2.

Characteristics of

Effective Classrooms

"There's so much research it often seems contradictory. I just can't figure out what's important and what isn't."
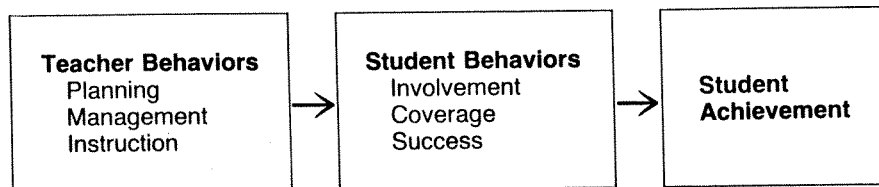
"I don't see how research can help improve my teaching—it's all too vague and too abstract."

Teachers and administrators alike seem to want to be guided by the best we know about teaching and learning, but they often have reservations like those quoted above. Fortunately, research has provided some cues as to what is important when attempting to improve classroom practice, especially as it relates to student achievement in the basic skills of reading, language arts, and mathematics. Figure 1 summarizes many of those findings. The purpose of this chapter is to present some of those findings and suggest how several key indicators of effective classrooms can be monitored by teachers and administrators.

One important finding is that students' classroom behavior is the most direct link to student achievement. A second important finding is that teachers' behavior can affect students' behavior in ways that will lead to improved student learning.

An overview of the effective classroom research indicates that students do better on standardized achievement tests in basic skills when they have been actively involved in and successful on content for which they are academically prepared and which is closely related to the content tested.

The same research indicates there are few single teacher behaviors that seem to be critical in and of themselves. Looking at composites of important teacher behaviors, however, we seem to find three categories:

Figure 1. Dimensions of Classroom Effectiveness.

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┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│  Teacher Behaviors  │     │  Student Behaviors  │     │                     │
│    Planning         │ ──> │    Involvement      │ ──> │      Student        │
│    Management       │     │    Coverage         │     │    Achievement      │
│    Instruction      │     │    Success          │     │                     │
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(1) planning, or getting ready for classroom activities; (2) management, which has to do with controlling students' behavior; and (3) instruction, which concerns providing for or guiding students' learning. Teachers who plan, manage, and instruct in ways that facilitate student involvement, coverage, and success are likely to be considered more effective.

These findings may not sound very new or surprising; in fact, many educators could probably identify these same student and teacher behaviors simply from experience. But the fact is, this knowledge is being applied in a wide variety of ways in school systems across the country. And if we look carefully at the research, there are a few surprises.

Student Behavior

The important student behaviors of involvement, coverage, and success have been studied independently and show a significant relationship to student achievement.

Involvement

Involvement simply means the amount of time the student spends actively involved in learning a specific subject matter. Involvement has two aspects: how much time is provided by the teacher (allocated time), and how well students are engaged during the time provided (engagement rate). Student engaged time, or time-on-task, is a measure of involvement that takes into consideration both allocated time and engagement rate (that is, student engaged time = allocated time × engagement rate).

One of the surprises that research on time has provided is the range that exists in practice for both allocated time and engagement rate. For example, Dishaw (1977) reported that time allocated per day for second-grade reading and language arts ranged from a low of 34 minutes to a high of 127 minutes; for second-grade math, the range was from 30 minutes to 59 minutes. Similarly, allocated time for fifth-grade reading

and language arts ranged from 57 minutes to 156 minutes and for fifth-grade math, 23 minutes to 76 minutes. Ranges among classrooms for engagement rate are similar to those for allocated time—namely, in some classrooms, students are engaged an average of 30 percent of the time, while in others the average is 90 percent (Brady, Clinton, Sweeney, Peterson, and Poynor, 1977).

A second surprise in the time research, given the average allocated time and engagement rate found in other studies, was the amount of student engaged time needed before one could expect improved student achievement. For example, it would be reasonable to expect an average classroom to have about 72 minutes of student engaged time in reading/language arts and 27 minutes in math,[1] but a reanalysis of the Stallings and Kaskowitz (1974) Follow Through Evaluation Study indicated that much more student engaged time is needed (Rim, Caldwell, Helms, and Huitt, 1980). In a first-grade classroom, as much as 130 to 210 minutes of student engaged time in reading and language arts may be needed to show greater-than-expected student achievement gains in that subject (based on a pretest), whereas in a fifth-grade classroom, only 90 to 135 minutes of student engaged time in reading and language arts may be needed (see Figure 2).

