OVERVIEW

How children spend their time in classrooms continues to be a topic of importance for teachers, school psychologists, administrators, and educational researchers. Recently, researchers concluded that as little as half of each school day may be devoted to instruction in some classrooms, and engagement rates among students may range from as low as 50% up to 90%, depending on teachers’ managerial competencies, type of instruction, grouping practices, or individual student characteristics (Hollowood, Salisbury, Rainforth, & Palombaro, 1995).

Interest in learning time can be traced to Carroll’s (1963) original model of school learning, which hypothesized that learning is a function of time engaged relative to time needed for learning. The earliest and most extensive research program to examine the relationship between learning time and achievement was the Beginning Teacher Evaluation Study (BTES) (Denham & Lieberman, 1980). The purpose of BTES was to identify teaching activities and classroom conditions that promote student learning. Based on observations in classrooms over a 6-year period, BTES researchers arrived at the concept of academic learning time (ALT). Briefly, ALT is the amount of time during which students are actively, successfully, and productively engaged in learning (Fisher & Berliner, 1985). Perhaps the most significant finding from the BTES project was that ALT is a strong determinant of academic achievement.

Among the many variables that contribute to student achievement, ALT has been accorded special significance by educators because of the significance of the BTES findings and because components of ALT are viewed as manipulable facets of classrooms that teachers may be able to control. Research on effective teaching has identified evidence-based practices that strive to maximize learning time for all students (Gettinger & Stoiber, 1999). Given the significance of time as a determinant of learning, the purpose of this chapter is to describe best practices for working with teachers to evaluate, extend, and enhance ALT. The following discussion of basic considerations focuses on (a) defining academic learning time and its constituent parts and (b) describing procedures to assess current levels of learning time and identify classroom practices that contribute to ALT. The section on best practices describes strategies for increasing academic learning time that can be offered to classroom teachers through collaboration, consultation, or inservice training by school psychologists.

BASIC CONSIDERATIONS

As instructional consultants, school psychologists can play an important role in helping teachers modify their classroom practices to maximize academic learning time for students. Best practices for increasing academic learning time are based on two preliminary considerations: (a) an understanding of the components of ALT and (b) assessment of classroom time usage and identification of areas in need of change.
Components of Academic Learning Time

ALT may be defined as the portion of instructional time allocated to a content area during which students are actively and productively engaged in learning (Gettinger, 1995). Four variables contribute to ALT: (a) allocated time, (b) time that is actually used for instruction, (c) engaged time, and (d) academic success and productivity. As Figure 1 illustrates, the process by which allocated time is converted to productive learning time depends on school procedures, classroom practices, and individual differences among students.

Allocated time is the amount of time teachers plan to use or allocate for instructional activities. Allocated time represents the upper limit of in-class opportunities for students to be engaged in learning. Research has documented significant variation across schools and classrooms in the amount of time allocated for instruction (Anderson & Walberg, 1993). Although this chapter focuses on time allocated for instruction within school, it is important to note that students in the same classroom self-allocate variable time for learning outside of school. For example, one student may self-allocate 20 minutes every day to study spelling words, whereas another may spend only 5 minutes. Over a 5-day period, this results in variable study time across students, ranging from 25 to 100 minutes. Thus, the amount of total allocated time will vary considerably across individual learners, even in the same classroom. Differences in allocated time alone, however, account for only a small portion of the variance in obtained achievement (Gettinger, 1989). Some students simply require more time for mastering content than others. A discrepancy between the amount of time allocated and amount of time needed for learning contributes to low achievement, not allocated time in itself (Gettinger, 1991). As such, the most critical time-allocation issue facing teachers is the need to evaluate and accommodate individual differences among students in the amount of time they require for learning.

Instructional time is the proportion of allocated time that is actually spent on instructional activities.

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**Figure 1. Components of academic learning time**

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Allocated Time:</strong></td>
<td>Amount of time teachers allocate for instructional activities.</td>
</tr>
<tr>
<td>Reduced by: (a) student interruptions; (b) teacher interruptions; (c) class visitors; (d) announcements; (e) transitions; and (f) other sources of lost time.</td>
<td></td>
</tr>
<tr>
<td><strong>Instructional Time:</strong></td>
<td>Proportion of allocated time that is actually used for instruction.</td>
</tr>
<tr>
<td>Reduced by lack of procedural and/or substantive engagement by student(s).</td>
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</tr>
<tr>
<td><strong>Engaged Time:</strong></td>
<td>Proportion of instructional time during which students are engaged in learning.</td>
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<tr>
<td>Reduced by inappropriateness of the task for student(s).</td>
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<tr>
<td><strong>Successful and Productive Learning Time</strong></td>
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Studies of time use in schools consistently document that a limited portion of allocated time, between 50 and 60%, is used for instruction (Hollowood et al., 1995). A variety of events typically occur in classrooms that may reduce the number of scheduled minutes that are converted to instructional time. “Lost time” is the amount of time allocated to instructional activities that, for a number of different reasons, is not used toward the completion of those activities. Based on direct observations conducted in eight elementary classrooms, Hollowood et al. (1995) identified six categories of sources of lost instructional time: (a) student interruptions (e.g., disruptive behavior, leaving the room, changing seats, peer conflicts); (b) teacher interruptions (e.g., disciplinary actions, collecting or distributing materials, calling the office); (c) visitors to the class; (d) loudspeaker announcements; (e) transitions; and (f) other sources (e.g., late starts, early dismissals, fire drills).

