6 STEPS TO A SOLUTION

By BRENDA GUENTHER LeTENDRE

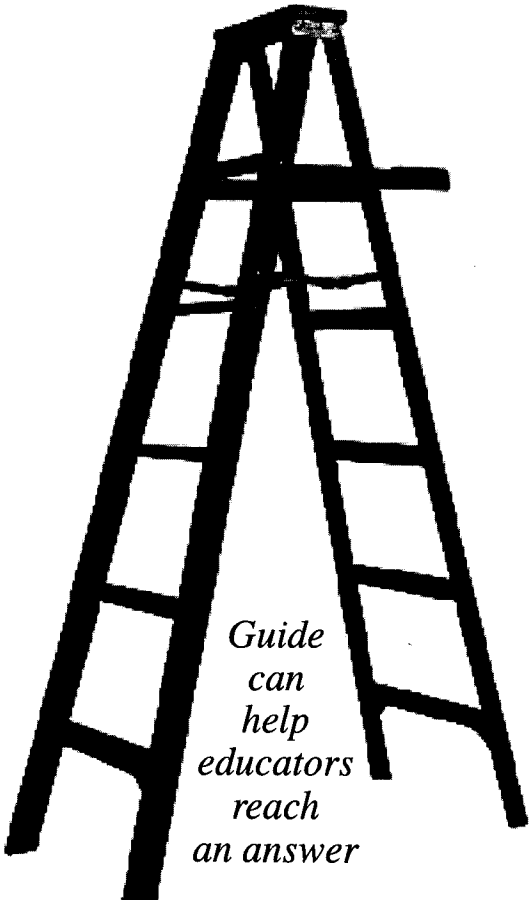
"That's simply not true!" Beverly, a 3rd grade teacher fumed as she looked at the newspaper editorial. The headline read: "Area Elementary Schools Shortchanging Students." She quickly scanned the article and found that the newspaper had based its claim on the latest state assessment scores for the community's three elementary schools.

In math and science, students at all three schools, including Beverly's, ranked below the state average. "We are, too, doing a good job! I know our kids are doing better than these state tests show," she muttered to herself, vowing to raise the issue at the next meeting of the school improvement committee.

"Look, this block scheduling we've been using for the past two years appears to be the answer to our problems," explained Murray, a middle school teacher, to his fellow teachers during a school improvement committee meeting. "But I'm getting lots of grumbling from our high school colleagues. They say we just jumped on the fad bandwagon and our kids are suffering. The high school teachers believe our kids simply won't be ready for the rigors of high school courses. How can we prove to them that block scheduling is working and our kids will indeed be ready?"

"I don't want to have to do that again," Joan complained to the principal's secretary as she walked out of the vice-principal's office, where she left four very angry 9th grade girls. "That's the second time today I've had to break up a shouting match between girls during passing period. Is it me or does it seem that this kind of thing is happening all the time? We need to do something to stop this!"

Beverly, Murray, and Joan need answers. In the first



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scenario, Beverly and her colleagues need to take stock of their school, answering the question: Where are we NOW? How "healthy" is our school? In the second scenario, Murray and his fellow educators need to determine the effectiveness of block scheduling. They need to ask and answer tough questions: Is it working and should we continue using it? In the third scenario, Joan needs to ask questions and get answers, but her questions have a different purpose: To find a solution to a problem.

Getting answers to these questions requires that educators know how to collect, analyze, and interpret data. In other words, they need to know how to conduct a credible program evaluation so that they decide how best to meet the learning needs of all youngsters. Conducting a credible program requires that educators follow six steps:

1. Pose questions.
2. Establish judgment criteria.
3. Make a plan.
4. Gather data.
5. Analyze data.
6. Interpret the results.

These six steps can serve as a suitable guide no matter how narrow or broad the scope of an evaluation. They work equally well for both individual teachers who want to take stock of their own classroom practices and teams of educators who want to determine the effectiveness of schoolwide interventions. Finally, the process can guide both formal and informal evaluations, as well as formative and summative evaluations.

If there's one thing we've learned in the last decade of school reform it is this: Good schools don't just happen. They happen because the adults in them decide to collaborate on systematically collecting and analyzing data, and then take action based on their findings. The six-step program evaluation process outlined here can serve as a beginning guide that we, as staff developers, can use to support teachers and principals as they seize the data and make decisions.

