Progress Monitoring Briefs Series

Brief #2: Common Progress Monitoring Graph Omissions: Missing Goal and Goal Line

Progress monitoring assessment is one of the four essential components of Response to Intervention (RTI), as defined by the National Center on Response to Intervention (NCRTI). Progress data allow teachers to evaluate the academic performance of students over time, quantify rates of improvement or responsiveness to instruction, and evaluate instructional effectiveness. For the students who are least responsive to instruction, progress monitoring may also be used to formulate effective individualized programs (NCRTI, 2010).

This brief focuses on progress monitoring using individual student, curriculum-based measurement (CBM) scores, and is based on recommendations from the *RTI Implementer Series Progress Monitoring – Training Manual* (NCRTI, 2012). The brief discusses the value of using graphs as part of the progress monitoring process and presents methods for setting appropriate progress monitoring goals. In addition, it focuses on a common error in graphing, the omission of a goal and a goal line, and explains why it is important to include these elements for productive, data-based decision making. A quick look at the importance of monitoring a student's error rate concludes this brief.

For readers interested in initial introductory information about progress monitoring see *The Essential Components of RTI* (NCRTI, 2010) and information found at studentprogress.org. These resources and others are listed in the References and Additional Resources sections at the end of this brief.

Why Use Graphs for Progress Monitoring?

Progress monitoring graphs are vital for teachers and school staff because they provide a clear picture of a student's growth, enabling school staff to make decisions about the appropriateness of the student's short- and long-term goals, adequacy of progress, and value of the instruction. Graphs that include the essential components represent a student's response to the instruction, which make them useful for sharing with parents. When parents can hear about and see a visual representation of their child's progress (or lack of progress), they may more easily understand how their child is responding to the instruction they are receiving and if he or she is on track to reach the targeted goals.

To maximize benefit to school teams, teachers, parents, and students, progress monitoring graphs should include several elements. In addition to a student's scores, a graph should include a goal and goal line.

What Is the Importance of Setting a Goal and Including a Goal Line?

Some teachers create graphs that have student scores but no goal or goal line. This is a problem because without a goal or goal line, we cannot assess whether the student is making progress. The goal line visibly represents the rate of progress required for a student to reach the selected goal (e.g., reading 120 words per minute or counting to 100 by multiples of 5). A graph that includes only student scores illustrates a general performance pattern but not in relation to the goal or goal line.

How Do I Set an Appropriate Progress Monitoring Goal?

Three options are recommended for determining an appropriate progress monitoring goal for students:

End-of-Year Benchmarking

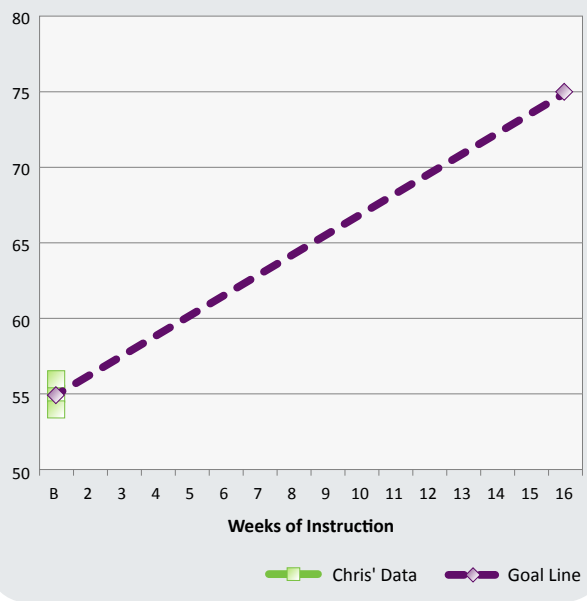
This option can be used for students whose development is at or near grade level. First, find the recommended end-of-year level of performance for a particular grade and task using CBM benchmarks. This value is the year-end goal, and the numbers below are examples from Fuchs and Fuchs (2007). For example, the passage reading fluency (PRF) benchmark or year-end goal for a second grader is 75 correct words per minute, and for a third grader, the PRF benchmark is 100 correct words per minute. (These values are used for illustrative purposes; keep in mind that it is ideal to use benchmarks provided with the particular progress monitoring product you are using.)