Engagement rate is the proportion of instructional time during which students are engaged in learning, as evidenced by paying attention, completing written work, or interacting with peers about assigned work. Engaged time includes passive responding, in which students are passively attending to a presentation or task, as well as active responding, in which students are actively responding in a relevant manner to a presentation or task. Even in classrooms where students have an equal opportunity to learn, disparities exist among students in their individual levels of engagement. For example, Wharton-McDonald, Pressley, and Hampston (1998) conducted observations in nine first-grade classrooms of teachers who had been nominated as outstanding in terms of their literacy instruction. Although most students were engaged approximately 80–90% of the time, in some classes, engagement rates were as low as 50%.

Engagement rate is an important time variable; however, it does not impute any particular value to the activities in which students are engaged. The literature has contrasted two distinct forms of student engagement, procedural engagement and substantive engagement (Nystrand & Gamaron, 1991). Procedural engagement includes observable behaviors, such as paying attention in class and completing assignments. When researchers refer to “engagement rate,” they typically mean procedural engagement. Substantive engagement, however, transcends procedural engagement and involves a sustained personal commitment to and engagement in the content of instruction. Although procedural engagement is linked with achievement, academic learning is not possible without sustained, substantive engagement. This distinction between procedural and substantive engagement is important for understanding ALT. ALT depends not only on students’ procedural involvement with their schoolwork but also on the nature and quality of schoolwork in which they invest themselves. If students are required to engage in tasks that are not well-matched to their individual characteristics, such as interest, ability level, or background knowledge, then ALT is minimized because substantive engagement is likely to be low. For example, it is possible for students to spend time procedurally engaged in learning activities that are too easy, difficult, uninteresting, or superficial to be of educational value. Therefore, academic success and productivity comprise the fourth important element of ALT.

The rate of academic success and productivity reflects the proportion of engaged learning time during which students are performing meaningful and relevant instructional tasks that provide a balance of high and medium success, with more activities targeted at a high-success level. Notwithstanding the need to provide a certain amount of challenging material, research indicates that children gain most from their learning time when they experience a relatively high level of success, about 80% accuracy (Greenwood, Terry, Marquis, & Walker, 1994). That is, students should encounter a preponderance of success in their daily work (e.g., responding to teachers’ questions, completing math problems, or practicing spelling words), with the ratio between correct and incorrect responding favoring success by a 4-to-1 margin. Maximizing academic success and productivity depends, to a great extent, on teachers’ ability to match learning tasks to individual learner needs in terms of knowledge, skills, and interests.

Although the amount of time teachers allocate (allocated time) and use for instruction (instructional time), as well as the proportion of time during which students are engaged (engagement rate), are all positively correlated with learning, it is the proportion of engaged time that is productive, active and successful that relates most strongly to achievement. In view of the complexity of ALT as depicted in Figure 1, successful efforts to increase ALT are multi-faceted. Specifically, best practices require that (a) teachers...
maximize their allocations of instructional time and minimize lost time; (b) students maintain high engagement rates, both procedurally and substantively; and, (c) students experience a high level of success on meaningful academic tasks.

**Assessment of Classroom Time Usage**

The second consideration for school psychologists is familiarity with assessment strategies for evaluating the use of time in classrooms. Best practices for increasing ALT begin with a comprehensive analysis of ALT using the framework in Figure 1. To increase ALT, it is necessary to analyze the constituent parts and then evaluate how time is used or lost within each component. Pursuant to this goal, three assessment strategies are reviewed: (a) self-analysis of time use within an action-research paradigm, (b) ecobehavioral assessment by an external consultant, and (c) functional assessment through collaboration between teachers and consultants.

**Self-Analysis of Time Use**

The first strategy entails helping teachers analyze their own use of instructional time and target potential areas for change. An action-research approach helps teachers address self-determined issues in their own classrooms, such as the need to increase ALT. It permits ongoing opportunities for teachers to collect data about their own classrooms to guide instructional decisions. When teachers gather data themselves, in the context of their own classroom and focusing on meaningful issues, they are more likely to apply what they learn to their classroom practices (Whyte, 1991).