A third surprise is that more time isn't always better. For example, the same reanalysis of the Stallings and Kaskowitz data (Rim, Caldwell, Helms, and Huitt, 1980) showed that for first-grade mathematics, student achievement increased as student engaged time increased up to about 95 minutes per day, but then began to *decrease* as more student engaged time was accumulated (see Figure 2). Similar results were found for third-grade reading and language arts: approximately 135 minutes of student engaged time appeared to be optimal.

Coverage

Coverage, the appropriateness of the content covered by the student, can be considered in two ways. First, is the content covered appropriate given the student's prior learning? And second, is it appropriate given the achievement test the school or district will use to judge student achievement?

The issue of prior learning is relatively simple: does the student, before instruction begins, exhibit the prerequisites necessary to learn the new material? For example, students should be able to add two-digit numbers without regrouping before we teach them how to add two-

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[1] This figure is based on an average allocated time of 120 minutes and 45 minutes in reading/language arts and mathematics, respectively (Heinrichs and Rim, 1980; Graeber, Rim, and Unka, 1977), and an average engagement rate of 60 percent in both subjects (Brady et al., 1977).

Figure 2. Relationship of Student Engaged Time in Reading/Language Arts and Mathematics to Student Achievement.

Subject	Student Engaged Time (minutes/day)		
	Below Expected	At Expected	Above Expected
Reading/Language Arts			
Grade 1	40–110	110–130	130–210
3	45–90	90–115	115–135[a]
5	40–80	80–90	90–135
Mathematics			
Grade 1	5–35	35–45	45–95[a]
3	10–45	45–60	60–100
5		Range = 15–45[b]	

[a]Student achievement beyond this point began to decrease as student engaged time increased (maximum value: third-grade R/LA = 170; first-grade math = 140).
[b]Not significantly related to student achievement.

digit numbers with regrouping. On a broader scale, most of the content taught in school assumes some developmental sequence of learning tasks. It is generally assumed that a student needs to learn first-grade content before attempting second-grade content, that a student should pass Algebra I before beginning Algebra II, and so on. It is often easier for teachers to assume that all students entering a learning situation have the necessary prerequisites, but student test results, grades, and cumulative records provide abundant evidence that each student entering a classroom brings a unique array of knowledge and skills.

Bloom (1976) reviews research that highlights the importance of attending to students' prior learning. As much as 80 percent of the variance in post-test scores may be accounted for by pretest scores alone. Similarly, Bracht and Hopkins (1972) found that about two-thirds of the variance in eleventh-grade achievement could be predicted from third-grade achievement. The knowledge the student brings to the learning situation, then, has a strong effect on how well the student performs on subsequent measures of student learning. Unless low-scoring students are given instruction that takes into account what they currently know and can do, their pattern of achievement is unlikely to change.

The second aspect of coverage—the extent to which the content covered by the students is the content assessed by district achievement tests—is sometimes referred to as criterion-related instruction or instructional overlap. As one might expect, students in classes that cover more of the content tested generally make greater gains in achievement. In fact, in one study (Brady et al., 1977), achievement gains were more

highly linked to the differences in instructional overlap than to any other classroom variable.

A surprise is the range of criterion-related content actually covered during instruction. In the Instructional Dimensions Study, a study of reading/language arts and mathematics instruction involving over 100 first- and 100 third-grade teachers (Brady et al., 1977), the researchers found that the percent of overlap between content taught and content tested on a norm-referenced achievement test ranged from 4 to 95 percent. That is, students in some classrooms covered an average of only 4 percent of the content tested, while students in other classrooms covered an average of 95 percent.

A second surprise is that the percent of instructional overlap for which one would predict better-than-expected achievement (again based on a pretest) was found to be different for reading/language arts than for mathematics. And, at least for mathematics, the level of overlap also depended on grade level. For reading/language arts, about 70 percent of the content tested needed to be actually covered during instruction before one would predict that students would make better-than-expected achievement gains. For mathematics, on the other hand, the comparable figures were 40 percent for first grade and 60 percent for third grade (Brady et al., 1977). In other words, if teachers want student scores on an achievement test to be better than might be expected on the basis of a pretest, their elementary (first- and third-grade) students should cover at least 70 percent of the content represented on the reading/language arts achievement test, and at least 40 percent of the first-grade and 60 percent of the third-grade mathematics content tested.

