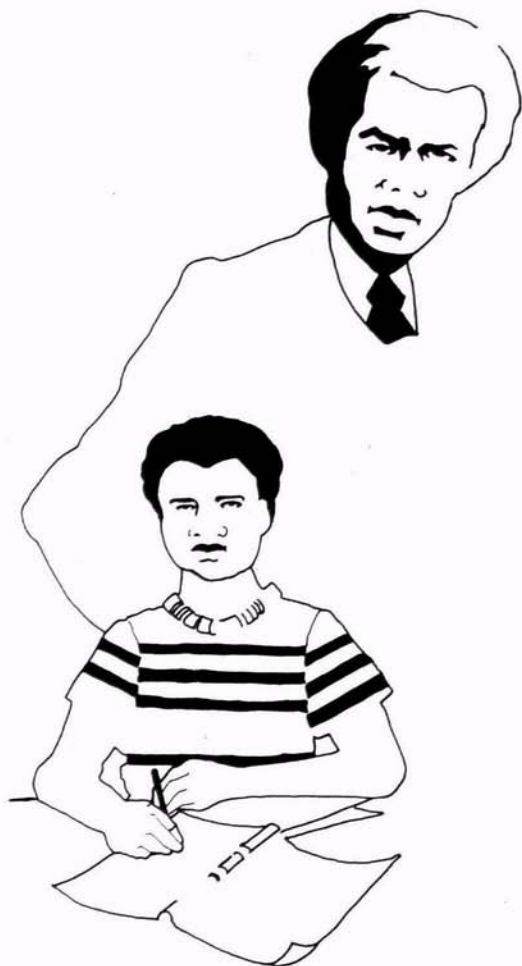


Improving Teaching by Increasing "Academic Learning Time"

Charles Fisher, Richard Marliave,
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Teachers will improve student learning if they attend to allocated time, engaged time, and student success rate.

Research on teaching effectiveness¹ has produced a concept that teachers and supervisors can use to improve student learning. It is Academic Learning Time, defined as the amount of time a student spends engaged in an academic task that he/she performs with high success.

The basic components of Academic Learning Time are *allocated time*, *student engagement*, and *student success rate*. In grade two mathematics instruction, for example, a certain amount of time is set aside for work on addition. There may be a block of time each day for addition, or addition tasks may be interwoven with other activities. In any case, the time *allocated* for addition constitutes an upper limit on the school time available for learning that subject. Decisions about time allocation are usually made by the teacher, but in some classes they may be made by individual students or jointly by students and teacher. Allocations may be different for different students in the same classroom.

For some portion of the allocated time, a student will be actively engaged in working on the task. Depending on the task, the student will be manipulating something, reading, thinking, interacting with other students, or in some way processing information about the task. Hence, *engaged time* is that portion of allocated time during which the student is paying attention.

The amount of student learning is influenced not only by the amount of engaged time, but also by the "match" between the task and the particular student. If the task is so difficult that the student produces few correct responses, then not much learning will result. On the other hand, if the student produces many correct responses, he/she is more likely to be learning.

Academic Learning Time occurs when all three of these conditions apply simultaneously; that is,

* This article is based on some of the findings of the Beginning Teacher Evaluation Study (Fisher, Filby, Marliave, Cahen, Dishaw, Moore, Berliner, 1978). The study was sponsored by the California Commission for Teacher Preparation and Licensing and funded by the National Institute of Education. The latter portion of the article describes current work being conducted at the Far West Laboratory as part of the Program on Teacher Development and Academic Learning Time.

¹ The use of time variables to conceptualize factors in school learning was first proposed by Carroll (1963). Most recently, Harnischfeger and Wiley (1976) and Bloom (1976) have done extensive work on time and learning in an educational context.

when time is allocated to a task, the student is engaged in the task, and the student has a high rate of success.

The Study

As part of The Beginning Teacher Evaluation Study² (Fisher, Filby, Marliave, Cahen, Dishaw, Moore, and Berliner, 1978), the amount of Academic Learning Time accumulated by students in reading and mathematics instruction at grades two and five was compared with changes in student achievement. Six students from each of 25 grade two classes and 21 grade five classes were given extensive reading and mathematics achievement batteries in October, December, and May. In the two interest periods, measures of allocated time, engagement rates, and success rates³ were obtained for individual students by extensive direct observation and teacher logs. Measured differences in the basic elements of Academic Learning Time for a particular interest period were then analyzed statistically for relationships with the change in student achievement scores from the beginning to the end of the period. These analyses were carried out separately at each grade level for reading and mathematics, and for many subcontent areas within reading and mathematics.

The Findings

Very large differences in time allocation were observed between classes. For example, the average amount of time allocated to mathematics in second-grade classes varied from around 25 minutes per day in one class to around 60 minutes per day in another class. In fifth-grade reading and reading-related instruction, the average amount of allocated time was found to vary from about 60 minutes per day in some classes to about 140 minutes per day in other classes. Similar differences were found in the amount of time allocated to specific topics within a subject (for example, addition and subtraction without regrouping). Teachers who allocated more time to a particular content area or topic had students who achieved at higher levels than teachers who allocated less time to that content area or topic.

Without attention, little can be learned. However, the data revealed that the average rate of engagement varied widely across classes and across individual students. For example, during reading and mathematics instruction there were classes that had an average engagement rate of about 50 percent. This means that students were attending to their work only half of the time. In other classes, the average engagement rate approached 90 percent. Two classes might have

allocated the same amount of time to reading instruction, but one class had almost twice as much real engaged learning time as the other. The proportion of allocated time in which students were actively engaged in the assigned task was positively associated with learning.

Students also varied in their success rates. The average student in the study spent about half the time working on tasks that provided high success. In grade five mathematics, the average was somewhat less.

"Allocated time, engagement rate, and success rate—the three ingredients of Academic Learning Time—are all associated with student achievement."

Students who spend more time than the average in high success activities had higher achievement scores in the spring, better retention of learning over the summer, and more positive attitudes toward school. An independent finding stated that the proportion of time that reading or mathematics tasks provided a low success rate for a student was negatively associated with student learning.

Allocated time, engagement rate, and success rate—the three ingredients of Academic Learning Time—are all associated with student achievement. Students who accumulate more Academic Learning Time generally have higher scores on achievement tests. This means that Academic Learning Time can be interpreted as an immediate, ongoing measure of student learning.

Staff Development Applications

During the last year, elementary school teachers have collaborated with Far West Laboratory staff to develop practical procedures for monitoring the elements of Academic Learning Time in their classrooms. Once a procedure has been developed that is appropriate for that particular classroom, it is used to gather descriptive information on the elements of Academic Learning Time. This initial period yields baseline data on the classroom and also provides time to build a positive relationship between teacher and staff developer.

The teacher then identifies a classroom situation he/she would like to work on. For example, the

² See, in this issue: Marjorie Powell, "New Evidence for Old Truths," pp. 49-51.

³ Many other variables were measured as well.

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teacher may choose to reduce transition time from one activity to another, try more small group activities, change the reading materials for a particular child, or integrate a transfer student into the class. The teacher can now use the Academic Learning Time information as feedback to analyze the situation and to assess the impact of the intervention. Depending upon the issue, feedback information might be obtained on only one element of Academic Learning Time, on only one group of students, on a single student during work on a specific curriculum content area, or on a specific grouping of students.

This procedure allows teachers to examine particularly relevant pieces of their everyday classroom life in terms of practical classroom variables that are related to learning and over which they have some degree of control. Using such a system, teachers modify their teaching so that students learn more and build their own capacity to change.

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