By using the framework in Figure 1, two types of self-analysis procedures can be conducted to heighten teachers’ awareness of their use of instructional time and identify how potential learning time may be lost during the day. The first approach is group-based. In this approach, the school psychologist facilitates discussions among small groups of teachers. Collaboratively, teachers work through the framework in Figure 1, using their knowledge about school operations and estimates of how they allocate class time. Prior to group meetings, teachers are encouraged to maintain personal logs of time usage during a typical one- or two-week period. As a group, teachers begin by placing the number of minutes available in a school day in the top box. Then, they examine common ways that potential instructional time is lost (e.g., recess, transitions, early dismissals). When lost time is subtracted from allocated time, the amount that remains represents available instructional time, and is recorded in the second box. Next, teachers estimate and compare engagement rates in their classrooms across different instructional formats (teacher-led discussion, independent seatwork, etc.), academic domains, and learning tasks to record in the third box. Finally, teachers attempt to construct a profile of overall success among students in their classrooms (e.g., high-, average-, or low-success students) to estimate the proportion of learners for whom ALT is further reduced because the work is too difficult. This mutual analysis of time usage among teachers in small groups provides a forum for collective dialogue on ways of modifying classroom practices to increase ALT. A key feature of action research is the provision of structured opportunities for discussion and sharing of strategies.

The second procedure entails a more extensive, focused analysis of time use within an individual classroom, typically conducted in consultation with a school psychologist. As with the group approach, this analysis relies on the framework in Figure 1. Assessment involves the use of self-monitoring procedures to measure actual time usage in classrooms or for individual students. For example, Paine, Radicchi, Rosellini, Deutchman, and Darch (1983) developed a structured schedule analysis form and step-by-step procedure to help teachers examine how they are using instructional time. For this procedure, teachers construct a written schedule of all classroom activities and compute the percentages of available time they devote to each activity. Activities are then ranked from highest to lowest based on the percentage of time allocated to each one. It is also useful for teachers to rate student achievement and overall student engagement in each curricular area on their schedule. This allows them to determine whether there is a relationship between overall achievement and allocated time and, in turn, whether allocated time reflects the needs of students. For example, if spelling performance is lower than expected or desired, teachers can examine instructional time in spelling relative to other content areas and determine whether the time matches students’ learning needs.
Perhaps the most important aspect of self-analysis procedures is when teachers, either in groups or individually, reflect on the extent to which their classrooms are characterized by high or low levels of ALT, and think about what may be facilitating or impeding the accumulation of ALT. In some cases, teachers may conduct a small-scale study in their classroom over a short period to systematically evaluate the effect of an instructional change on students’ ALT (e.g., replacing individual oral reading with choral responding for one to two reading lessons and, then, comparing engagement rates). To guide their thinking and encourage reflective practice, teachers may also be directed to respond to specific probes, such as those proposed by Paine et al. (1983). For example, teachers might ask themselves: (a) Do I provide students with frequent opportunities to respond? (b) Does the time I allocate to activities match students’ needs? (c) Am I successfully managing transition times? (d) Have I ensured that all students work on materials that are appropriate for their skill level? (e) Does my schedule minimize organizational time?

**ECOBEHAVIORAL ASSESSMENT**

The second assessment approach, which relies on consultants or classroom observers, is to collect data on classroom variables, engagement rates, and success levels among students through systematic, direct observation. One observational method for studying academic engagement within the context of classroom and teacher variables is *ecobehavioral assessment* (Greenwood, Carta, & Atwater, 1991). The primary focus of ecobehavioral assessment is on active student responding. This approach is used to identify naturally occurring variables that are associated with high versus low levels of engaged behaviors. Although student engagement is not a direct measure of learning, it is positively correlated with achievement for students, both with and without disabilities. The goal of ecobehavioral assessment is to observe student engagement, a proxy for learning, over multiple activities, instructional arrangements, and teacher behaviors to arrive at an understanding of variables that are associated with high engagement. Although a number of different procedures may be used to complete an ecobehavioral assessment, the most frequently used systems are based on the *Code for Instructional Structure and Student Academic Response* (CISSAR) (Stanley & Greenwood, 1981). Classroom observers, using the CISSAR, collect data on the classroom context (e.g., activity, materials, instructional grouping), teacher variables (e.g., behavior, instructional focus), and academic responding among students. Unlike the self-analysis methods described, direct observation approaches employ complex codes that have the disadvantage of requiring independent classroom observers, but have the advantage of offering detailed information about classrooms, teacher behaviors, and student responding.

**FUNCTIONAL ASSESSMENT**

The third procedure for evaluating classroom time usage is functional assessment. Functional assessment is a direct method for examining relations between classroom performance and features of the instructional environment. A functional-assessment approach relies on collaboration between teachers and school psychologists, and involves three phases: (a) observing and describing the educational environment (e.g., task, materials, instruction, organization, etc.) during periods of high and low ALT; (b) generating hypotheses about the relation between ALT and the instructional context; and (c) testing hypotheses using experimental functional analysis, or a systematic manipulation of variables that contribute to ALT (Daly, Witt, Martens, & Dool, 1997).

