

Assessing the Big Outcomes

A Colorado school district established ambitious learning outcomes to prepare students for the 21st century, then used a framework developed at a nearby educational laboratory as a model to create appropriate assessment criteria and tasks.

NORA REDDING

What does a good problem solver look like? How does an expert decision maker differ from a novice? What evidence convinces parents that their child is a self-directed or a collaborative worker?

These are questions educators everywhere are facing as we take on the responsibility of preparing students for a future that promises to be far different from the present. In the old days, our job of validating students' recall of information was easy. Today, judging their abilities to perform complex tasks requires a totally different type of assessment.

Aurora Public Schools in Colorado has been struggling with this assessment problem since we began implementing five new district outcomes. A result of strategic planning, the Five Outcomes are nontraditional, future-oriented abilities students will need to be productive citizens of the 21st century. Our district has taken on the mission of graduating students who are

1. self-directed learners,
2. collaborative workers,
3. complex thinkers,
4. quality producers, and
5. community contributors.

Our intent is not that these Five Outcomes be framed, hung on every wall, and subsequently ignored, but that they become our curriculum, the focus of our instruction, and eventually our graduation requirements. But to know when students have achieved the Five Outcomes and to be able to document that achievement required a radical change in assessment.

Problems Encountered

Although we had an abundance of energy and talent, the job was not as simple as we had hoped. Thinking up assessment tasks was easy, but specifying the criteria and quality standards by which student performance would be judged was beyond our expertise.

We ran into three problems. First, although teachers were clear about the subject-area concepts, principles, and skills they wanted to see demonstrated, they were unsure about the critical characteristics of such things as effective problem solving or working collaboratively or making a contribution to the community.

Second, there was little continuity in criteria from one task to another. For example, the list of self-directed

behaviors the business teachers wanted students to demonstrate differed widely from the qualities the social studies teachers identified. How could we communicate to students what they must do to demonstrate proficiency if we couldn't agree among ourselves?

And last, because our criteria were based on subjective judgments, there was no way to maintain interrater reliability or ensure the integrity of our standards. How good was good enough?

Getting Help

Fortunately we knew where to go for help. Just "down the street" from us is the Mid-Continent Regional Educational Laboratory (McREL). Through his work during the past three years developing Dimensions of Learning, a comprehensive learning model, Bob Marzano and others at McREL had developed an assessment framework that provided the model we needed. The critical part of the model was McREL's identification of 14 complex thinking processes, such as problem solving, decision making, invention, experimental inquiry, and others. Each complex thinking process was described step-by-step or with the critical components listed. Accompanying each step or component was a detailed four-step scoring guide, or *rubric*, that described what varying degrees of mastery or quality looked like for each step or component. Two things were apparent. First, the 14 complex thinking processes "fleshed out" our third outcome, Complex Thinkers, and could be immediately assimilated into

our model. Second, we could define our remaining four outcomes in terms of components and accompanying scoring guides in the McREL Assessment Framework.

Using the McREL personnel as our consultants, we first developed 19 characteristics from our Five Outcomes (see fig. 1). For each characteristic we developed a four-step rubric to describe an exceptional performer (level 4), a competent performer (level 3 — our target), and two stages of novice performers (levels 2 and 1).

For example, an expert (level 4) performer on characteristic Number 1 (sets priorities and achievable goals)

meets the following criteria: "Consistently develops clear expectations and challenging goals; perceives the value of goals and their accomplishment; has a clear sense of own physical, mental, and emotional abilities, and strives to work close to the edge of competence; shows maturity of judgment in the establishment of priorities; knows the criteria for success before beginning work." A level 1 performer, on the other hand, "seldom develops clear expectations; goals; rarely considers physical, mental, emotional limitations or abilities; has difficulty finding value in the task; rarely considers priorities or criteria."

The descriptors for judging student achievement are the same for all grade levels. While a 1st grader might set goals about what stories he or she could read in a day and a high school senior about writing a term paper, the assessment criteria for judging goal-setting ability remain the same K-12.