A third surprise is that, again, more is not always better—at least not for first-grade mathematics, in which student achievement increases as instructional overlap increases up to about 65 percent, but decreases when instructional overlap exceeds that level (Brady et al., 1977). That is, covering *more* than 65 percent of the content represented by items on the first-grade mathematics test seems to have a detrimental effect on student achievement, at least on the standardized test used in the study.

Success

Success refers to the extent to which students accurately complete the assignments they have been given. Bloom (1976) and Skinner (1968) consider student success to be one of the most important of all instructional variables. Followers of Skinner's theory, in fact, advocate "errorless learning," suggesting that learning proceeds optimally when no errors are made.

By now the first surprise for success should no longer be a surprise. As is the case for both involvement and coverage, the range for

students' success is quite large. For example, in the Beginning Teacher Evaluation Study, Phase III (BTES-III), researchers found that students in some second-grade classrooms had completed as few as 9 percent of their reading tasks with no errors or only careless ones (i.e., at high success), while other students completed as many as 88 percent of their reading tasks at high success (Fisher, Filby, Marliave, Cahen, Dishaw, Moore, and Berliner, 1978). Comparable ranges were found for second-grade mathematics (2 to 92 percent), fifth-grade reading (15 to 81 percent), and fifth-grade mathematics (8 to 89 percent).

The second surprise is that the appropriate percent of high success seems to contradict Skinner's "errorless learning" theory. For example, in a reanalysis of the Fisher et al. (1978) data, Rim (1980) found that student achievement in second-grade reading increased as the proportion of tasks completed at high success increased up to about 75 percent, but then began to *decrease* as more tasks were covered at a high success rate. A study of 43 second- and third-grade classrooms (Crawford, King, Brophy, and Evertson, 1975) somewhat corroborates the work of Fisher et al. (1978). These investigators found that the optimal level of correct answers to teachers' oral questions was around 75 percent, again considerably different from the 100 percent hypothesized by Skinner.

The third surprise related to the research on success is that the appropriate level of success may vary depending on student characteristics. For example, using highly structured programmed materials and experimentally varying success rates, Crawford (1978) found that college students classified as having low motivation for achievement but high fear of failure did best when their success rate was approximately 93 percent and worst when their success rate was approximately 60 percent. Conversely, students classified as having high motivation for achievement and low fear of failure performed optimally at a 60 percent success rate and did worst at a 93 percent rate.

Summary

To summarize, the research on involvement, coverage, and success indicates that wide ranges for these behaviors are found in current practice; that more is not always better; that the appropriate levels may depend on grade level, subject area, and student characteristics; and that the appropriate levels are different from what we might expect on the basis of current practice.

Taken independently, these behaviors can be considered critical aspects of student classroom behavior. Combined, as Fisher and his colleagues (1978) have done, they form the construct of Academic Learning Time (ALT). ALT is defined as the amount of time that students spend actively working on criterion-related content at a high

rate of success. It is instructive to look at how much ALT students actually accumulate per day, given that students generally spend about five hours per day in school (Brady et al., 1977). Data from the BTES-III study indicate that second-grade students accumulated about 11 minutes Academic Learning Time a day for mathematics and about 19 minutes for reading. Average ALT for fifth-grade students was only slightly better: about 14 minutes a day for mathematics and about 35 minutes for reading. Again, however, there are wide variations among classrooms. For example, some second-grade students spent an average of only 3 minutes a day working successfully on reading, while others spent as much as 42 minutes. Certainly, there is room for improvement in most classrooms in terms of these critical student behaviors.

Teacher Behavior

Our review of the research on effective classrooms indicates that teachers can have an impact on student behavior and student achievement. And teachers do that by planning, managing, and instructing in ways that keep students involved and successfully covering appropriate content.