A functional-assessment approach may be used to examine ALT for an entire class or an individual student. To implement functional assessment, the teacher or school psychologist conducts observations during instructional periods when academic performance and student engagement are low, as well as during periods when performance and engagement are high. Based on collective observations, teachers and consultants develop hypotheses about the sources of high versus low ALT and, based on these hypotheses, make modifications in the classroom structure or delivery of instruction to maximize ALT. To illustrate this procedure with an example: A teacher noted that students were struggling with science. The school psychologist observed during two to three science periods. Students spent approximately 40% of the instructional period moving between the front of the classroom, where directions for the science activity were written on the board, to the back of the room, where science materials were located, and then to their seats, where they were expected to write in their science journals. The school psychologist also noted a high level of off-task
behavior during the time that students were making these transitions. Based on additional observations during more productive instructional periods, the psychologist and classroom teacher developed the hypothesis that low ALT was linked to the organization and location of critical components for science activities (directions, materials, and journals). To test this hypothesis, prior to the next science lesson, the teacher printed directions for the activity on a page and separated materials (i.e., different types of rocks) into individual bags for students to keep at their desks. The teacher and school psychologist, then, monitored student engagement during the science period as well as learning outcomes (e.g., quantity and quality of journal entries; accuracy of student responding to teacher questions). Both performance and engagement improved when these modifications in the structure of the science lesson were implemented. In sum, school psychologists can initiate teachers’ thinking about instructional time through an analysis of the four components that comprise ALT by using the framework in Figure 1. Working from evaluations of current time use, based on self-analysis, classrooms observations, or functional assessment, school psychologists are in a position to provide individual consultation or inservice training to assist teachers in increasing students’ ALT.

BEST PRACTICES

Research on the relationship between learning time and achievement supports the recommendation that teachers should be encouraged to incorporate teaching methods and classroom practices that maximize ALT. Using assessment information (e.g., classroom time-use logs, observational data), school psychologists can provide individual consultation or direct training to assist teachers in increasing ALT. Strategies for increasing student learning time have been derived from over 25 years of research on effective teaching. Because increases in student engagement covary with gains on both Curriculum-Based Measures and standardized tests, effective-teaching research has used ALT as an outcome variable to determine the effectiveness of instructional practices.

Effective-teaching research may be organized into three broad categories depending on the research paradigm. These include (a) a process-product paradigm, which examines the relationship between teacher behavior and student engagement; (b) a classroom-ecology paradigm, which considers the structural and organizational features of classrooms that are associated with student engagement and learning; and (c) a mediating-process paradigm, which focuses on cognitive-behavioral activities that mediate the relationship between teacher behavior or classroom structure and student engagement. All three strands of instructional research have contributed to our understanding of the teaching-learning process and to knowledge of best practices for increasing ALT (Gettinger & Stoiber, 1999). Consistent with these paradigms, best practices for increasing ALT are discussed in terms of three types of recommendations, as shown in Figure 2. Best practices address: (a) teacher behaviors, (b) structural arrangement of classroom environments and learning situations, and (c) student-mediated strategies.

The following sections describe practices that are intended to serve as guidelines for school psychologists in their role as classroom consultants. Not every procedure may be effective or efficient for all classrooms and teachers. Because of individual teaching styles and classroom arrangements, school psychologists must work collaboratively with teachers to analyze time use, target areas in which learning time can be increased, identify students whose ALT is below average, and develop strategies that are tailored to teachers’ individual styles and individual learners’ needs. A critical role for school psychologists is to facilitate teachers’ utilization and, when necessary, modification of these procedures in their classrooms. Teachers should always be encouraged to modify methods based on their own experiences. Furthermore, teachers constantly need to monitor their own behavior and its relationship to students’ performance to refine, personalize, and develop methods that are maximally effective in increasing ALT.

Process-Product Research Paradigm: Interactive Teaching Behaviors

Teacher behaviors and instructional management strategies have an impact on student behavior so as to promote ALT. Collectively, these behaviors reflect what has been termed a directive or interactive teaching style. Interactive teaching encompasses multiple teaching behaviors that are associated with high levels of ALT. (See Figure 2.)
The primary characteristic of interactive teaching is a strong academic focus. Academic focus is reflected in the amount of time devoted to academic versus nonacademic activities and in the type of instructional interaction that prevails in the classroom. According to Good and Brophy (1996), classrooms with a strong academic focus share the following characteristics: (a) systematic, teacher-structured activities; (b) lessons and content related to attaining specific goals; (c) rapid pacing of lessons; (d) ready availability of teaching materials; (e) high levels of student participation and responding; (f) student accountability for homework; and (g) frequent monitoring of students' performance through weekly and monthly tests.

The nature of teaching activities is also related to ALT. Not all academic activities are of equal instructional value. Interactive activities, such as discussion, review, or reading aloud, are more strongly related to ALT than non-interactive activities, such as silent reading or completing independent seatwork. Spending more time in interactive instructional activities may be initiated after teachers analyze their classroom activities and consider ways to modify activities to be more interactive. For example, math problems might be solved collectively by small groups of students rather than individually as an independent seatwork assignment.

