8 Best Practices in Setting Progress Monitoring Goals for Academic Skill Improvement

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OVERVIEW

Progress monitoring has become a critically important tool for improving the academic outcomes of all students, including students with disabilities. Consistent with the requirements of laws such as No Child Left Behind (NCLB) and the 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA), progress monitoring provides direct links between assessment and the instructional process. A large and substantial research literature has emerged since the 1980s showing how progress monitoring can be used across academic areas including reading, mathematics, composition, spelling, and other academic content areas (e.g., Hosp & Hosp, 2003). Among its many uses, progress monitoring can be used to create instructional groups (e.g., Fuchs, Fuchs, & Bishop, 1992), identify specific skill deficits (e.g., Fuchs, Fuchs, Hamlett, & Allinder, 1991; Whinnery & Stecker, 1992), screen students for potential early school failure (e.g., Speece & Case, 2001), assist in eligibility decision making (e.g., Shinn, Habedank, Rodden-Nord, & Knutson, 1993), and evaluate the reintegration process for students moving from special to general education settings (e.g., Shinn, Powell-Smith, Good, & Baker, 1997). Progress monitoring has value when used across *all* students: those at risk for academic problems, those already identified as in need of special education, and those in general education.

Within the field of school psychology, *School Psychology: A Blueprint for Training and Practice III* (Ysseldyke et al., 2006) defines the roadmap for training and practice. Progress monitoring plays a prominent role in the domains of data-based decision making as well as accountability specifically related to student academic skill development. In particular, as data-based problem solvers, school psychologists need to use data derived through progress monitoring in assisting the instructional decision-making process to maximize student outcomes. Additionally, progress monitoring can play an important role at the delivery of universal, targeted, and intensive levels of the delivery system for school psychological services.

Progress monitoring has multiple components: establishing and measuring of academic goals; providing a vehicle for understanding how students are progressing toward established goals; creating opportunities for class-, school-, and/or district-wide screening to identify students potentially at risk for academic failure; and offering data that can provide accountability evidence to parents, teachers, and educators about the impact of intervention programs. When progress monitoring is done on a frequent basis, it offers students themselves a chance to see how they are moving toward goals, offers a clearer understanding of the impact of the instruction they are receiving, and acts as a potential vehicle for communication with parents (e.g., Fuchs, Fuchs, Hamlett, & Whinnery, 1991; Hosp & Hosp, 2003).

Interest in the research and practice of progress monitoring has resulted in the funding by the U.S. Department of Education of two large centers, both devoted to providing research, technical assistance, and dissemination about the progress-monitoring process. The National Student Center on Student Progress Monitoring (www.studentprogress.org) is a clearinghouse where progress-monitoring tools developed by commercial publishers have been evaluated for their technical adequacy and impact on student achievement.

The center's website offers analysis of measures that have been examined by a group of technical experts and provides consumers with available options for conducting progress monitoring. In addition, the Research Institute on Progress Monitoring (RIPM, www.progressmonitoring.net) at the University of Minnesota, provides a source of the research support primarily for developing general outcomes measurement (GOM) systems of evaluating student outcomes.

BASIC CONSIDERATIONS

Types and Applications of Progress Monitoring

Conceptually, progress monitoring can be divided into two types of assessment: GOM and specific subskill mastery (Fuchs & Deno, 1991). GOM measures represent standardized, repeated metrics that serve as indices of student progress across curriculum objectives. Among GOM models, curriculum-based measurement (CBM) has been shown to have strong research-supported effects on student performance. Teachers who use CBM plan more effective instruction and achieve greater student outcomes than those who do not use CBM (Fuchs, Fuchs, Hamlett, & Stecker, 1991). Indeed, when CBM feedback is used by teachers to inform modification of instruction, outcomes are even higher then when the monitoring process alone is used (Capizzi & Fuchs, 2005; Fuchs, Butterworth, & Fuchs, 1989). CBM has also been suggested as a potential vehicle for schools to use to measure adequate yearly progress (AYP) as required under NCLB (Fuchs & Fuchs, 2004). There is no doubt that CBM has become an accepted methodology for conducting the GOM form of progress monitoring (e.g., Fuchs, 2004).

Case reports and professional descriptions of specific subskill models have been published, but the empirical support for specific subskill models is less sophisticated and less well developed than for GOM models. For example, Howell and Nolett (1999) and Howell, Kurns, and Antil (2002) describe a procedure known as curriculum-based evaluation, which is essentially a specific subskill model of progress monitoring. In their model, specific skills of students are evaluated with intervention strategies targeted on the skills found to be deficient. Reassessment of the skills continues across time as the student shows acquisition of the targeted skills. Reports of models using these principles have been described by Gravois and Gickling (2002) as well as by Burns and colleagues (e.g., Burns, 2001, 2002, 2004; Burns & Dean, 2005; Burns & Kimosh, 2005; Burns & Mosack, 2005; Burns et al., 2002).

IDEA allows schools to use response-to-intervention data (RTI) as part of the process of determining eligibility for special education services. Progress monitoring is an integral part of RTI models (Danielson, Doolittle, & Bradley, 2005; Vaughn, Linan-Thompson, & Hickman, 2003). In most models of RTI, students are first exposed to high-quality interventions and are only considered eligible for special education once students have not responded to these or more intensively focused intervention strategies. Progress monitoring (in particular CBM data) has become an essential part of the evidence used to determine whether students are responding to high quality interventions (e.g., Speece & Case, 2001; Speece, Case, & Molloy, 2003). Although substantial research and development on the RTI process is still needed (e.g., Kavale, Holdnack, & Mostert, 2005), the support of CBM as a measurement tool for progress monitoring within the RTI model appears to be strong (e.g., Fuchs, Fuchs, & Compton, 2004).

Goal Setting as a Core Element of Progress Monitoring

Although the use of progress monitoring is viewed as a critical component of the RTI process, progress monitoring must be used within the context of a problem-solving model to be an effective tool. A key part of a problem-solving process is the setting of goals for expected outcomes that provide the framework within which potential solutions to problems are evaluated.

The first step in goal setting is to select the target for outcomes. Targets identify the expected level of performance to be achieved, assuming success of the implemented intervention strategy. When targets are met or exceeded, professionals can be assured that the intervention has met its established objectives, and, indeed, in cases where the individual has greatly exceeded the target, adjustments of the goal can be made along the way to the outcome. Likewise, when progress of individuals compared to targets suggest that the intervention is not likely to be successful in reaching the goal, changes in the intervention can be made prior to the point in time when the goals should be accomplished. Clearly, setting goals that are realistic yet challenging are crucial to making the ongoing decisions within a problem-solving model.

Goal setting can be done at both macro level or group level as well as micro level or individual level of analysis.

At the macro level, teams may set goals for the performance of entire grades or schools, looking at data aggregated across individuals to determine if goals have been met following the implementation of selected strategies to address the problem area. For example, in an RTI model, it is expected that the implementation of a high quality, scientific, research-based instructional program implemented with integrity at Tier 1 should result in successful outcomes with at least 80% of all students (National Association of State Directors of Special Education, 2005). When universal screening data find substantially fewer students successfully meeting competencies, the implication is that changes are needed in the delivery of the core program, or within Tier 1, to improve outcomes for all children, before a determination could be made of the degree to which supplemental instructional programs at Tier 2 (strategic) and/or Tier 3 (intensive) are impacting outcome. As such, problem-solving teams may put in place goals that reflect a focus on improving the collective outcomes of student performance within the core program.