Two Examples

Using our 19 district-developed rubrics and the McREL rubrics for the 14 complex thinking processes, teachers and curriculum developers have been designing assessment tasks that fuse subject area content with the Five Outcomes. The difference between

FIGURE 2

PHOTO 2 EXAM—PROMOTIONAL ADVERTISEMENT

1. You are representing an ad agency. Your job is to find a client in the school who needs photos to promote his/her program. (Examples: the Teen Mothers' program, the fine arts program, Student Congress.)
2. Your job is to research all the possibilities, select a program, learn about that program, and then record on film the excitement and unique characteristics that make up the program you have selected. Your photos will be used to advertise and stimulate interest in that area.
3. Previsualize how you will illustrate your ideas by either writing descriptions or by drawing six of your proposed frames. Present these six ideas to your instructor (the director of the ad agency) before you shoot.

FIGURE 1

AURORA PUBLIC SCHOOLS' FIVE OUTCOMES

A Self-Directed Learner

1. Sets priorities and achievable goals.
2. Monitors and evaluates progress.
3. Creates options for self.
4. Assumes responsibility for actions.
5. Creates a positive vision for self and future.

A Collaborative Worker

6. Monitors own behavior as a group member.
7. Assesses and manages group functioning.
8. Demonstrates interactive communication.
9. Demonstrates consideration for individual differences.

A Complex Thinker

10. Uses a wide variety of strategies for managing complex issues.
11. Selects strategies appropriate to the resolution of complex issues and applies the strategies with accuracy and thoroughness.
12. Accesses and uses topic-relevant knowledge.

A Quality Producer

13. Creates products that achieve their purpose.
14. Creates products appropriate to the intended audience.
15. Creates products that reflect craftsmanship.
16. Uses appropriate resources/technology.

A Community Contributor

17. Demonstrates knowledge about his or her diverse communities.
18. Takes action.
19. Reflects on role as a community contributor.

traditional assessment and our new performance-based assessments can be illustrated by comparing the final exam for a Photography 2 class with a revised assessment developed by two art teachers, Dana Breese and Randee Perkins.

Dana and Randee analyzed the existing Photo 2 final (take and develop 10 high quality photographs) to see which of our five outcomes were being addressed. They concluded that students' grades were based on two of the Quality Producer characteristics: creating products that reflect craftsmanship (Number 15), and using appropriate resources and technology (Number 16). The two teachers decided to revise the assessment to include complex thinking and community contributing. (Keep in mind that we consider the school and the people in the school as part of the community.) Figure 2 shows the resulting final assessment.

The complex thinking task Dana and Randee chose from the McREL

list of complex thinking processes was *invention*. By changing their original assessment task (apply photo knowledge and skills to produce 10 photographs) to an invention, they made the task more challenging and relevant to the real world, and they began collecting data on students' ability to reach three of our five outcomes instead of just one.

As assessment criteria, they chose four from the *invention* rubric, changing the generic wording to make it specific to this task. For example, they selected the question "Was the situation identified by the student as needing improvement important or noteworthy?" and rewrote it as "Did the student select a program with a viable need?" They also wrote a fifth criterion to cover the student's use of photography knowledge and skills. Having identified the five criteria for assessing student performance, the two teachers assigned weights to each criterion and constructed an assessment sheet to show students how much each trait would be emphasized. Again using the *invention* rubric as a model, the teachers produced their own four-step rubric to describe exceptional, competent, and novice performance in each of their five criteria. For the first criterion, "Did the student select a program with a viable need?" the rubric reads:

Level 4: The student selects a program needing promotion. That need has not been recognized before, or the promotion could result in an improvement others have missed. Filling the need of the program will have important consequences.

Level 3: The student selects a program that could be improved upon through promotion. Meeting that need will have important consequences.

Level 2: The student selects a program that could benefit from further promotion. Meeting that

need might be only moderately important.

Level 1: The student selects a program with a need that is not important or is of very minor importance.

Students know that level 3 is the standard that all work must reach and level 4 is exemplary work.

While some teachers developed an assessment by revising an existing test, other teachers started from scratch. A U.S. history assessment written by social studies teacher Ray E. Jenkins illustrates the general planning process.

As the focus of a unit on the civil rights movement, Ray identified key facts, concepts, and principles he wanted all students to remember. Among those were the principles that (1) key leaders have a profound effect on the course of history, and (2) history looks different from different personal or group perspectives.