Another important aspect of interactive teaching is the nature of children's participation in learning activities. Active academic responding by students is related to high levels of ALT. Active responding involves children's practicing academic tasks, such as answering a question, reading a text, or performing the steps in solving a problem. Incorporating some element of active student responding into every learning activity and encouraging responses from all students during group lessons and discussion can increase ALT.
Again, a careful analysis of classroom tasks might reveal how active responding can be built into activities. For example, students could be encouraged to ask questions and respond to answers from peers as well as answer their classmates’ questions, rather than having the teacher do so. Beyond fostering active participation, this strategy allows students to practice good listening skills. Furthermore, active responding affords the teacher numerous opportunities to monitor students’ progress and provide corrective feedback about their performance.

Interactive teaching involves a high level of student-teacher interaction, which is also associated with high levels of ALT. As the teacher interacts with and directs questions to students, it is important that all children be given an opportunity to participate, not just those who are eager to respond. Low-functioning students, for example, may accrue lower amounts of ALT because of fewer student-teacher interactions and fewer opportunities to respond.

Many teachers state that maintaining interaction and engagement among all students during whole-class discussions is one of the most difficult aspects of interactive teaching. An effective questioning technique to maintain engagement is to direct questions to students randomly or in ordered turns, moving in sequence among all children in the class. Reshuffling and cycling through a set of index cards with students’ names ensures that students are called on during question-and-answer periods. Random selection in calling on students has the effect of keeping students attentive, particularly if the teacher occasionally returns to a student who has recently answered a question.

Another recommendation for maintaining engagement during student-teacher interactions is to wait at least 5 seconds before providing a correct answer to a question or calling on another student to respond. To make teachers aware of “wait time,” school psychologists should ask teachers to consider a typical question they might pose to students during instruction, then silently count to five to experience a 5-second wait. If teachers want to maintain students’ engagement and increase willingness and ability to answer questions, then the teacher must provide all students adequate time to answer. When teachers fail to provide sufficient time for responding, students learn they can remain uninvolved simply by failing to respond immediately. Another aspect of student-teacher interaction is feedback. Children perform better and maintain high levels of ALT when they receive frequent performance feedback. Feedback that is characterized by specificity and academic relevance maximizes ALT. Information given to students about their performance should indicate whether responses are correct or incorrect, and provide specific suggestions for rethinking or redoing the work.

A number of procedures related to the actual delivery of instruction within an interactive teaching approach also influence ALT among students. For example, instructional time is lost in classrooms when teachers have difficulty obtaining students’ attention and getting started on lessons, or making smooth transitions between activities. Several strategies can reduce the amount of time needed to start new activities. One strategy is to select a discriminative stimulus or cue that foreshadows a transition to a new activity. The phrase or cue can be thematic, may vary every month, and can be selected by the students themselves. In one third-grade classroom, a teacher used concepts from a science unit on sea animals and plants to cue classroom instructional transitions. For example, she used the cue, “Time to go deep-sea fishing,” to signal that the class was ready for independent seatwork, and the cue, “Time to surface,” to direct children to conclude their independent work and come to the rug for whole-class discussion. Teachers should record the time it takes students to pay attention following the cue and to monitor the reduction in the amount of time needed across weeks. Children can be challenged to reduce the time it takes the class to get ready for a lesson from the previous time. Another guideline is to wait to begin instruction until everyone is paying attention to prevent having to repeat content or directions for completing work. The amount of time targeted for students to “get ready” should be optimal, allowing slower students sufficient time to attend while maintaining readiness among the faster ones.

Another recommendation related to the delivery of instruction is to stimulate interest in new content by relating it to a previous lesson or experience, or starting with a motivating activity to make the initial contact with the lesson positive. Students’ engagement in tasks can be heightened by indicating why the material is being learned and by suggesting ways in which the new learning may be related to other events or experiences in their lives.
Classroom management strategies designed to conserve instructional time is another component of interactive teaching. The best management strategy for non-instructional transitions is to instill awareness in students of classroom rules and procedures for such activities. Teachers with well-managed classrooms invest considerable time, particularly early in the year, teaching students the routines necessary for smooth classroom operation.

Finally, interactive teaching includes proactive planning. Proactive planning includes all steps a teacher takes to be prepared to deliver a lesson. The first step is to develop clear goals and objectives for instruction; that is, what students are expected or desired to learn. Once goals and objectives are established, the method of instruction must be determined (e.g., large-group versus small-group, teacher-directed versus student-directed). After deciding what to teach and how to teach it, the next step is to communicate goals and expectations to students. Effective communication includes giving precise instructions that clearly describe the goals of the lesson, activities to be completed by students relative to their goals, and evaluation procedures.