Answers require data: collecting, analyzing, interpreting.

STEP 1: POSE QUESTIONS

In Step 1, educators pose the questions that will guide their evaluation. At the outset, their questions will most likely fall into three categories – questions that take stock, determine effectiveness, or seek solutions.

Some taking-stock questions that can get an evaluation off to a good start include:

- Where are we now?
- How "healthy" is our school?
- How do we stack up against the standards?

If teachers want to determine the effectiveness of a strategy, they can simply ask:

- Did it work?
- Did we achieve what we set out to accomplish?
- Did it make a difference?

Finally, if their purpose is to find a solution to a problem, they can begin by simply asking:

- What's going on here?
- What's causing the problem?

As they generate questions, educators should spread their net wide. They should seek input from decision makers who decide the fate of the program as well as people who are affected, either directly or indirectly, by the intervention. Finally, they should review the program's intentions.

STEP 2: ESTABLISH JUDGMENT CRITERIA

Step 2 requires that educators determine up front the criteria and standards they will use to make their judgments. Why do this up front? A primary reason has to do with the difficulty we have in separating feelings from facts. Often stakeholders already have in mind some sort of criteria and standards they will use to judge the worthiness of the program. However, these criteria are often implicit and rarely well-defined. Furthermore, if stakeholders actually do define their judgment criteria, they tend to do so at the end of an evaluation, when their emotions are so mixed with the facts that they can barely tell one from the other. Under such emotional situations, we tend to make snap judgments based on gut feelings rather than data. To avoid snap, emotion-laden judgments, program evaluators explicitly state the judgment criteria and standards before they gather any data.

For example, Murray and his middle school colleagues in the example above might use these criteria to evaluate the effectiveness of block scheduling:

- Students on the block schedule will master a higher percentage of items on the state criterion-referenced assessment in reading comprehension, math problem solving, science knowledge, and expository writing than similar students who aren't on a block schedule.
- Students on the block schedule will show more engagement during academic classes than similar students who aren't on a block schedule.
- Students on the block schedule will demonstrate greater perseverance when faced with a difficult learning task than students who aren't on a block schedule.

Another reason for defining judgment criteria up front is that frequently these yardsticks will dictate the kinds of data evaluators need. For example, if the criteria for judging the effectiveness of the Drop Everything and Read (DEAR) program is "Our students will read significantly more fiction books during the semester," the teachers know they will need to collect data that show the number of fiction books read by students the semester before implementation of the DEAR program, as well as the number of books they read during the semester of implementation.

Educators can glean ideas for the judgment criteria and standards by asking

EXAMPLE: Evaluation planning matrix

What is the value of math journals?

A EVALUATION QUESTION	B INFORMATION NEEDED?	C USING WHAT METHOD?	D WHO WILL COLLECT?	E BY WHEN?	F HOW ANALYZE?
1. Do students learn math concepts better by using math journals?	Some demonstration of student understanding comparing classes that used journals and classes that didn't.	● Weekly quizzes	Me	11/15	I will calculate mean scores 11/17.
		● Student-written explanation of concepts	Me	11/17	I will calculate mean scores on rubric by 11/22.
		● Student questionnaire	Me	11/22	Kids will tally. I will do %s by 11/25.
2. Do students improve their problem-solving thinking by using math journals?	Some demonstration of student problem solving comparing those who used journals and those who didn't.	● Scores on ITBS math problem-solving action	Me from counselor	4/15	I will calculate mean scores by 5/1.
		● Scores on math problem-solving section on state assessment	Me from counselor	12/1	I will pull mean scores by 12/15.
		● Student questionnaire	Me	11/22	Kids will tally. I will do %s by 11/25.

stakeholders; reviewing checklists, standards, and guidelines; consulting with experts; reviewing the purposes of the strategy; and examining research.

STEP 3: MAKE A PLAN

Once they have their evaluation questions and judgment criteria in hand, the educators-turned-program-evaluators are ready to make a plan for getting their questions answered. Essentially, they sketch out who will collect what data, by when, and using what methods.

They also need to specify how to analyze the data they gather.

Building a matrix like the example above is the easiest way to develop an evaluation plan. In column A, the evaluator simply lists each of the evaluation questions posed in Step 1. Then, using common sense mixed with knowledge of good program evaluation techniques, the evaluator builds the rest of the matrix. Even modest, informal evaluations benefit from planning.