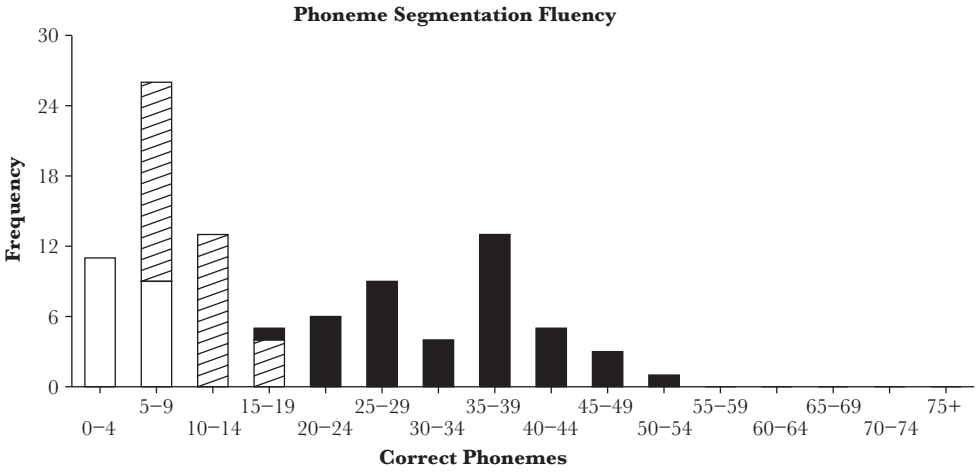
At the micro level, when students are identified through an RTI process as needing more strategic or intensive instruction, it is critical that goals be established at the level of the individual student so that the outcomes of his or her progress can be measured against appropriate expectations. By setting goals and monitoring a student's progress against those goals, the impact of instruction can be assessed in an ongoing manner, and adjustments in instruction and goals can be made as the instruction is proceeding. Progress monitoring at the level of individual students plays a major role in deciding when a student needs to be moved to a different level of instructional need (from strategic to intensive, from strategic to benchmark), as well as to provide input as part of a comprehensive educational evaluation used in determination of eligibility for special education services. In addition, when services are provided within the context of students already receiving special education services, progress monitoring continues to play a key role in determining the impact of specially designed instruction.

A key element of effective goal setting whether used at group or individual levels is the establishment of benchmarks specifying the *minimal* expected performance across students. Benchmarks indicate the level of student performance that, if achieved, predicts with a high degree of probability that the student will be successful. Benchmarks are determined empirically by examining the relationship between scores on predictor measures and longitudinal outcomes for students. One of the most well-established benchmarking processes was provided by Good, Simmons, Kame'enui, Kaminski, and Wallin (2002) who identified scores on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) that predicted later reading achievement. Specifically, DIBELS benchmarks were set so that approximately 80% of students who achieved them were successful in reading performance at the subsequent grade-level material. Those considered at some risk had a 50% likelihood of positive outcomes, and those placed in the at-risk category had only a 20% chance of achieving success (Good et al., 2002).

For example, Figure 1 shows the performance across a group of 96 kindergarten students on a measure of phoneme segmentation fluency obtained from the DIBELS at mid-year. As evidenced from the figure, only 44% of kindergarten students were found to be meeting the expected benchmarks at mid-year. When the team of kindergarten teachers examined these data, they recognized the need to enhance and focus aspects of the core kindergarten program on the development of skills across all students in their classes that were consistent with improving the links between letters and the relationships to their sounds. Until such time as these class-wide interventions were implemented, teachers could not effectively determine from the data those students likely to develop difficulty in learning the basic skills in reading from those who were not benefiting from effective instruction. Teachers decided to add to the kindergarten experience targeted instructional activities for all students to improve their early literacy development. These activities were taught within the standard kindergarten structure of circle time, free play, and other developmentally appropriate strategies. Indeed, substantial research has suggested the need for teaching early literacy skills within the kindergarten program, and that such activities can be made a regular, fun part of the learning process for young children (e.g., Landry, Swank, Smith, Assell, & Gunnewig, 2006; Whitehurst & Lonigan, 1998).

Setting 80% of the students meeting benchmark as a target, the team of teachers worked together to design instructional enhancements at Tier 1, the core level of instruction, and examined the outcomes of their instruction at the end of the year approximately 17 weeks later. As reflected in the data collected at the end of the year on these same students (see Figure 2), the collective efforts across teachers were highly successful in reaching and surpassing their goals with 97% of students now reaching the benchmark for

Figure 1. Outcomes at mid-year of kindergarten at an elementary school on PSF.



Benchmark Goal: The benchmark goal is for all children to have established phonemic awareness skills of 35 to 45 on Phoneme Segmentation Fluency by the end of Kindergarten or the beginning of First Grade.

Middle Status: In the middle of Kindergarten, students should be able to identify initial sounds of words with confidence. Final and medial sounds may still be difficult. Students with scores of at least 18 correct sounds per minute are likely to achieve the end-of-Kindergarten goal.

44% (n = 42) Low Risk
Students scoring 18 or more sounds per minute in the middle of Kindergarten are likely to achieve the benchmark goal if provided with effective phonemic awareness instruction. For these students, progress toward benchmark goals should be checked at the end of Kindergarten to ensure adequate growth.

35% (n = 34) Some Risk
Students scoring between 7 and 17 sounds per minute in the middle of Kindergarten are at some risk for difficulty achieving the phonemic awareness goal. Additional instructional support in phonemic awareness may be needed to achieve the end-of-Kindergarten benchmark goal. Progress toward benchmark goals should be monitored monthly.

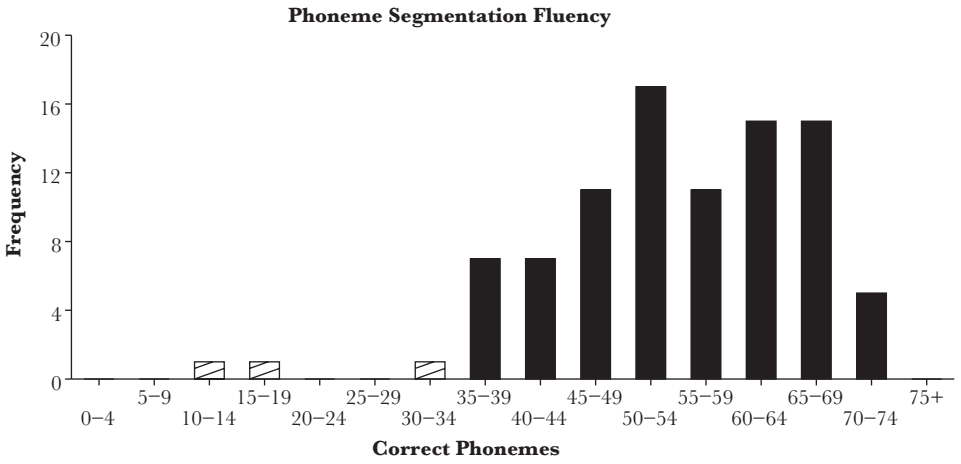
21% (n = 20) At Risk
Students scoring below 7 sounds per minute in the middle of Kindergarten are at risk for difficulty achieving the phonemic awareness goal. For students with scores in this range, intensive intervention in phonemic awareness may be needed o achieve the end-of-Kindergarten benchmark goal. Progress toward benchmark goals should be monitored at least every 2 weeks.