A significant amount of lost time often results when students do not understand how they are to proceed with assigned tasks. To ensure that students understand instructions, teachers can ask students to paraphrase the directions and self-identify problems that might occur in understanding or following directions. In addition, whenever possible, directions should be written and placed where they can be seen and referred to by students as needed. It may also be necessary to distribute outlines, definitions, or study guides to help students organize their thoughts and focus their attention on lessons or assigned work. Before presenting a lesson, teachers can also brainstorm potential problems that could result in loss of ALT. Problems might be academic (What will I do if students have trouble understanding a concept?), behavioral (What will I do if students are off task?), or administrative (What will I do if some students do not have their materials?). Once trouble spots are identified, the teacher can then generate workable solutions. The more prepared a teacher is to address problems, the more time available for students to be actively engaged in learning.

In summary, interactive teaching occurs when the teacher assumes a central, active, and directive role in the instructional process. Teachers who emphasize academic goals and display high levels of involvement with students on learning tasks generate high levels of ALT. The teacher selects the academic activities and leads students through academic tasks to accomplish goals and objectives. There is a high level of student-teacher interaction, most of which is initiated by the teacher. The majority of instructional time is devoted to the teacher’s presentation, explanation, and demonstration. Practice, feedback, questioning, and review of activities also figure prominently in daily instruction. The teacher monitors student progress and provides corrective feedback. The teacher holds and conveys high expectations for student performance and provides students with many opportunities to experience success. Finally, planfulness, clarity of directions, praise, and feedback are all associated with high levels of ALT.

Classroom-Ecology Research Paradigm: Structure of Classrooms and Learning Situations

Increasing ALT also requires restructuring and reorganizing classrooms that extend beyond individual teacher behaviors. Several approaches have been shown to promote high levels of ALT and achievement among diverse students. Collectively, these strategies are called adaptive instruction. Adaptive classrooms are designed to accommodate a wide range of individual differences among students. Conceptually, adaptive instruction is a two-way enterprise between the classroom environment and the students. Efforts to adapt to student diversity have a dual focus: (a) structure the learning environment to accommodate students’ needs and (b) provide students with independent learning strategies to improve their capability to adapt to the demands of the classroom. Three adaptive strategies for restructuring classroom learning are described: (a) integrated curriculum, (b) flexible grouping, and (c) physical arrangement of classrooms.

The recommendation for an integrated curriculum strategy emerges from the lack of adequate time for content-area teaching that often occurs, particularly in the upper elementary grades. Lack of instructional time is a limitation to improving the quality of instruction in areas such as science and social studies. For example, with restricted instructional time, many elementary science programs include only assigned reading activities in science textbooks. Educators attribute negative attitudes displayed by students at the sec-
ondary level toward content areas, such as science and history, to lack of in-depth instruction in elementary school that includes hands-on activities. At the same time, educators stress the importance of content-based reading activities as vehicles for developing applied reading comprehension and thinking skills, but they also acknowledge the limited amount of instructional time available for such activities.

An integrated curriculum strategy that teaches applied reading skills across a range of content areas is one approach to circumvent this problem; that is, to increase ALT in content-area reading while providing sufficient time for in-depth thinking activities. The goal is to improve the quality of both content-area and reading instruction within an integrated time frame that reallocates the combined instructional time assigned to all curriculum areas. For example, Romance and Vitale (1992) described an integrated curriculum strategy designed to increase the time allocated for in-depth science teaching by replacing the district-adopted basal reading program with science-content-based instruction that concomitantly facilitated reading comprehension skills. They found that ALT in both science and reading activities increased for students as did achievement, attitudes toward science and reading, and academic self-confidence.

Flexible grouping practices also allow teachers to maximize ALT for all students. Whole-class instruction has the potential for enhancing engagement because the teacher is able to monitor and foster active responding among all students at one time. Whole-class instruction, however, may not provide individual students with sufficient opportunities to respond, or with material at an appropriate level of difficulty to ensure a high success rate necessary for ALT. Individual seatwork, on the other hand, lends itself to providing high levels of student success, but it may minimize students’ engagement. Furthermore, individual teaching and learning activities do not always represent the most efficient use of allocated instructional time. Teaching students in small groups or having students work cooperatively in groups can circumvent some of the problems inherent in individual or whole-class teaching.

The key to grouping practices that are successful in increasing ALT is flexibility. Membership in groups should change on the basis of specific needs of students and the nature of the learning activity. Decisions about grouping for instruction are important because of the management implications and instructional impact. For example, heterogeneous grouping arrangements foster high levels of engagement in activities that are designed to be cooperative; that is, activities in which students coordinate their individual skills and efforts to achieve a group goal. Typically, exploratory tasks lend themselves to heterogeneous grouping. These tasks are designed to foster social development and enrich or apply basic skills, such as playing games or solving problems. For group activities to maintain a high level of student involvement, tasks must be selected to allow each student to function as a contributing member. Every student needs the opportunity to be both challenged and successful on the learning task, which may require adding easier or smaller components for low-ability students as well as adding more difficult or complex ones for high-ability students. Homogeneous grouping, on the other hand, allows students to work on material according to their achievement level and pace. Homogeneous grouping arrangements allow the teacher to provide assistance geared to the level of students in the group, thus maximizing their ALT. Prescriptive tasks are more appropriate for homogeneous groups, such as completing independent seat work problems, receiving teacher-directed explanations, or being tutored in basic skills.