The baseline score is typically represented by the median score of the most recent three data points. These data points can be obtained at one time and do not have to be spread out over time. The three data points can then be stacked on the graph. "B" on the X axis indicates baseline. The baseline score for Chris, a second-grade student, is 55 correct words per minute (54, 55, 56; Median is 55). In Figure 1, the baseline score for Chris is marked with a box that is in line with a score of 55 on the vertical axis and with Week 3 on the horizontal axis.

The end-of-year goal of 75 words read correctly per minute is indicated on the graph with a diamond shape that is in line with a score of 75 on the vertical axis.

The example in Figure 1 below shows the 16-week instructional period remaining in the school year. The goal for this 16-week period is 75 words read correctly per minute.

FIGURE 1. GOAL SET USING END-OF-YEAR .ŜyŏKYI-ŴĮă



Norms for Weekly Improvement

This option requires a list of norms for determining adequate growth, or rate of improvement (i.e., slope). Norms may vary by vendor or product and may be included as part of the progress monitoring assessment materials. If not, practitioners are encouraged to contact the vendor to obtain the relevant norms.

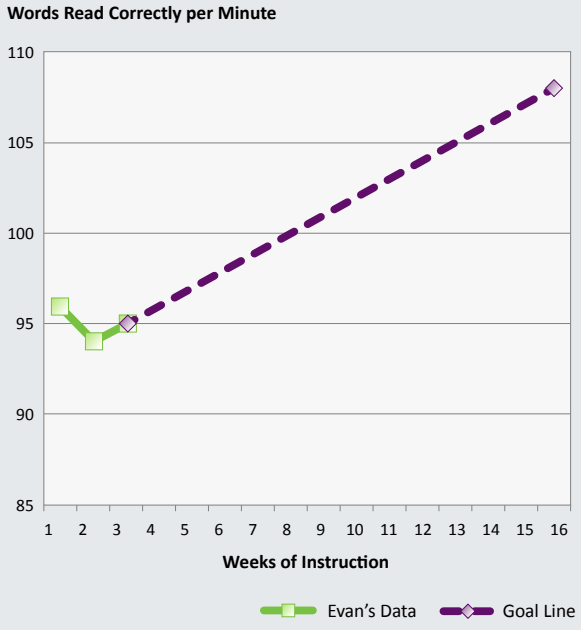
To set a goal using a norms chart, multiply the number that represents the recommended weekly growth rate by the number of weeks remaining in the instructional period. Then, add this product to the student's baseline score.

For example, at the beginning of an instructional period, Evan's baseline score for PRF is 95 words read correctly per minute (this is the median of the first three data points), and can be seen in Figure 2. The expected weekly growth rate for a third grader is an increase of one word per week. At the time the baseline score was established, 13 weeks remained in

the instructional period. The end of this instructional period coincides with the end of the year. This number (13) is multiplied by the expected growth rate of 1 (13 x 1 = 13). This product (13) is added to Evan's baseline score of 95 to get 108. A goal of 108 correct words per minute on a PRF test would be appropriate for Evan.

The baseline score is marked with a box that is in line with a score of 95 on the vertical axis and with Week 3 on the horizontal axis. The instructional period end goal (108) is indicated with a diamond shape that is in line with a score of 108 on the vertical axis and with Week 16 on the horizontal axis.

Figure 2. Goal Set Using Norms for Weekly Improvement



Intra-Individual Framework

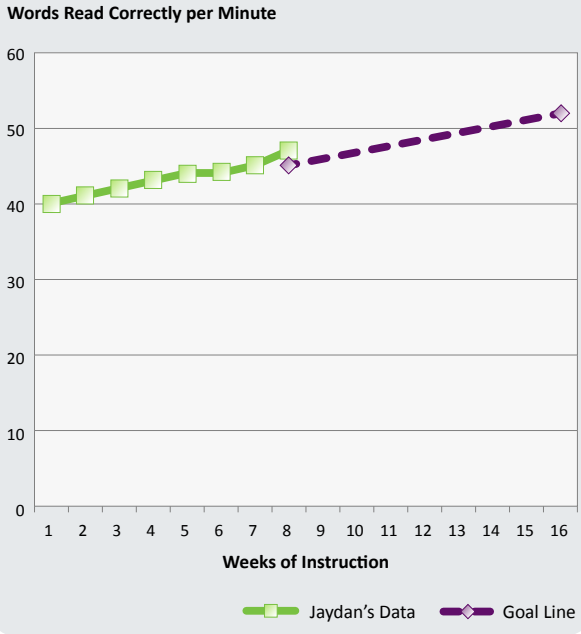
This method can be used with students performing significantly below grade level and for whom published benchmarks or national norms are a poor fit. This approach allows teachers to set goals that account for a student's current rate of progress (thus "intra") rather than goals based on the progress of a group of typically performing students at that grade level.