Note: Split bars where the bottom part indicates "at risk" and the top part indicates "some risk" or where the bottom part indicates "some risk" and the top part indicates "low risk" are used when the cutoff scores for "at risk" or "some risk" occur in the middle of a score range. The number of students is indicated by the size of the part.

Phoneme Segmentation Fluency (PSF). Those few students who clearly were still struggling with the development of the relationships between letters and sounds, despite the strong and effective instruction that worked for most of the students, could easily be identified with targeted intervention plans developed for those students.

The purpose of this chapter is to provide a methodology and framework for how goals are selected for progress monitoring within an RTI framework. The process of effective goal setting requires that school professionals use decision rules to determine goals that are reasonable yet challenging for students at the individual level and/or for groups of students at the macro level of analysis. An effort to provide guidelines for goal setting using decision rules for different goal-setting situations will be offered. In their leadership role, school psychologists can provide the guidance and direction for using effective, empirically supported decision making. The suggested decision rules were derived predominately from the experience of the author's work in the implementation of a statewide progress-monitoring effort as well as several models of RTI that are currently in process.

Figure 2. Outcomes at end-of-year of kindergarten at an elementary school on PSF.



Benchmark Goal: The benchmark goal is for all children to have established phonemic awareness skills of 35 to 45 on Phoneme Segmentation Fluency by the end of Kindergarten or the beginning of First Grade.

End Status: At the end of Kindergarten, students should have established phonemic awareness skills of 35–45 sounds per minute on Phoneme Segmentation Fluency.

97% (n = 88) Established
Students scoring 35 to 45 sounds per minute at the end of Kindergarten have established phonemic awareness skills. They are able to segment most 3 to 5 phoneme words into their component phonemes. They have an adequate foundation in the sound structure of English to be successful in learning letter-sound correspondences and using them to decode unknown words. They are likely to achieve the next benchmark goals if provided with effective alphabetic principle instruction. For these students, progress toward benchmark goals should be checked in the beginning and middle of First Grade to ensure adequate growth.

3% (n = 3) Emerging
Students scoring between 10 and 34 sounds per minute at the end of Kindergarten have emerging phonemic awareness skills. Students with emerging phonemic awareness skills are not fluent and confident in their knowledge of the sound structure of English. Students scoring in this range may need additional instructional support in phonemic awareness and alphabetic principle to achieve benchmark goals. Progress toward benchmark goals should be monitored monthly.

0% (n = 0) Deficit
Students scoring below 10 sounds per minute at the end of Kindergarten have a deficit in phonemic awareness. They have not learned the sound structure of English and do not have an adequate foundation to learn the alphabetic principle easily. Intensive intervention in phonemic awareness and alphabetic prinicple may be needed to achieve benchmark goals. Progress toward benchmark goals should be monitored at least every 2 weeks.

Note: Split bars where the bottom part indicates "at risk" and the top part indicates "some risk" or where the bottom part indicates "some risk" and the top part indicates "low risk" are used when the cutoff scores for "at risk" or "some risk" occur in the middle of a score range. The number of students is indicated by the size of the part.

BEST PRACTICES

Conceptual Frameworks for Selecting Goals

There are two basic conceptual frameworks within which goal setting is done, and these two approaches work together to identify reasonable but challenging expectations for students. In a normative approach, the team uses a comparison group for goal setting. A key to using a normative framework for goal setting is the degree to which the normative group is representative of the specific group or student for whom the goal will be set. Unless the normative group used for comparison share common characteristics with the targeted group, goals based on the normative group will be problematic. In particular, teams can use either local or national normative groups for the basis of comparison. As can be seen below, the use of local normative groups can pose difficulties in interpretation of outcomes, especially if the local normative context deviates substantially from what

is being used as the basis for determining that a student is meeting district- or state-defined levels of proficiency.

For example, Shapiro (2004) provided data from CBM normative data sets collected across three school districts, each representing different levels of socioeconomic status. Although socioeconomic status (SES) should not be used as the sole predictor of academic achievement, there is a substantial database suggesting that poverty level can often be used as one of the best predictors of overall academic outcome (e.g., Gill & Reynolds, 1999; Walker, Greenwood, Hart, & Carta, 1994). As can be seen from Table 1, a student reading 79 words correct per minute (wcpm) in spring in the poor district would be approaching the 75th percentile of the distribution while this same student reading at the same level in the high SES district would be reading at the 25th percentile. The impact of a team using a local normative comparison for purposes of setting goals could result in substantial under- or over-reporting of successful outcomes unless the normative group against which the student is being compared is clearly identified. In addition, should a student move from district to district, parents, teachers, and students themselves can be greatly surprised by how the student's performance is being regarded against peers.

An alternative to local normative data as the basis for comparison is to use national normative comparison groups. Data sets that provide norms across large numbers of districts, widely diverse types of students from a range of socioeconomic backgrounds, and diverse geographic regions of the country are publicly available. The Behavioral Research and Teaching Institute (Tindal, Hasbrouck, & Jones, 2005) has reported aggregated data in reading for more than 20 states and more than 16,000 students per grade (http://brt.uoregon.edu/techreports/TR_33_NCORF_DescStats.pdf). AIMSweb (http://aimsweb.com) has provided normative data for measures of reading, math computation, writing, spelling, early literacy, and other areas reported across their enormous database. In reading, for example, data are reported for more than 30,000–90,000 individuals at different grade levels. In addition, AIMSweb provides statewide data collection through its subscription service as well as a district-wide database.

Table 1. Comparison of Oral Reading Scores for Grade 2 Across Fall, Winter, and Spring From a High, Moderate, and Low SES School District

Percentile	Fall	Winter	Spring
		High SES	
25	31	69	79
50	58	106	115
75	104	131	153
		Moderate SES	
25	31	55	67
50	58	82	99
75	91	111	123
		Low SES	
25	11	21	31
50	26	38	53
75	38	74	85

Note. Adapted with permission of the publisher from Shapiro (2004), *Assessing Academic Skills Problems* (3rd ed.), New York: Guilford Press.

Using national normative samples allows comparisons to be made with the performance levels expected of typical performing students from across the country and equates more closely with data sets that are used in well-developed, published, norm-referenced tests. Indeed, use of the combination of local and national norms provides the user of these data with opportunities to evaluate how student performance compares with a national sample of same-grade peers, as well as against the local peers within the particular school. Such cross-group comparisons become especially important given the weight placed on the predictability of the CBM measure to potential outcomes on high-stakes achievement tests.

Related to normative models of goal setting is the use of criterion- or competency-based models to establish goals. In this model, targets for student performance are determined based on the attainment of scores that predict with high probability successful outcome for future performance. These scores are identified as benchmarks for performance. In particular, student performance on measures of high-stakes, state-based tests of achievement have become the index against which student outcomes are judged.

Since the 1990s, a substantial nationwide shift has occurred toward the identification of minimal competency levels. Reinforced in particular by the passage of NCLB, all states have adopted assessment methods and a set of minimal standards against which student progress is compared. Usually, a test is used to assess competency based on state-defined curriculum standards. Scores are then assigned to categories on the basis of performance. Although the exact designation may differ somewhat from state to state, students' performance is identified as either advanced, proficient, basic, or below basic.