Another grouping practice that results in high levels of ALT is peer tutoring. In this grouping structure students take turns serving as tutors (who evaluate and provide feedback about responses) or tutees (who respond to academic prompts). An effective method of class-wide peer tutoring has been developed by Greenwood, Delquadri, and Carta (1997). This method involves pairing students for reciprocal tutoring, changing partners regularly, providing immediate feedback and correction of errors, and using team reinforcement contingent upon performance. When students are engaged in peer tutoring, half the class provides an answer while the other half evaluates the answer, keeping all students consistently engaged in the task. To implement an effective peer tutoring program, teachers must carefully select instructional content, provide students with clear instructions, and monitor student understanding. When implemented correctly, peer tutoring increases student engagement across academic subjects, providing benefits to tutors and tutees (Skinner, Shapiro, Turco, Cole, & Brown, 1992).
In sum, grouping children to maximize ALT, particularly children with academic problems, should reflect teachers’ knowledge of engagement patterns in their classrooms and how to make the best use of instructional time. Each grouping option impacts differently on students’ engagement. Whole-group instruction may be easiest to manage because the teacher can supervise all students at one time. Small-group instruction and peer tutoring entail greater planning and management skills, but they are more effective in engendering high levels of interaction. Finally, individualized instruction facilitates matching instruction to each child’s needs and skill level to maximize success rate. Efforts to increase ALT reside in the application of grouping practices according to the particular needs of students.

The third structural approach to increase ALT relates to the physical arrangement of the classroom. Classrooms should be arranged in a way that matches the typical grouping practices and instructional method. For example, if a teacher regularly engages in whole-class instruction, then arranging desks in groups so that some students must turn around in their seats to see the board is not the best arrangement. Another consideration when arranging a classroom is the flow of traffic within the room. To provide students with prompt feedback and minimize disruptions teachers must have easy access to all areas of the classroom. A well-organized classroom allows a teacher to monitor all students from anywhere in the room and has direct routes across the classroom so teachers can quickly redirect students who are off-task. When examining the flow of traffic, placement of both high traffic and quiet areas is important. High traffic areas, such as supply shelves or pencil sharpeners, should be placed away from student work areas. Time-out or quiet areas should be separate from the group, but not completely isolated. It is important for teachers to be able to monitor students in these areas while continuing to work with other students in the classroom. Physical arrangement of the classroom can reduce the amount of ALT lost to disruptions and off-task behavior.

Mediating-Process Paradigm: Student-Mediated Strategies

Whereas best practices for increasing ALT based on the process-product and classroom-ecology paradigms emphasize instructional and managerial strategies external to the learner, the mediating-process paradigm focuses on within-learner or cognitive variables that maximize ALT. Consistent with Carroll’s model, research has shown that student learning is a function of the discrepancy between the amount of time available for learning and the time students actually spend engaged with the content of instructional activities (Gettinger, 1989). Even when teachers consistently implement best practices for maximizing ALT, students may spend less time than needed or less time than what is available because of low motivation, low self-efficacy, or lack of self-monitoring skills. Furthermore, although students may appear to be actively engaged in learning, their ALT may not be optimal because they employ ineffective learning strategies or may have difficulty allocating attention efficiently to information within tasks. Therefore, best practices for increasing ALT include not only procedures to improve how teachers allocate and structure available time (instructional efficiency) but also methods that focus on how students use instructional time (cognitive efficiency).

According to the mediating-process perspective, time use is linked to students’ use of strategies for planning and organizing their learning time and monitoring cognitive engagement. Cognitive engagement requires some degree of self-regulation of learning and performance among students (Zimmerman, Greenberg, & Weinstein, 1994). To maximize cognitive engagement, students may require training in learning strategies, self-monitoring skills, and self-management behaviors. Unlike best practices that emphasize teaching practices or classroom organization, these student-mediated procedures involve individual students in the regulation of their own ALT. This mediating-process research paradigm emphasizes cognitions as mediators of ALT. Best practices evolving from this paradigm focus on how to develop the metacognitive skills students need to regulate their ALT effectively rather than relying on conditions of the environment of instruction to produce ALT. Within this paradigm, there are specific strategies designed to help students control their own ALT.