This option will be illustrated with Jayden as an example and will describe the specific steps for setting her goal (see Figure 3).

1. First, determine Jayden's weekly rate of improvement. Using eight initial CBM data points, find the difference between the median of her last three scores and the median of her first three scores and divide that number by the number of weeks of instruction that have occurred between collection of the first and eighth data points (7 weeks). Jayden's first eight CBM scores were 40, 41, 42, 43, 44, 44, 45, and 47. The difference between 45 (median of her last three scores) and 41 (median of her first three scores) is 4. Divide 4 by the number of weeks of instruction (7). Thus, 4 ÷ 7 = 0.57. Jayden's weekly rate of improvement is 0.57.
2. Then, multiply Jayden's weekly rate of improvement (0.57) by 1.5. The product is 0.857. (Using 1.5 rather than 1.0 sets a weekly improvement rate with which an ambitious goal could be reached. Supplemental supports and increasingly intense support, allows Jayden to surpass her current rate of progress.)
3. Finally, multiply the product (0.857) by the number of weeks remaining in the instructional period (8): 0.857 x 8 = 6.856. Add this resulting number (6.9) to Jayden's baseline score. Jayden's baseline score is the average of the most recent three data points (44 + 45 + 47/3). This number is 45.33. Thus, 45.33 + 6.9 = 52.23. Jayden's goal for the remaining 8 weeks of instruction is 52 correct words read per minute.

In Figure 3, Jayden's goal for this instructional period is marked with a diamond shape that is in line with a score of 52 words read correctly per minute on the vertical axis and with Week 16 on the horizontal axis.

Figure 3. Goal Set Using Intra-Individual Framework



Carefully developing ambitious goals is a key part of the progress monitoring process. Select the most appropriate method for an individual student. Once you have the goal set, you can draw the goal line, and with the help of a trend line, you can begin to assess the student's progress.

Example

Figure 4 shows Evan's progress monitoring chart for passage reading fluency (PRF) after 5 more weeks of instruction and progress monitoring. His scores for weekly PRF assessments are shown on his chart, but no goal or goal line is marked. His scores show fairly consistent weekly progress. If this were the only information available, you might be pleased with his rate of improvement. Note that in this graph, the scaling is inconsistent with prior and subsequent graphs. This is because the graphing program was allowed to automatically select the scaling option. Inconsistent scaling options create inaccurate perceptions of student performance. Furthermore, without a goal or goal line for comparison, you cannot determine whether his rate of progress is sufficient. Thus, a goal and goal line should be added to this graph to facilitate more accurate and timely decision making.

Figure 4. Progress Monitoring Graph With Student Scores Only

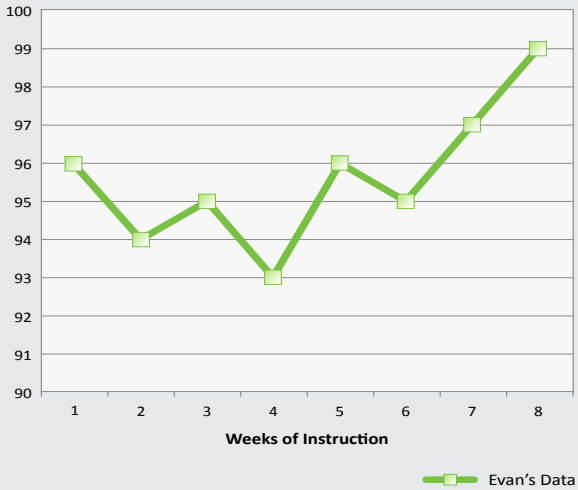


Figure 5 shows Evan's scores on a graph that includes the goal and the goal line, which was set after the initial three scores on his graph. It is now clear that although Evan is progressing, his current rate of progress is below his goal line and may not be sufficient to allow him to reach his goal by the end of the instructional time period. Clearly displaying this information will help Evan's teachers determine that an instructional change is needed for him to reach his goal.