As teams engage in the goal setting process, they are often influenced by both normative- and

competency-based approaches to goal setting. School professionals need to be pragmatic and use a combination of methods for goal setting. Identification and selection of goals can be based on the expected outcomes for students compared to normative national populations, normative local populations, and competency standards established by the state assessment. Considerations also can include benchmarks predictive of success on the high-stakes tests and the expected growth rates for students both locally and against a national normative peer group.

Decision Rules for Selecting Goals at the Group Level

When a team looks at data aggregated across students within grades and wants to set a goal for the students as a group, the team needs to consider several factors. First, if a large number of students are identified as not at benchmark, then the collective objective of the team is to move the students toward attaining the benchmark at the next point of universal screening. Essentially, those students who scored just below the benchmark are the ones for whom growth within benchmark is most likely.

Second, if a large number of students are below benchmark, the team needs to determine what the expected rate of progress would be for students performing at benchmark at that grade level. The rate of improvement (ROI) or slope is a key indicator that sets the criterion against which the group of students under discussion will be compared. Closing the gap for those students whose starting point is below benchmark would be a critical goal for the team to consider. For example, if students who attain benchmark at the fall and remain at that level at winter and spring is 1.0 wcpm per week, then target ROI for students below that benchmark level will need to be at some level greater than 1.0 in order for students to catch up to the benchmark level.

The process of making such decisions is a series of steps based on logical analysis that is designed to try to close the gap between students identified as at risk for academic failure and their typical achieving peers.

Step 1: Determine the average ROI for students at the specific grade level. The average ROI can be obtained in one of two ways. If normative data for the skill area were available such as those from AIMSweb (www.aimsweb.com) or from national data sets such as those from Tindal et al. (2005), the ROI would be used for students at the 50th percentile of the distribution since benchmark levels are usually set to between the 40th and 50th percentiles. In the absence of normative data, the ROI could be calculated for students beginning and ending the year at benchmark using data from measures such as DIBELS (http://dibels.uoregon.edu). For example, according to the DIBELS benchmarks, a second-grade student who begins the year at benchmark in Oral Reading Fluency (ORF) scoring 44 wcpm and ends the year at 90 wcpm, would achieve a gain of 46 words in 36 weeks of school, or a ROI of 1.28 wcpm per week.

Step 2: Multiply the average ROI by a value between 1.5 and 2.0. Given that students below benchmark levels must catch up to their peers, the ROI that must be attained for these students needs to be higher than that expected of typical performing students. General guidelines for setting challenging goals have been suggested by Fuchs, Fuchs, Hamlett, Walz, and Germann (1993) and Hosp and Hosp (2003), as rates that generally fall between 1.5 and 2.0 rates greater than typical performing students. The value obtained would be identified as the range of expected ROI.

Step 3: Determine the number of weeks between benchmark periods (i.e., number of weeks until the next benchmark assessment). Multiply the number of weeks by the expected ROI, which will yield the expected gain for that time frame.

Step 4: Subtract the expected gain from the next benchmark goal. Using benchmark level for the next assessment period, the resulting number would identify the amount of gain that would be likely for students moving at the expected ROI set by the team.

Step 5: Determine number of students at the emerging or some risk category who are at or above the result of Step 4. Using a histogram chart, the team finds the score obtained in Step 4 and identifies the number of students who fall at or above that score. This will provide an indication of the number of students who are likely to move to benchmark levels assuming the expected ROI set by the team and the addition of specific, *targeted intervention strategies beyond the core program.*

Step 6: Add the number of students found in Step 5 to the number currently scoring at the benchmark (no risk) group and divide by the

total number of students across all groups. The assumption is that all students currently at benchmark will remain at this level. By adding those students whose progress moves at the expected ROI will increase the benchmark group by this number, and dividing by the total number will obtain the anticipated percentage that can be set as the new goal for the next benchmark period.

This process is best illustrated by example. Looking at Figure 1, students who scored at 18 correct sounds per minute met the middle-of-the-year benchmark. As can be seen, students who scored between 7 and 17 sounds per minute were classified in the some-risk category. As the team looked at these data to select the goal that it wanted to set for the group to achieve, the team decided to make a logical choice of those students with the most potential to improve their skills and move from some risk to benchmark levels of performance. The team began by finding the expected ROI for kindergarten children in the skill PSF. Using the benchmarks established by the DIBELS, kindergarten students should achieve a total of 35 correct sounds per minute across the 36 weeks of school, for an expected ROI of 0.97 sounds per minute per week. Following the steps above, multiplying the ROI by 1.5 and the result by 17 weeks remaining in the school year and subtracting from the spring benchmark of 35 sounds per minute resulted in a value of 10.3, which was rounded to a score of 10. Examining Figure 1, all those students scoring at 10 or better on the measure would be those most likely to improve to the low risk category, assuming that those currently at low risk would remain at low risk. In looking at the data, the team added 18 students who scored at 10 or better (some risk) plus 42 students (low risk) and divided by the total number of students (96), and set the goal for the group at 63%. The team decided that it could probably challenge itself beyond the 1.5 expected ROI and selected a goal of 70%. Of course, the outcome as shown in Figure 2 was even better than expected with 88 of 96 students (97%) reaching benchmark at the end of the year. While some on the team may have argued that to set a goal like 70% was unrealistic given the large numbers of students below benchmark at mid-year, the team used a logical and empirical basis to establish the goal. The key was the decision rule that those students closest to the benchmark are the one's most likely to be affected by the additional instructional focus of the teachers.

Figure 3 shows another example in setting goals. In this example, a total of 24 out of 58 students are in the some risk category at mid-year for ORF. Looking at the wide dispersal of their scores, knowing that reaching 40 wcpm is the desired benchmark for end of year performance, recognizing that the team is now 16 weeks away from the end-of-the-year assessment, and that the typical ROI for first grade is 1.2 wcpm per week, the team decided that it would be possible for students whose scores are within the circled area to reach the benchmark. In this case, the total number of students in this category would be 20 plus the 23 already at benchmark by mid-year, for a total of 43 out of the 58 students, or a goal of 74% for the end of the year for the group. Certainly, if the team chose a goal of 75 or 80%, it would not be faulted. However, the objective is to set challenging but reasonable goals, and a goal of 80% given the mid-year data might have been viewed as too challenging.

As can be seen from these two examples, the team is using normative as well as benchmark information to attain reasonable and logical goals.

Decision Rules for Selecting Goals at the Individual Student Level

Selecting appropriate goals for individual students begins with identifying the correct level at which a student should be monitored: his or her enrolled or instructional level. A student who is functioning below enrolled grade level will demonstrate little progress over time if monitored at levels that exceed his or her instructional level. For students who are performing below enrolled grade level, it makes sense to set targets that show gains within their instructional level. At the same time, all students will be evaluated against their enrolled grade level on high stakes measures of achievement, regardless of their instructional level. For this reason, comparison of student attainment to both instructional and enrolled grade level are important parts of the decision-making process. Student performance should thus be measured at his or her highest instructional level, with efforts to move that student toward enrolled grade level viewed as paramount in the instructional process.

The decision-making process is described in a series of steps that provide clear, practical applications of the goal setting process.