The first component of a student-mediated approach for maximizing ALT is students’ acquisition and use of strategies for using study time efficiently and managing time effectively. According to Pressley and his associates, effective strategy instruction involves four elements: (a) providing students
with knowledge about strategies to promote cognitive engagement during learning tasks and how to use them, (b) demonstrating how and when utilization of strategies is appropriate for maximizing the efficiency of learning time, (c) providing feedback on the appropriate use of strategies, and (d) providing instruction concerning when and why strategies should be used and how strategy use can enhance their learning time (Pressley et al., 1995). The systematic application of strategy training as part of classroom instruction can increase ALT. If students are taught to approach learning tasks in a structured, organized fashion, then they will be more efficient with their learning time. By facilitating students’ ability to organize information more efficiently, strategy training also increases the probability of correct responding and active engagement during learning activities. For example, the use of strategies, such as story-mapping or question-generation, during individual reading periods enhances learning and retention of material because students are cognitively engaged and actively interacting with the text while they read (Wood, Woloshyn, & Willoughby, 1995). Similarly, performance improves when students are taught to use a systematic error-correction procedure during the time allocated for individual study of spelling words. Again, it is hypothesized that an error-correction strategy increases active engagement and success during the allocated learning time (Graham, Harris, & Lyon, 1996). It is widely accepted that active learning strategies increase students’ regulation of their own learning and ALT. Although beyond the scope of this chapter, there are several empirically supported approaches to strategic learning (see, for example, Pressley et al., 1995; Wood et al., 1995).

The second component of student-mediated strategies is self-monitoring. A key self-regulative variable within the mediating-process paradigm is the quality of students’ cognitive monitoring. If students do not realize they are not learning, then they will not plan or adjust their time use appropriately. There is evidence that students may fail to monitor their learning and self-regulate their use of learning time, even when they are motivated to learn or when instruction has been delivered so as to maximize ALT (Stipek, 1998). Research has provided information about ways in which students can be taught to self-monitor their learning time more effectively and, in turn, maximize their ALT. These procedures directly involve students in regulating their own ALT and focus on active thought processes that enhance learning.

One example of self-monitoring is the use of self-correcting techniques. Several types of self-correcting materials have been shown to be effective, including flash cards, answer tapes, overlays, or checking stations. Another method to help children monitor their own learning time is to have them keep a personal log of time use, including the duration of study time, frequency of engaged behaviors (e.g., answering questions, writing responses), task completion, or overall level of performance. Kern, Dunlap, Childs, and Clarke (1994), for example, increased engagement by having children record on sheets placed in the corner of their desks whether they were or were not “on task” at signaled intervals. Methods as simple as touching a child on a shoulder can also be used as cues. Self-recording has been found to significantly influence children’s behavior, including their levels of ALT.

A third component of student-mediated methods for increasing ALT is self-management. If given proper training and supervision, then students are capable of assuming a high degree of autonomy through the use of self-management procedures. Furthermore, self-management techniques result in increased learning and ALT (Shapiro & Cole, 1994). Self-management strategies contribute to students’ independent functioning in the classroom. To manage the range of ability levels among diverse learners and enable each child to accrue maximum ALT, a systematic approach for the development of independent learners is often necessary. For example, even young children can be taught directly to guide themselves through much of their day with minimal assistance from a teacher and with minimal loss of engaged learning time (Jones & Jones, 1998). There are several best practices for teaching students to become independent learners. For example, teaching students a systematic task approach can be accomplished by using a step-by-step sequence that helps children structure their learning behavior. This may consist of having students ask themselves a series of questions listed on individualized job cards (e.g., What materials do I need? How much time do I have?). Before beginning a task, students use their job cards to determine what needs to be done and whether they have the knowledge, skills, materials, and time to complete it. Overall, self-management enables students to take an active role in managing and maximizing their own learning time.
SUMMARY

Academic learning time is one of the most important correlates of achievement, and its linkage with learning is one of the most consistent findings in educational research. During the past 25 years, much has been learned about maximizing the amount of academic learning time that students experience. This continuing focus on learning time has important implications for school psychologists. First, it is incumbent on psychologists to ensure that classroom teachers have an awareness of the importance of ALT and its relationship to student achievement. Second, school psychologists can facilitate classroom-based or school-wide assessment of time use, as well as the identification of areas to target for improvement in order to maximize learning time. Finally, through consultation, collaboration, or inservice training, school psychologists may help teachers acquire and implement more effective classroom practices to increase students’ ALT. Assisting teachers and schools to manage instructional time effectively is important to increasing ALT and improving academic performance for all students.

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Anderson, L. W., & Walberg, H. J. (Eds.). (1993). Time-piece: Extending and enhancing learning time. Reston, VA: National Association of Secondary School Principals. In this brief, edited volume, the authors, all experts on educational time use, have written succinct chapters that explain how educators can extend and enhance learning time both within and outside of school. In the final chapter, written by the editors, major issues are summarized, and a table presents a series of excellent recommendations derived from common themes across all chapters.

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time lost to administrative tasks and disruption. In addition to providing teachers with explicit instructions for developing and maintaining classroom routines, the book contains examples and useful reproducibles.