Planning

A number of models of teacher planning describe planning as a process of selecting objectives, diagnosing learner characteristics, and selecting appropriate instructional and management strategies (Peterson, Marx, and Clark, 1978). Many teachers do not consider these aspects during the planning process, however. They are more likely to focus primarily on tasks or activities that will be presented in the classroom, rather than on instructional objectives (e.g., Peterson et al., 1978; Shavelson and Stern, 1981; Zahorik, 1975).

Nevertheless, if students' involvement, coverage, and success are to be adequate, careful planning will certainly play a significant role. For example, selecting appropriate management and instructional strategies is likely to keep students more involved. Likewise, there is reason to believe that planning to cover skills and objectives that are to be tested will increase the overlap between content taught and content tested. Also, considering such student characteristics as prior learning in the selection of appropriate instructional strategies is likely to lead to better student success.

Prior learning. A number of Bloom's students (Anderson, 1973; Arlin, 1973; Block, 1970; Levin, 1975; and Ozecelik, 1974) have shown

that if deficiencies in prior learning are attended to, most students can learn what was previously learned by only the best students. Most of these studies involved comparing scores from one group of students who received corrective procedures after each learning task with scores from a group of students who did not. For the group whose prior learning was attended to, the correlation between entering and ending achievement was .36, while it was .68 for the other group. This means, then, that by attending to prior learning (that is, by altering the "normal" instructional sequence), teachers were able to reduce the effect of students' entering achievement on their final achievement.

The work of Bloom and his students suggests that some method of identifying and attending to students' knowledge of prerequisite skills is a vital aspect of classroom instruction. Bloom summarizes his position as follows:

If the school can assure each learner of a history of adequate cognitive entry in the first two or three years of the elementary school period, the student's subsequent history of learning in the school is likely to be more positive with respect to both cognitive and affective learning outcomes. Similarly, for each *new set* of learning experiences which start at later stages of the school program (e.g., science, social studies, mathematics, second language), providing for adequate achievement and appropriate cognitive entry behavior in the initial and early stages of the new set of learning experiences is likely to have a strong positive effect on the learning of the later sets of tasks in the series (1976, p. 70).

One method of attending to students' prior learning is by carefully examining students' previous achievement test results. To get a rough idea of how a student or group of students stands in relation to national and local norms, the teacher can look at percentile rankings, stanine scores, grade equivalent scores, or similar ratings. For more specific information, the teacher can look at the right response summary provided for most tests, which will indicate why a specific score was received.

A second way is to give a short quiz on knowledge pertinent to the next lesson. Of course we have all heard stories of teachers who tested more than they taught, but sometimes just two or three questions can elicit the required information. However, sometimes it is simply easier and quicker to give a brief review before introducing new content.

Instructional overlap. Planning the content to be taught so that it overlaps adequately with the content tested is not an easy matter. Often the teacher is provided with a curriculum guide that defines the content to be taught and a text that supposedly covers the same content. In addition, teachers must consider their own opinions, as well as those of the principal and parents, as to which topics are of most importance. Consequently, the teacher is likely to need some help and support in

selecting content to be taught if an adequate instructional overlap is to be obtained.

One way districts or individual schools might help is by developing a curriculum guide that at least represents the majority of the content to be tested. This will likely require some adjustments in the present guide (if one has already been developed), since finding a test that overlaps with the content and skills in the curriculum guide is difficult, if not impossible. Also, tests vary widely in the emphasis on various topics, even when the content covered is the same. For example, in a study of fourth-grade mathematics tests, the proportion of items using whole numbers varied from 39 percent on one test to 66 percent on another (Floden, Porter, Schmidt, and Freeman, 1980).

One drawback to relying on a curriculum guide is that teachers may not follow the guide when planning what content to teach (English, 1980). Indeed, teachers are sometimes more likely to be influenced by content covered in the selected text than in the guide (Floden, Porter, Schmidt, Freeman, and Schwille, 1980). For that reason, a second alternative might be to select a text that overlaps well with the test. However, there is a wide variety of topics covered by texts and tests, and again, an adequate overlap may be difficult. For example, in a study of core topics covered in fourth-grade mathematics texts and tests, only six specific areas were consistently emphasized across the three text-books and the five tests considered (Freeman and Kuhns, 1980). In fact, this same study showed that, at best, only 41 percent of the tested topics were covered by one of the textbooks.

