incorporate assessment data into the school improvement planning process. As a first step, the Division of Research and Assessment has decided to begin with a two-hour workshop that will clarify the very basics of the different forms and kinds of assessments that exist in the

Balanced Assessment System. This first step is based on an understanding that teachers and others do not have a large amount of time that they can devote to learning more about assessment. It also takes into consideration the large percentage of teachers and principals who could benefit from understanding more about what different forms of tests can and cannot do—in part, to dispel misinformation that has proliferated within the district. Teachers and principals are still in the process of learning about the Balanced Assessment System; they need to cultivate greater acceptance of the new assessment system, which requires a very basic understanding of assessment techniques.

We have developed a general design of a workshop that meets the above specifications and district needs. The main goal of the workshop is:

To encourage teachers and others to become more familiar with the basic types of assessments, the appropriate use of these assessments, and how assessment results can inform teachers and others about student progress in attaining the MPS Standards.

The two-hour workshop will be divided among five topics and supporting activities.

- I. *Assessments types*
Teachers will be given activities to help them distinguish between norm-referenced and criterion-referenced assessments, how the construction of each assessment differs, and how results can be interpreted.
- II. *Uses for different assessments*
Four general uses of assessment results will be identified: sort students, certify students, diagnose students' needs, and evaluate instruction. Teachers will be asked to identify which of the four uses of assessments are most appropriate for each type of assessment (norm-referenced and criterion-referenced).
- III. *Types of assessment items*
Four general items types will be identified: multiple-choice, open-response, open-ended, and performance assessment. Teachers will be given examples of each with student responses, a related standard, and asked to explain what they can determine about a student's mastery of the standard, based on the item responses.
- IV. *Types of scoring schemes*
Two scoring schemes will be described: right/wrong and use of a rubric. Teachers will be given different standards and objectives and asked to identify which scoring scheme, or combination, would be most appropriate to determine whether students have met the intent of the standard and objective.
- V. *Measuring students' attainment of standards*
Teachers will be given a standard and a set of items and asked to indicate whether the students' responses to these items are sufficient to determine that students have mastered the standard.

This workshop is designed as a starting point for advancing assessment literacy in the district. It will introduce teachers to the vocabulary, while giving them and others an

opportunity to look more deeply at different types of assessment items and the MPS Standards. Because of the district's recent history in developing proficiencies and performance assessments, there will be teachers in the district for whom this workshop is too basic. These teachers will need more attention on how to structure classroom assessments, to aggregate information from multiple assessments, and to monitor student progress in achieving the specified standards. These needs will have to be addressed later, as work in assessment literacy expands. Another remaining issue is how to expand access to this basic assessment literacy workshop to all of the teachers who could benefit from it. The group in the greatest need of assessment literacy training is the elementary teachers. Work still needs to be done to develop a strategy for reaching all of the teachers who can benefit from such training. One plan is to concentrate on providing this information to the learning coordinator at each school who, in turn, can work with the teachers to increase their understanding of assessment.

Conclusions and Reflections

There is no question about the need for attending to assessment literacy in Milwaukee Public Schools. As the history of standards and assessment development in the district over the last decade illustrates, knowledge about assessment needs to be continually updated as the state and the district impose new mandates. Three years ago, performance assessment was mainly centralized and the responsibility of the district. Now, performance assessments (classroom-based assessments) are the responsibilities of schools to administer, score, and interpret. Each school has responsibility for determining what proficiency is and what is needed to satisfy one of the three criteria for promotion and graduation. Schools can decide whether teachers will score student work as part of their normal workload, or in scoring sessions at the end of the school day or on weekends, for which teachers would receive supplementary pay. Decentralizing performance assessment in the district raises a number of challenges for the district, which has responsibility for assuring that teachers apply rubrics in comparable ways so there is consistency among the schools and among teachers within schools regarding what is required of students to meet the standards. At the same time, teachers will have norm-referenced scores and proficiency scores provided by the state WKCE and the district TerraNova for grades 3 through 9. Results from these external assessments do provide some feedback on the progress of schools and whether there is a significant discrepancy between progress as measured by the external assessments and progress as measured by the classroom-based assessments. But multiple assessments do not eliminate the need for teachers to have a workable understanding of the different forms of assessments, how the assessments can be reliably applied, and how to use information from the assessments to better guide student learning.

Our embedded research in Milwaukee is designed both to gain understanding about the workings of a large urban district, while applying our expertise to help the district as needed. In the areas of assessment and standards, this association has been very fruitful in monitoring changes in the district over time and in noting district progress. The work on standards in the district has transcended the effect of numerous leadership changes and their impact on development, adoption, and implementation. Now schools

are paying greater attention to the MPS Standards, but still confront issues regarding their capacity to measure students' progress towards the attainment of these standards. Over the period studied, the district has always employed multiple forms of assessment. Curriculum specialists, teachers, and district administrators have advanced the use of performance assessments for at least a decade. As result, the district has a number of teachers very experienced in using performance assessments and assessments that correspond to classroom practices related to the higher-order thinking and reasoning advanced in national reform documents. However, because of turnover in the teaching force and state and district expansion of assessments to nearly all grades, many more teachers need to acquire greater understanding of assessment. And all need to become more knowledgeable about applying assessments in a standards-based system.

Performance assessment has strong advocates in the district—a major reason this form of assessment has survived. Some view performance assessment as being more equitable because it allows a greater opportunity for students to show what they know. These and others believe that performance assessment is more valid because it requires students to develop skills that are in greater alignment with doing inquiry, doing writing, and doing thinking. However, the cost of implementing performance assessments, the need to have reliable measures of school performances, and the advantages of measuring growth over time has caused the district to increase the use of standardized norm-referenced assessments.

Our work in the area of assessment literacy is relatively recent. What we have learned so far is that the need is great. We have learned from those in the district office who have responsibility for overseeing assessment that there a large proportion of teachers in the district have very little knowledge of assessment and that one of the greatest needs is to increase the awareness of these teachers and principals about assessment. A major challenge that we continue to face is how to reach all of those in the district that need training in assessment literacy. Such a challenge generally requires time and resources, both of which are in short demand in the district. We are continuing to resolve such issues as they arise and will learn more when the first Assessment Literacy workshops are given this spring. At this time, we have not reached firm conclusions about how knowledge on assessment can be advanced throughout the district. We have seen the strong impact the Middle Grades Proficiencies have had on staff in the middle schools, which has developed in part through the collaborative work of staff within schools and among the middle schools. However, repeating what was done with less than 30 schools in 150 elementary schools requires more systemic solutions. Through continuing to assist district staff, drawing upon what others have done elsewhere, and building on the assessment history within the district, we are confident that significant progress will be made over the long term.

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