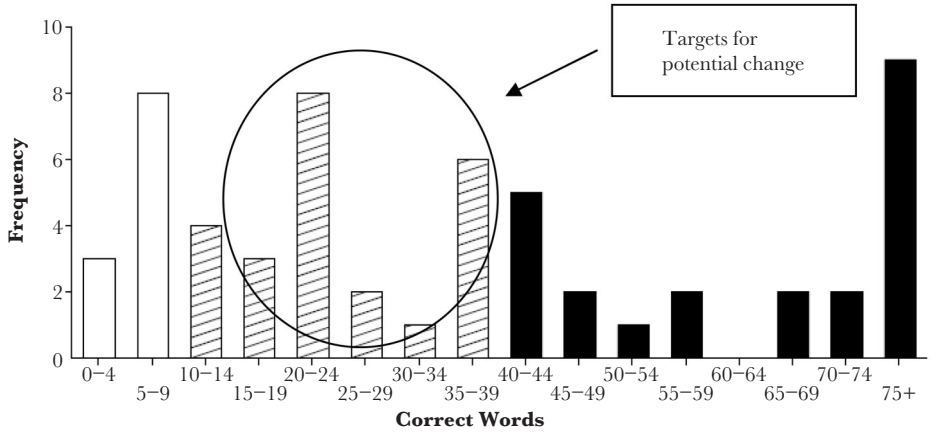
Step 1: Goal setting when the student is below enrolled grade level. Establishing targets and setting goals for students begin with determining the correct level at which a student should be monitored.

Figure 3. Outcomes at mid-year of first grade at an elementary school on ORF.

First Grade School Report

District: Test District
School: Jefferson
Date: Winter, 1999-2000

Oral Reading Fluency



Benchmark Goal: The benchmark goal is for all children to have established reading skills by Spring of First Grade.

Winter Status: Students who are nonreaders in Winter are at risk of not meeting reading benchmark goals. Strategic instruction is indicated for nonreaders with established alphabetic principle and phonological awareness skills. Intensive instruction is indicated for nonreaders with a deficit in either the alphabetic principle or phonological awareness.

40% (n = 23) Established Readers
Students who are reading unpracticed first-grade passages at a rate of 40 or more words correct per minute are established readers. Established readers are reading first-grade material accurately and efficiently. Their reading is characterized by increasingly fluent and comforable decoding with increased attention available to build meaning from the text. These students typically begin to read with expression and enjoy the content of their reading.

41% (n = 24) Emerging Readers
Students who are reading unpracticed first-grade passages at a rate of 10 to 39 or more words correct per minute emerging readers. They are beginning to process first-grade contextual material, although without efficiency. These students are starting to build meaning from text. However, their reading and decoding of test is still laborious.

19% (n = 11) Non-Readers
Students who are reading an unpracticed first-grade passages at a rate of less than 10 words correct per minute are non readers. At this level, reading of connected text is slow and painful. The students get few word correct beyond basic sight words like "a," "the," and "and."

This is the level at which instruction is most likely to be successful given a student's skill development.

Instructional level in reading is determined through a process called *survey level assessment*. Essentially, a student's performance is examined at a series of grade levels beginning with the student's enrolled grade level until the highest level at which the student's performance falls at least at the 25th percentile is found. Using a set of reading passages which are predetermined to be at specified grade levels, students are administered three randomly selected, 1-minute passages from the pool of passages available for the grade level. Procedures derived from CBM (Shinn & Shinn, 2002) are used to administer and score the passages, using words read correct per minute as the primary metric for determining instructional level. Median scores across the three passages at each grade level represent the score assigned to the student's performance.

Using goal charts, such as those shown in Figure 4, student performance at each grade level can be plotted. The bars of the goal chart shown in Figure 4 represent the 25th to 75th percentile range on normative data collected across large numbers of typical performing students at each grade level. Specifically, the normative data are derived from AIMSweb. The normative data shown in Figure 4 are similar to data produced by the

aggregation of normative data sets as reported by Tindal et al. (2005).

The process is best illustrated by example. As shown in Figure 4, Brian was a fifth grader who was administered a survey level assessment in the fall and he scored a median performance of 65 wcpm on fifth-grade material, 85 wcpm on fourth-grade material, and 95 wcpm on third-grade material. The highest grade at which Brian's performance reached the 25th percentile would be fourth-grade level, which is deemed the instructional level and the level at which he would be monitored.

Step 2: Set a goal for the progress-monitoring period. Once the instructional level is determined, the next step is to establish progress-monitoring goals for the student. The goal provides targets for expected ROI against which the student's actual level of progress can be measured. As discussed previously, two types of targets can be selected: those based on normative level of performance of typical performing students or those based on standards that represent benchmarks used as key scores that predict a student's likelihood of successful performance at subsequent levels. Although normative goal-setting methods can be selected for all students, it is more sensible to use normative goal-setting methods when a student's instructional level is found to be below his or her enrolled grade level and to use benchmarks as goal levels when the student is monitored at his or her enrolled grade level.

Typically, students performing at least one or more grade level below their enrolled grade will need to have their performance accelerated beyond the rate typical for their grade in order to catch up and eventually achieve at their enrolled grade level. Achieving at grade level and meeting benchmarks are the strongest predictors of success on high-stakes tests, and, therefore, achievement of benchmarks is important (Shapiro, Keller, Lutz, Santoro, & Hintze, 2006). However, students who are starting well below their enrolled grade level will need to have interim goals that move them toward benchmarks in incremental steps rather than setting unrealistic and often unattainable goals that would place the students at frustrational levels of performance.

Normative levels for student's ROI have been established and are available from several sources. One of the most widely used sources is Fuchs et al. (1993) who determined ROI (i.e., slope) for reading, math computation, math concepts, and spelling among typical performing students in two school districts across two consecutive years. Based on their data, expected gains in reading, math computation, and spelling were established, and these ROI have been widely used in setting goals for students. As seen in Figure 5, the rates vary across grades, and realistic or ambitious goals can be set.

In addition to the data obtained by Fuchs et al. (1993), the normative data collected and reported by AIMSweb or Tindal et al. (2005) can be used to obtain the expected ROI for students. Each of these databases

Figure 4. Survey level assessment of Brian, a grade 5 student assessed at grade 5, 4, and 3 levels.

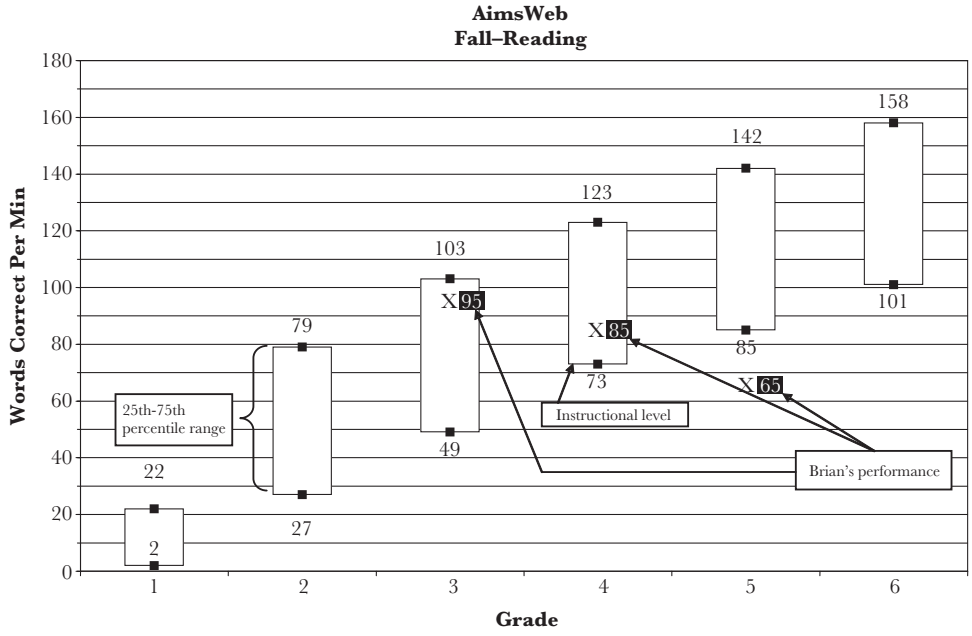


Figure 5. Goals for ROI in reading and math computation performance.