STEP 4: COLLECT DATA

Program evaluators use three basic methods to gather information:

- Reviewing documents or artifacts;
- Asking people for facts or opinions; and
- Observing situations and behaviors.

No matter which data collection methods they use, evaluators should keep them simple and reliable. "Simple" means relying on existing data when possible and making data collection easy for both those who provide the data and those who collect the data. "Reliable" means using systematic and impartial methods to gather data.

STEP 5: ANALYZE DATA

Step 5 consists of three tasks: organizing, describing, and analyzing the data. Organizing data involves putting the data into some sort of frequency table. One way to organize test scores is shown on the following page in the chart, "I feel most in control when I am..." The accompanying chart, "I can make a difference in my life," displays a frequency table summarizing data from a survey.

When describing data, both pictures and numbers work well. Some common graphs used to summarize and display data include bar charts, line charts, pie charts, pictograms, scatter plots, and box and whisker plots. Evaluators can also describe a set of data by using numbers. The mean, median, mode, range, and standard deviation can indicate both the central tendency and the variability within a data set. Spreadsheet computer programs can generate elegant graphs, and also calculate various measures of descriptive statistics in a flash.

In analyzing data, program evaluators seek to answer a range of questions. Some answers to these questions rely solely on logic and critical thinking, while others also require analysis using inferential statistics. This is the point in an evaluation where technical knowledge

about statistics and research comes in handy.

STEP 6: INTERPRET THE RESULTS

In Step 6, the educators-turned-evaluators can finally answer the questions posed in Step 1. No matter what type of questions they posed, the evaluators should follow a similar process to interpret the results of their analyses.

First, look for patterns. Do most of the student opinions point to a positive learning environment within the school? When do most of the fights in the hall occur? Do students on the block schedule achieve as well as or better than those not on that schedule? Using some sort of summary matrix can often help evaluators see the patterns emerge.

Next, using these identified patterns, draw conclusions that will withstand the scrutiny of supporters and critics alike. Finally, apply the pre-established criteria and standards set in Step 2 and make judgments about the effectiveness and worthiness of the program.

As they interpret their findings, teachers and principals should be aware of various pitfalls that can render an evaluation useless. Some common missteps include:

- Seeing what they want to see, rather than the facts.
- Looking at the data only through a "microscope," thus failing to see the big picture.
- Performing only an "eyeball" test of significance and concluding that any change is significant.

CONCLUSION

The six-step evaluation process outlined above puts the power of data in the hands of those who most need it – the teachers and principals who are on the "front lines" with kids. The process prepares these educators for the implied seventh step in the process: Taking action to improve student learning, and continually re-evaluating the situation and the actions taken to see if modifications should be made. By helping teachers and principals acquire the skills of program evaluation, staff developers can cultivate educational professionals who use data, and not just instinct, to guide their classroom and school practices.

EXAMPLE: Frequency table

"I feel most in control when I am..."

ANSWERS TO A SURVEY OF 160 STUDENTS

A Possible choices	B Frequency *	C Percentage **
a. Sports	22	13.75
b. Alone in class	17	10.62
c. With group in class	43	26.88
d. At home	17	10.62
e. Other	26	16.25
f. No control	35	21.88

* Number of students who selected this. ** % of students who selected this.

EXAMPLE: Frequency table

"I can make a difference in my life."

ANSWERS TO A SURVEY OF 6TH GRADERS

A Possible scores	B Frequency*	C Percentage**	D Cumulative frequency	E Cumulative percentage
0 (I CAN'T)	3	1.88	3	1.88
1	5	3.12	8	5.00
2	8	5.00	16	10.00
3	0	0.00	16	10.00
4	11	6.88	27	16.88
5	15	9.38	42	26.25
6	23	14.37	65	40.62
7	1	0.62	66	41.25
8	8	5.00	74	46.25
9	3	1.88	77	48.12
10	31	19.38	18	67.50
11	15	9.38	123	76.88
12	16	10.00	139	86.87
13	0	0.00	139	86.87
14	0	0.00	139	86.87
15	3	1.88	142	88.75
16	6	3.75	148	92.50
17	9	5.62	157	98.12
18	1	0.62	158	98.75
19	2	1.25	160	100.00
20 (I CAN)	0	0.00	160	100.00

*Number of students who obtained this score.
**% of students who obtained this score.