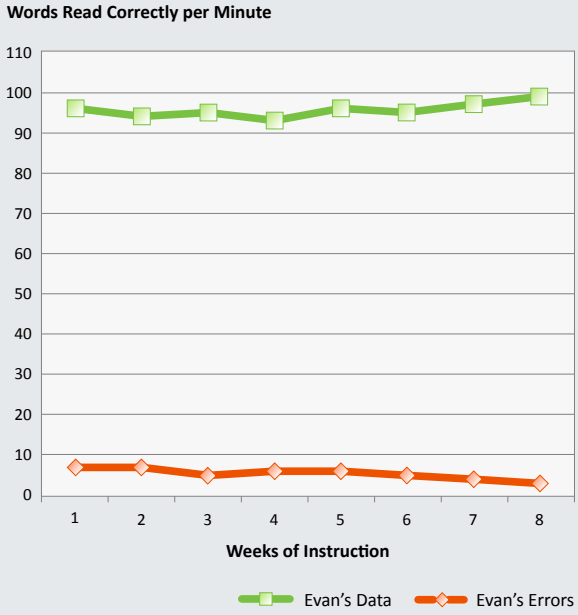
Figure 5. Graph With Student Scores and a Goal Line

Checking the Student Accuracy Rate

It is also important to check the student's error, or accuracy, rate. If a student is increasing in words read correctly per minute but is also making more errors (incorrectly reading words), the student is not actually improving. Students should be increasing the number of words read correctly per minute, with an accuracy rate goal of 95 percent or above.

Look at the graph in Figure 6. The line representing fluency is going up and the line representing errors is going down. This is just what you hope to see—crocodile jaws opening wider and wider! At Week 1, Evan's fluency rate was 96, and he made seven errors. This was an accuracy rate of 93 percent. But Evan's fluency rate was 97 correct words per minute at Week 7 and 99 correct words per minute at Week 8. Was this actual improvement? Yes, because at Week 7, he read 101 words in a minute with four errors (and 97 correct). This was an accuracy rate of 96 percent. At Week 8, Evan read 102 words in a minute, with only three errors and 99 words correct. This was an accuracy rate of 97 percent.

Figure 6. Graph With Student Scores and Error Rates



References

National Center on Response to Intervention (2012, April). *RTI Implementer Series: Module 2: Progress Monitoring – Training Manual.* Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention.

National Center on Response to Intervention. (2010, March). *Essential components of RTI—A closer look at Response to Intervention.* Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention. Retrieved from http://www.rti4success.org/pdf/rtiessentialcomponents_042710.pdf

Additional Resources

Fuchs, L. S., & Oxaal, I. (n.d.). *Progress monitoring: What, why, how, when, where.* Presentation released by the National Center on Student Progress Monitoring. Retrieved from http://www.rti4success.org/pdf/progressmonitoringwhatwhyhowwhenwhere.pdf

These PowerPoint slides explain CBM, contrast it with mastery measurement, and show how CBM can be applied to instructional planning, individualized education program development, and learning disability identification.

This module guides participants in using screening data to evaluate the overall effectiveness of the RTI framework and to establish progress monitoring and intervention schedules. Participants also learn to use data to evaluate the effectiveness of interventions and to establish an effective progress monitoring system and related decision rules.

National Center on Student Progress Monitoring. (n.d.). *Student progress monitoring* [website]. Retrieved from http://www.studentprogress.org/

Although the National Center on Student Progress Monitoring project has concluded its five-year contract with the U.S. Department of Education, Office of Special Education Programs, this website continues to be maintained and offers many valuable resources related to progress monitoring.

About the National Center on Response to Intervention

Through funding from the U.S. Department of Education's Office of Special Education Programs, the American Institutes for Research and researchers from Vanderbilt University and the University of Kansas have established the National Center on Response to Intervention. The Center provides technical assistance to states and districts and builds the capacity of states to assist districts in implementing proven response to intervention frameworks.

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This document was produced under U.S. Department of Education, Office of Special Education Programs Grant No. H326E070004 to American Institutes for Research. Grace Zamora Durán and Tina Diamond served as the OSEP project officers. The views expressed herein do not necessarily represent the positions or policies of the Department of Education. No official endorsement by the U.S. Department of Education of any product, commodity, service or enterprise mentioned in this publication is intended or should be inferred. This product is public domain. Authorization to reproduce it in whole or in part is granted. While permission to reprint this publication is not necessary, the citation should be: National Center on Response to Intervention (January 2013). *Progress Monitoring Brief #2 Common Progress Monitoring Graph Omissions: Missing Goal and Goal Line.* Washington, DC: U.S. Department of Education, Office of Special Education Programs, National Center on Response to Intervention.

Publication Number 2314b_1/13

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