Reading

Grade	Reasonable	Ambitious
1	2.0	3.0
2	1.5	2.0
3	1.0	1.5
4	0.85	1.1
5	0.50	0.85
6	0.30	0.65

Math Computation

Grade	Reasonable	Ambitious
1	0.30	0.50
2	0.30	0.50
3	0.30	0.50
4	0.70	1.15
5	0.75	1.20
6	0.45	1.00

Note. Source: Fuchs et al. (1993).

offers empirically derived slopes for large numbers of students, obtained by examining the typical changes from beginning to middle to end of the year within and across grades. The slopes for students performing at various percentile ranks within the grades also can be determined, which allows goal setting to be individualized on the basis of the targeted student's percentile rank.

Using the same example of Brian, the expected ROI for a student at the fourth-grade level can be identified. Based on the Fuchs et al. (1993) data, a team could select the 0.85 wcpm per week goal as the expected ROI. This would be equivalent to a student at the 50th percentile (mean performance only was reported by the Fuchs et al. data set), who is a typical fourth grader. However, because Brian is a fifth grader functioning at the fourth-grade level, the team might decide to set a more ambitious goal intended to accelerate Brian's progress and move him closer to being successful with fifth-grade material. As such, an expected rate of growth of 1.1 wcpm per week might be selected, the level identified by Fuchs et al. (1993) as an ambitious level of growth. Using the AIMSweb database, the team would find that the average fourth grader is found to make progress at approximately 0.8 wcpm per week, and that is the rate of growth found among typical performing fourth-grade students at the 25th and 50th percentile ranks. Given that Brian's performance in fourth-grade material was just above the 25th percentile, and a typical student at the 75th percentile of fourth grade would move at approximately 0.9 words per minute per week, one might choose the 0.9 rate of growth as the selected, ambitious target.

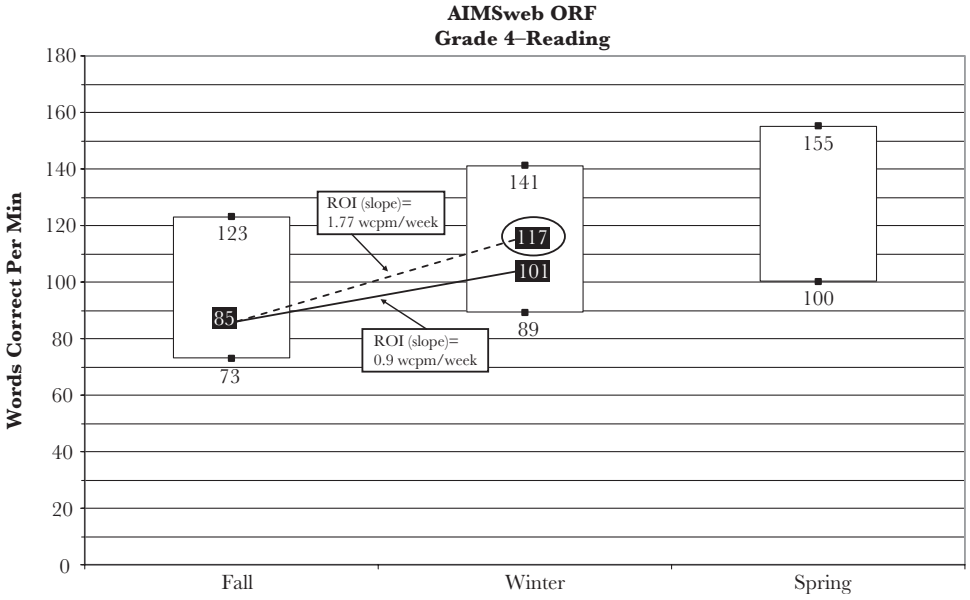
Regardless which target is selected, a team member would then multiply the rate of growth by the number of weeks across which progress monitoring will be conducted to establish the aimline for the student. Assuming it is decided to select the 0.9 words correct per week and that Brian will be monitored for the next 13 weeks until the mid-year benchmark, an increase of 16 words (0.9×18 weeks $= 16.2$, words or 16 rounded) is expected over the baseline rate of 85 words correct per week at the mid-year benchmark. Thus, the target for Brian is set at 101 words by the middle of the year as shown in Figure 6.

An alternative way to select the appropriate target rate for Brian is to try to move him to at least the 50th percentile of the distribution for the mid-year benchmark. Looking at Figure 6, the 50th percentile would be a score of approximately 117 wcpm at mid-year. To reach that level, Brian would have to increase a total of 32 words across 18 weeks, or a weekly increase of 1.77 wcpm per week. The team would need to decide if such a rate was too challenging for Brian. In Brian's case, the team decided to use a 1.10 wcpm per week goal.

Figure 7 displays the progress-monitoring graph for Brian for 10 weeks (the sixth to sixteenth week of school). Initial baseline performance on fourth-grade material of 85 wcpm is shown along with the target of 97 wcpm for 10 weeks postintervention. The line connecting these two data points represents a growth rate of 1.10 wcpm per week. Brian's weekly progress-monitoring data are recorded and at the end of the 10 weeks, just prior to the mid-year benchmark data collection point. The actual ROI attained by Brian was 1.65 wcpm per week, indicating that he had achieved successful performance at a rate greater than the expected level.

Step 3: Determine if the student is ready to move to a higher level of monitoring. When students have an instructional level below their enrolled grade level, a key objective is to accelerate their progress during the course of the year so that they may be moved to an instructional level closer to grade level. One of the key reasons for getting students as close to grade level as possible are the demands of high-stakes tests that require that students be assessed at their enrolled grade level, regardless of their instructional level. Thus, the closer a student is to functioning at grade level, the higher the probability of success on reaching proficiency on the