Given that teachers would likely need to teach additional topics if an adequate overlap is to be obtained, and given teachers' apparent unwillingness to omit topics already being taught (Floden et al., 1980), any effort to improve overlap will probably require considerable reflection as to what is most important. While this could be a time-consuming and conflict-laden process, there is little reason to believe that any improvement would be made unless it is done in a systematic way.

Management

The second category of teacher behavior to be considered is management, commonly called classroom management. This category includes all the skills and techniques that are primarily intended to control students' behavior and are consequently most relevant when attempting to increase students' academic involvement.

A number of recent studies on classroom organization and effective teaching by the Research and Development Center for Teacher Education (Anderson, Evertson, and Emmer, 1979; Emmer and Evertson, 1980; Emmer, Evertson, and Anderson, 1980) provide support for

reviews of earlier work (for example, Kounin, 1977; Duke, 1979). Several broad themes have emerged from this research, including the need to:

• Analyze the tasks of the first few weeks in detail and predict what will confuse or distract students

• Present rules, procedures, expectations, and assignments to students in a clear, detailed manner and establish classroom routines

• Establish a system of student accountability for behavior and academic work

• Consistently monitor behavior and work and provide feedback on its appropriateness.

Other effective classroom management strategies are (1) structuring the physical environment to prevent distractions (Berliner, 1978); (2) planning smooth transitions between activities (Arlin, 1979); (3) pacing activities so that students become neither confused nor bored (Fisher et al., 1978; Kounin and Doyle, 1975); and (4) avoiding negative affect when controlling students' behavior (Soar and Soar, 1977).

Teachers we have worked with have reported that they could increase student involvement by making very simple changes in their management strategies. For example, some teachers simply print an independent work assignment on the board before students enter class, so that students can start working immediately. Others give students flags so they can signal the teacher when a problem develops during seatwork, rather than stopping and waiting for the teacher's help. Still others ask students to keep a book at their desks so they can read when they have completed the assigned work.

We have found it helpful for teachers to work in pairs or small groups as they attempt to develop specific management strategies in their classrooms. A striking example of how this can work is the case of a relatively inexperienced elementary teacher who asked an older, more experienced colleague to come into her room and observe her students' involvement. During the observation, it became readily apparent that, during small group activities, as many as seven or eight students would be out of the room (in the restroom, they said) at any one time.

As the two teachers discussed the situation, the younger teacher said, "Yes, I had noticed the situation. But the students really do need to go to the restroom, and I thought it unreasonable to not let anyone go." The teacher then decided to try a strategy that was suggested by the observer. She took two pieces of cardboard, labeled one "boys" and the other "girls," and hung them up in the back of the room. She then told the children, "Only one person can leave the room at a time. When you go out, simply turn the card over so that the blank side is showing; when you come back, return the card to its original position. If the blank

side is showing when you want to go to the restroom, you must wait until the other student returns."

When the observer returned several days later for another observation, she reported a dramatic change. The children had quickly adapted to the new routine and were no longer leaving the room en masse. The result was higher student involvement.

One last note about management strategies. Several studies (Duckett, Parke, Clark, McCarthy, Lotto, Gregory, Herling, and Burlson, 1980; Goldstein and Weber, 1981) show that the most effective approaches to management build group cohesiveness and consensus, establish an academic emphasis, and develop positive teacher-student and student-student relationships. An authoritarian approach in which the teacher assumes full responsibility for controlling student behavior, often through the use of pressure and force, is significantly less effective.
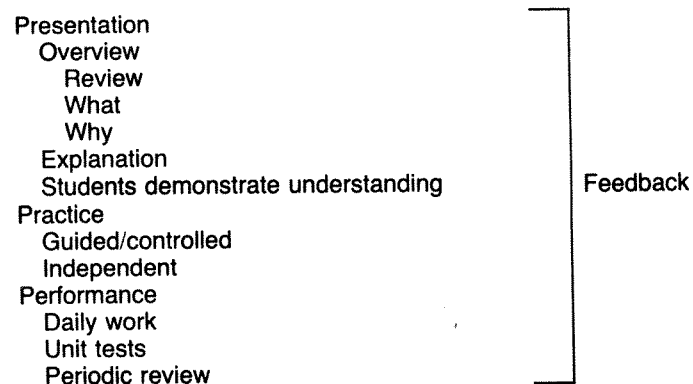
Instruction