Next, Ray selected one of the thinking processes from the McREL list to structure an assessment task around. He chose decision making and

developed the following simulation for students. "It is June 15, 1968. You represent one of the civil rights organizations (NAACP, Urban League, Black Panthers). Martin Luther King, Jr., has recently been assassinated. What direction should the movement take?"

Ray knew that the decision-making task addressed District Outcome Number 3, Complex Thinking. He then decided to *build other district outcomes into the task*. He chose to structure the task with students working in small groups and assess students on their collaborative skills — Outcome Number 2. He also decided to have students role-play the leader of their organization in a final discussion (or argument) and assess the quality of that performance — Outcome Number 4.

Finally, from the 19 district characteristics and from the McREL decision-making criteria, Ray chose those traits on which students would be assessed. Adjusting the generic wording to make it specific to the task, Ray wrote the following five criteria:

- Did your group's decision and



A student in an Aurora Public Schools photography class reviews a contact sheet with his teachers and discusses his work in relation to the Five Outcomes his district espouses.

receive a scoring rubric in advance so they know how the demonstration will be assessed.

Each assessment task is designed around one of the complex thinking tasks described in *Dimensions of Learning* (Marzano et al. 1992). Using this learning/planning framework, we match essential content with an appropriate thinking task. Included with the *Dimensions* framework are the assessment criteria and scoring rubrics for the complex thinking tasks. We customize each of these to the specific assessment task. In addition, *Dimensions* details numerous instructional strategies to support teacher thinking in the classroom, so staff development becomes integral to the curriculum development process.

In summary, the new curriculum guides:

- focus on student performance (authentic tasks),
- include the assessment criteria and rubrics,
- stimulate a change in instruction, and
- are useful to both teachers and students. □

Author's note: Dimensions of Learning (Marzano et al.) will be published by ASCD in 1992.

Much of the credit for the design comes from the writings of Ted Sizer, conversations with Grant Wiggins, the social studies teachers at Aurora Public Schools, and Nora Redding, High School Curriculum Coordinator.

Jane E. Pollock is High School Curriculum Coordinator, Division of Instruction, Aurora Public Schools, 1085 Peoria St., Aurora, CO 80011.

your participation in the role-playing reveal an accurate understanding of the essential facts, concepts, and principles of the civil rights movement?

- Did your group select appropriate and important alternatives to be considered?
- Did your group's final decision meet the decision criteria for the organization you represented, and was it true to the beliefs of that organization?
- As your group worked to collect information and come to a decision, did you personally assess and manage group functioning?
- As you participated in the role-playing discussion, did you achieve the purpose of being true to the organization you represented?

Like the photography teachers, Ray then developed grading rubrics for all five criteria so that students had clear descriptions of the performance levels they were expected to reach.

What Is Gained?

The changes in assessment procedures in Aurora Public Schools have produced significant benefits for both students and teachers.

Alignment with district goals. Classroom instruction and assessment are being precisely aligned with district goals. While teaching important information about photography or U.S. history, teachers also extend students' skills in such areas as inventing, decision making, and working collaboratively. At the same time, teachers collect reliable information about their individual students' abilities to reach the five district outcomes.

Improved instruction. Students are engaged in their own learning because the tasks they are given are meaningful and intriguing. Knowing the assessment criteria up front, they take responsibility for becoming prepared and use their teacher as resource and coach.

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Improved learning. More active student involvement in interesting tasks results in improved learning. For example, the students and teachers who filled Ray's doorway on the day of the civil rights role-playing can attest to the high level of knowledge students exhibited about the civil rights movement. Students themselves reported on the powerful insights they had gained.

Knowing What Is Expected

The assessment model is a good one. Having a framework of criteria and descriptive rubrics, all developed from stated district outcomes, provides focus for educators and students. Teachers have flexibility of choice within the framework but consistency of standards. Students know what is expected.

Learning to apply the model will take time. As more and more teachers are introduced to it, the model will surely be changed, but we feel we have taken solid steps toward solving the problem of assessing the "big" outcomes. The results will be improved planning, improved instruction, and improved student achievement, with graduates who are equipped to meet the complex problems of the 21st century. □

Nora Redding is High School Curriculum Coordinator, Aurora Public Schools, 1085 Peoria St., Aurora, CO 80011.

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