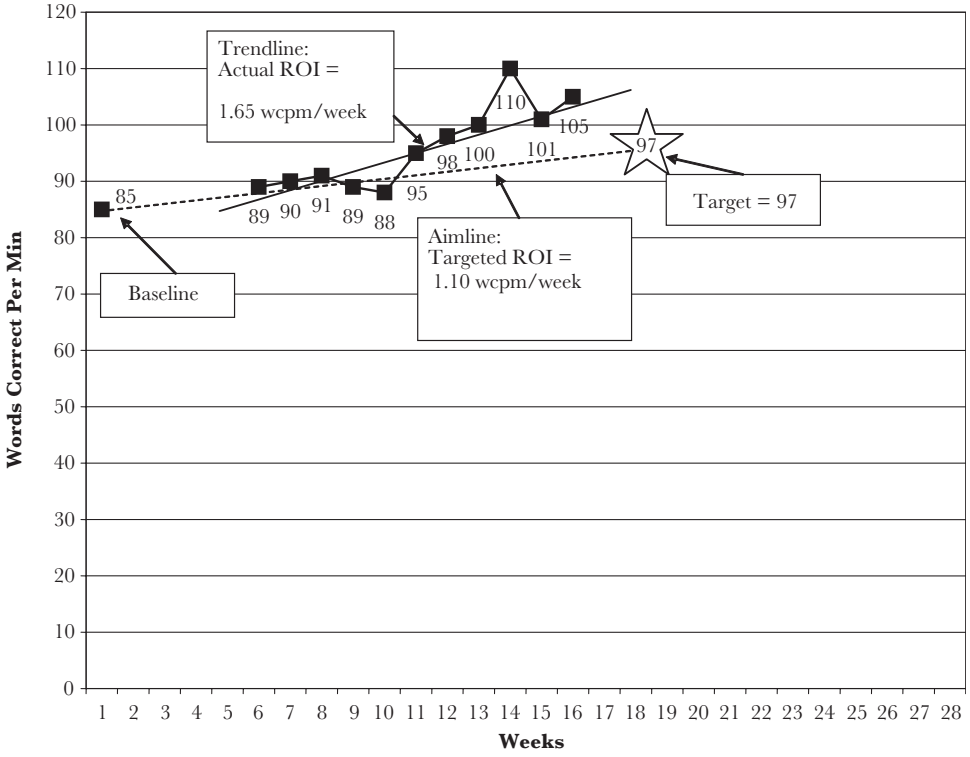
Figure 6. Goal chart showing Brian's expected ROI from beginning to mid-year against benchmarks for fourth grade in reading.



high-stakes test. In addition, as a student progresses through an RTI model, the key question that will have to be answered in terms of eligibility for special education is whether the student is making adequate progress compared to peers at the enrolled grade level.

The impact of the instructional intervention in place for Brian resulted in performance that reached between

Figure 7. Progress-monitoring graph for Brian.



105 and 110 wcpm (across the last three data points) by the mid-year point. Examining Figure 7, Brian's performance is now approaching the 50th percentile of fourth-grade–level material. When a student demonstrates growth that reaches or approaches at least the 50th percentile of his or her instructional level, the team needs to determine if the student has acquired the skills that would allow the raising of his or her instructional level. To do so, the team repeats a survey level assessment at the enrolled grade level (in Brian's case the fifth-grade level) where three randomly selected fifth-grade passages are administered. If the student's performance is at least at the 25th percentile of that grade level, then the student's instructional level is raised, progress monitoring now begins at the higher level, and the goal is reset for the next instructional period. If the student's performance has not reached at least the 25th percentile of the next grade level, then instruction and monitoring continues at the same instructional level (in Brian's case, the fourth-grade level). If performance maintains or accelerates at the current rate, then the student should be examined again at the next data decision point (usually at least four to six more data points) to determine if he or she is ready to move to the higher instructional level.

In Brian's case, when a survey level assessment was conducted at mid-year using fifth-grade level passages, he achieved a median score of 102 wcpm, which was just above the 25th percentile (see Figure 8). Thus, his instructional level was raised, and a very reasonable goal of 0.8 wcpm per week was set as the expected ROI, with a target of 14 words over the remaining 18 weeks of the school year (0.8 × 18 weeks = 14.4 words, rounded to 14). Progress monitoring continues with Brian at the fifth-grade level for the remainder of the year.

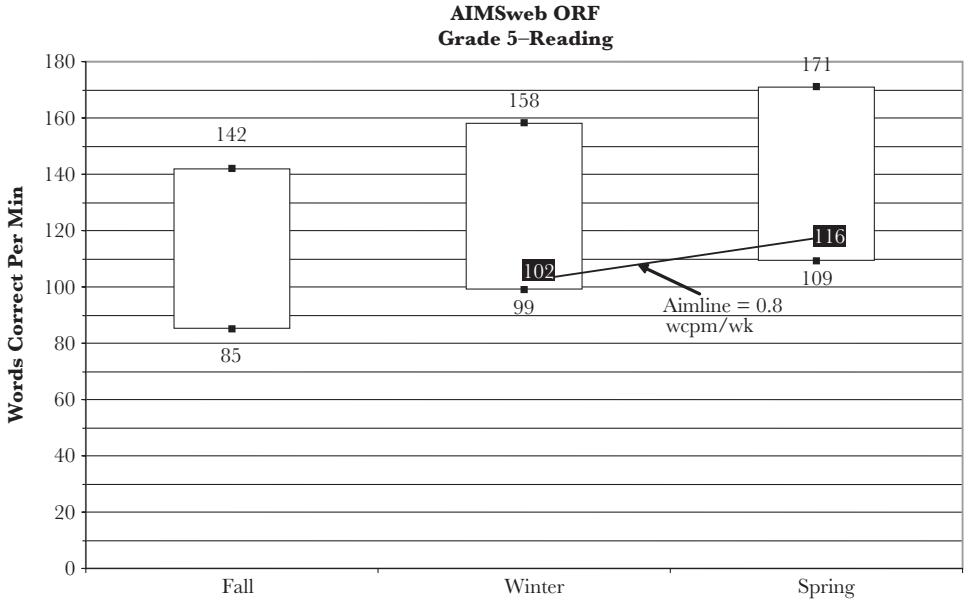
Additional Considerations About Monitoring at Grade Level

When a student is functioning and being monitored below enrolled grade level, whether the student's improvement at the instructional level generalizes to the higher enrolled grade level is of interest. Thus, some teams may elect to monitor the student's performance at the enrolled grade level as well as the student's instructional level. While there is certainly nothing wrong with such a practice, it is important to keep in mind that gains over time at levels higher than the instructional level are unlikely to be strong until the student is ready to be instructed at that higher level. For this reason, teams may wish to periodically assess student performance at levels above instructional level, but frequent assessment at the enrolled grade level is not likely to result in instructional recommendations.

Goal Setting When the Student Is at Enrolled Grade Level

When it is determined that progress monitoring will be at the student's enrolled grade level, the process for

Figure 8. Goal chart showing increased goal level for Brian, reading at a fifth-grade level.



setting goals is similar to when performance is below enrolled grade level. However, the team uses attainment of benchmark targets as goals, rather than the normative expected rates of growth for grade levels. At the same time, it is important to consider the reasonableness of goals again using normative ROI as the basis for comparison.

Step 1: Determine the correct level at which the student should be monitored. The survey level assessment described above is conducted and if the student is found to be reading at least at the 25th percentile for his or her enrolled grade, the level for monitoring should be the same as the student's enrolled grade level.

Step 2: Set the goal for the progress-monitoring period. If a student is performing at grade level, then targets for performance should be set at the lowest level defining the benchmark for the next assessment period. For example, Figure 1 shows that by the end of kindergarten students are expected to achieve a minimum score of 35 correct sounds per minute to meet the expected benchmark. Students below 18 correct sounds per minute at mid-year when these data were collected would be viewed as at some risk for not reaching the benchmark goals. Thus, the goal for a student who scored at 15 correct sounds per minute would be set as 35 correct sounds across the 18 weeks remaining in the school year. The goal ROI for this student would be set as 20 correct sounds per minute across 18 weeks, or 1.11 correct sounds per week.