The third category of teacher behavior is instruction, often called the quality of instruction or the process of instruction. Typically, research on specific instructional methodologies (such as questioning strategies or encouraging pupil participation) reveal numerous and complex relationships with student achievement (Rosenshine and Furst, 1963; Medley, 1977). Several efforts have been made to synthesize research on classroom characteristics and instructional methods, however. These efforts range from theoretical models, such as those of Leinhardt (1978, 1980), to prescriptive models, such as direct instruction (Rosenshine, 1977, 1979; Good and Grouws, 1979) and mastery learning (Anderson and Block, 1977; Bloom, 1976; Block and Burns, 1976; Burns, 1979; Barber, 1979; Abrams, 1979).[2] These instructional models, in addition to other syntheses of research on classroom instruction (Hunter, 1979; Medley, 1977), point to a number of behaviors that seem to characterize quality instruction. We have categorized these behaviors under the rubrics of presentation, practice, performance, and feedback, as shown in Figure 3. Although presented in a somewhat linear sequence in the figure, these behaviors usually occur in a cyclical fashion, with the sequence varying according to the lesson's content.

By presentation we mean the introduction and development of concepts and skills. The first behavior is an *overview* of the lesson. The teacher provides a *review* of previously learned concepts and skills, explains *what* is to be learned, and provides a reason for *why* the lesson is important (Bloom, 1976; Fisher et al., 1978; Good and Grouws, 1979).

The second behavior in the presentation portion of the lesson is

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[2]See Huitt and Segars (1980) for a review of these instructional models.

Figure 3. Instructional Events Related to Quality Instruction.

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Presentation
   Overview
      Review
      What
      Why
   Explanation
   Students demonstrate understanding          ⎤
Practice                                        |
   Guided/controlled                            |  Feedback
   Independent                                  |
Performance                                     |
   Daily work                                   |
   Unit tests                                    |
   Periodic review                             ⎦
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explanation, when the teacher develops or explains the concepts and skills to be learned. This explanation should be a planned part of the lesson (Fisher et al., 1978), focusing on the concepts and skills to be learned rather than on specific worksheet directions (Good and Grouws, 1979). Throughout the explanation, the students *demonstrate their initial understanding* of the concepts and skills to be learned, perhaps by responding to oral questions. The teacher continually provides *feedback* as to whether the students' understandings are correct, and if not, provides and explains the correct answers. This provision of feedback and correction is one of the key concepts underlying a "mastery learning" strategy (Bloom, 1976).

Studies by Fisher et al. (1978) and Good and Grouws (1979) emphasize the importance of providing a structured lesson and explaining concepts and skills fully and clearly. Also, these same studies recommend devoting more time to presentations for large groups and increasing the number of academic interactions between teacher and students. These interactions can be increased by asking students more questions (Fisher et al., 1978; Good and Grouws, 1979) and by establishing fast-paced instruction (Kounin, 1977).

After the teacher is satisfied that students have developed an initial understanding of the lesson, the students are ready to practice what they have learned. They begin under *guided or controlled* conditions by completing one or two short tasks under close supervision. Then they work *independently* with little or no teacher guidance. Several studies indicate that this independent practice should occupy from 25 to 50 percent of the allocated time for the subject area (Fisher et al., 1978; Good and Grouws, 1979).

Several teacher behaviors are related to improved student practice. For example, teachers need to give clear and specific directions about what to do (Fisher et al., 1978) and hold students accountable for completing their academic work within the required time (Anderson et al., 1979; Fisher et al., 1978; Good and Grouws, 1979). Again, teachers provide *feedback* about students' answers and explain once more if necessary.

Finally, student performance on *daily work,* on *unit tests,* and on *periodic review* is monitored. Students in effective classrooms spend at least half of their time working at a high level of success on daily work and less than 5 percent of their time working at a low level of success (Fisher et al., 1978). Students' mastery of a unit's content is evaluated every two to four weeks, with subsequent corrective feedback and remediation that lets all students master the content tested. Periodic review is provided on a regular basis (for example, weekly or monthly) to maintain mastery of concepts and skills (Good and Grouws, 1979).