To examine the degree to which this level of expected gain would be reasonable, the team could calculate the expected ROI of a typical student in kindergarten who achieved the benchmark at mid-year and maintained his or her performance to the end of the year. Looking again at Figure 1, a score of 18 at mid-year marked achievement of the benchmark, and 35 marked the end of the year. Thus, a typical student would have a goal of improving a total of 17 correct sounds per minute across 18 weeks, or 0.94 sounds correct per week.

Comparison of the rate of growth set for the targeted student who was identified as at some risk with the rate of expected performance of the student achieving at benchmark levels would indicate that the level of accelerated growth set for the target student would be reasonable. In other words, students need to be accelerated who are at risk beyond the rates expected of typical performers since these students need to catch up to their peers. Of course, rates should not be set that are unreasonable and that are unlikely to be achieved despite excellent instruction. As such, moving the target student at a rate of 0.17 correct sounds per week above the expected rate would likely be viewed as a level that could be accomplished.

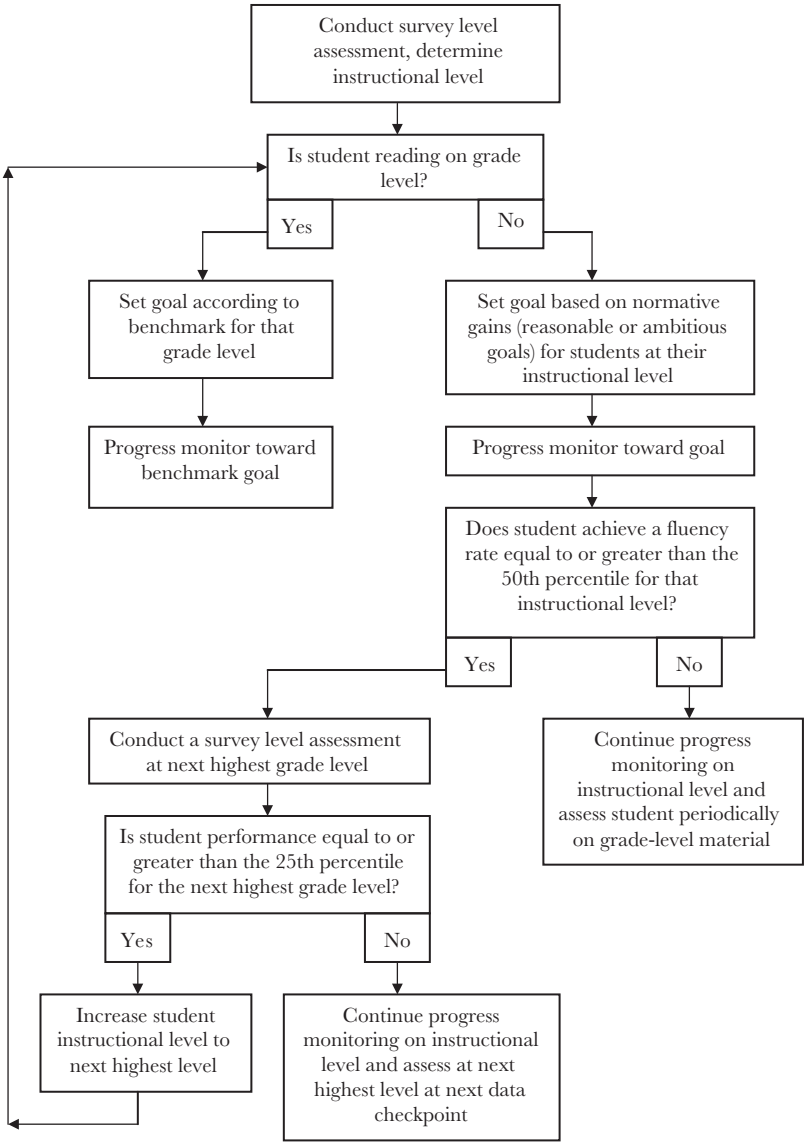
Determining whether the target ROI selected for a student is reasonable is partially a subjective decision. Typically, students whose performance is far below the benchmark may need more time with additional strategic or intensive intervention to make up the gap in their learning rate. Thus, a student from Figure 1 found to be at 5 correct sounds per minute would need to gain 30 correct sounds per minute or 1.67 correct sounds per minute to reach the benchmark of 35 within the 18 weeks remaining in the year. Considering that a typical student under typical instruction moves at the rate of 0.94 correct sounds per minute, setting such a goal for this student may be viewed as unrealistic and unnecessarily frustrating. However, setting the goal for a total of 26 weeks, or two-thirds of a school year, would set a rate of improvement of 1.15 sounds per week, a rate that is still better than that expected of a typical performing student at the same grade level. It can be seen that the use of normative data (i.e., understanding the rates expected of typical performing students) combined with the knowledge of benchmarks (i.e., the criterion level of performance predictive of success at the next higher level or skill) can be used together to establish reasonable and challenging goal levels for all students as well as groups of students.

SUMMARY

The process of goal setting involves a series of decisions that tie together knowledge of normative levels, benchmarks, and a recognition that students who function below grade level may need more time to achieve grade level success when placed within an RTI model. The decision-making process has numerous steps and can be complex. Figure 9 provides a flowchart of the decisions discussed throughout the chapter.

The case of Brian was used to illustrate the many aspects of the goal-setting process within an RTI model. After finding an initial instructional level using a survey level assessment, an aggressive target was set for Brian. The ambitious target was selected because the problem-solving team felt that Brian was capable of moving at an accelerated pace given the strength of the targeted instruction that was to be in place. In addition, the team wanted very much to accelerate Brian's growth and

Figure 9. Flowchart for goal setting using progress monitoring.



bring him more in line with grade-level expectations before he actually was required to take the grade-level high-stakes test required by his state. Using the expected ROI and multiplying by the number of weeks that Brian would be monitored, a specific target was set and Brian's performance at his instructional level was monitored. Having exceeded his targeted level of growth, an evaluation of Brian's readiness to move to a higher level of difficulty was conducted and found that Brian's instructional level could indeed be increased. Goals were then reset at levels that would maintain Brian throughout the remainder of the year at a similar percentile level, a decision that would be sensible given the large amount of growth shown by Brian's performance over time.

When a student's instructional level is within his or her enrolled grade level, although still below expected levels according to grade-level benchmarks, the use of decision rules that examine the rates of gain expected of typical benchmark performers can be used to set reasonable but challenging goals.

Overall, goal setting plays a critical role in the RTI process. When goal setting is combined with the delivery of empirically supported, research-based interventions, effective use of progress monitoring, and decision rules that are part of a logical model, the outcomes for students whose performance was initially at risk for academic failure are quite strong within an RTI model. In fact, the use of goal setting and progress monitoring in an RTI model has been identified as a methodology

through which decisions could be made to exit students from special education or other remedial services.

Although continued research is needed to provide empirical validation of the specifics of the decision-making process and its outcomes, initial research using goal setting and progress monitoring has already demonstrated how the RTI process can have an impact on improvements for students at risk for academic problems (e.g., Grimes, Kurns, & Tilley, 2006; Speece et al., 2003). Ongoing efforts to further elaborate and refine the decision-making process will provide a superb framework for enhancing the problem-solving model being used within an RTI process.

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