Changes in instructional strategies do not have as dramatic an impact as do changes in management strategies. Nevertheless, teachers report making changes they believe do affect students' involvement and success. For example, a number of teachers use the list of instructional events shown in Figure 3 as a basis or checklist for their instructional planning. This has had an impact on the format of their instruction, especially the inclusion of reviewing the previous lesson and explaining the purpose of the lesson and why it is important. Teachers also report that they are more aware of students' responses and are providing correction with feedback, rather than simply stating that an answer is right or wrong. Most important, though, teachers report that they are continually assessing their instructional techniques and modifying those techniques when their students' behavior tells them that modification is needed.

Implications for Action

We have highlighted two sets of classroom characteristics that are related to student achievement, particularly in the basic skills. The relationship between student behaviors and student achievement is so strong that we can argue that, when students are involved, covering appropriate content, and successful on classroom tasks, there is a high probability that they will be achieving as well as or better than expected. In addition, we have described teacher behaviors relating to planning, managing, and instruction that can have an impact on student behavior. Now we would like to suggest why these characteristics are particularly

useful as a focus in supervision, inservice, and other instructional improvement efforts.

First, as a result of recent research, most of the behaviors described above have been defined in such a way that they are readily observable (see Appendix 1 for suggestions for monitoring student behaviors). Because of their relationship to student achievement, observations of these behaviors can yield indicators of classroom effectiveness and help teachers, principals, and supervisors identify areas of strength and areas for possible improvement. Observations also can be used to assess "in real time" the effects of classroom improvement efforts.

Second, the student behaviors and their relationship to student achievement have a face validity for most educators and lay persons. Obviously, students will be apt to score poorly on achievement tests if they have not been taught the content covered by the tests in a way that enables them to achieve a high level of success on a day-to-day basis. It further follows that students will be more apt to achieve day-to-day success if (1) their lessons start from where the students are, and (2) the classroom is managed and the instruction is delivered in ways that are appropriate for their individual learning styles and that catch their attention and involve them.

Third, each of the student behaviors can be logically linked to other important aspects of the classroom and school. Thus information on any specific characteristic may be used to stimulate inquiry into a series of related areas. To be specific:

● If evidence suggests that student engaged time is relatively low, teachers and supervisors might examine:
—allocated time for various instructional objectives
—protection of allocated time from unnecessary disruptions
—management strategies for controlling student behavior
—how children are socialized to the norms of both the school and the classroom.

● If evidence suggests that students are not covering an adequate amount of criterion-relevant content, teachers and supervisors might examine:
—teacher attention to students' prior learning
—the content taught that is not criterion relevant
—the match between the test content and the textbook content.

● If evidence suggests that students are not experiencing an adequate level of success, teachers and supervisors may need to reexamine all the areas relating to the design and implementation of instruction, including:
—teacher attention to student characteristics and to the scope and sequence of learning tasks

—the modes of instruction used
—the quality of feedback provided students.

In conclusion, then, we believe recent research has identified at least three student behaviors that can be used as indicators of effective classrooms. Research has also identified a number of teacher behaviors that can be used to affect student behavior. The challenge now is to design and implement programs that encourage teachers, principals, and supervisors to take advantage of this knowledge.

We are aware, though, that when attending to these behaviors, attention must also be given to orchestrating and integrating them with the other factors making up the complex environment called a classroom. For example, research indicates that student learning is facilitated by an appropriate match between students' entering ability and the assignment of tasks. In a normal heterogeneous class, this means that ability grouping within the classroom might be necessary. However, other research indicates that students are more likely to be engaged if taught as a whole group. Therefore, a higher success rate for low-ability students may come at the expense of a lower engagement rate for the whole class.

In addition, teachers must be able to orchestrate and integrate their own behaviors. In fact, Hunter (1979) defines teaching as "the process of making and implementing decisions, before, during, and after instruction, to increase the probability of learning." We propose, then, that any inservice program must concentrate on two areas. First, teachers and supervisors must learn to attend to these important student behaviors on a day-to-day basis. Second, and equally important, teachers must develop the ability to make decisions regarding their appropriate selection and implementation of planning, management, and instruction strategies to increase involvement, coverage, and success. These professional skills can be developed through a positive supervisory process, which is the subject of the next chapter.