Collecting and Documenting Evidence: Methods for Helping Teachers Improve Instruction and Promote Academic Success

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Abstract

The ongoing collection and documentation of evidence of students’ performance in the classroom is a fundamental component of formative instructional practices, essential for ensuring student success. Multiple methods of collecting and documenting evidence of students’ academic performance in the classroom are described. These methods include direct behavioral observations, evaluation rubrics, recording devices, general curriculum-based outcome measures, goal attainment scaling, and graphing performance. A discussion of how teachers can use data derived from these assessment methods to make instructional decision is provided.

Keywords

intervention, academic, assessment, general and special education, collaboration, measurement, standards

In recent decades, there has been a strong emphasis on preK–12 schools to account for the educational outcomes of their students (Braden & Tayrose, 2008). This emphasis has evolved through requirements specified in statewide mandates and national legislation, such as in the 2001 No Child Left Behind legislation and the 2004 Individuals With Disabilities Education Improvement Act (IDEIA). In fact, most states have adopted the Common Core State Standards and will administer assessments to all students for the purposes of documenting and publicly reporting on whether or not they are meeting those standards. The IDEIA specified that students with disabilities must have access to the general education curriculum and be included in school accountability systems, such as being expected to demonstrate proficiency of state academic standards on statewide tests. Due to these state and national mandates, school districts have placed greater responsibility on teachers to collect and document evidence of student achievement in the classroom. For instance, in many states across the nation, teachers are being evaluated not only on student performance but also on student growth (i.e., value added; Kennedy, Peters, & Thomas, 2012). Given that accountability is now focused on the effects that teachers have on student learning, it is more important than ever that teachers have the tools they need to collect, document, and respond to accurate evidence of student learning.

Formative instructional practices involve teachers and students engaging in the process of gathering and responding to evidence of learning (Pearson & Battelle for Kids, 2012). Teachers who embrace formative instructional practices will be able to deliver instruction by setting standards-based (e.g., Common Core State Standards) learning targets and intentionally collecting and documenting evidence of student learning by aligning their formal and informal assessments with these targets. Further, they will use the evidence to inform their instruction and to provide effective feedback to their students about how to advance in their learning.

Collecting and documenting evidence on student performance has a positive influence on student achievement (Stecker, Fuhs, & Fuhs, 2005). Student performance is improved because the evidence, when appropriately

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analyzed, (a) helps educators make informed decisions about the types of content and skills they will teach, (b) assists teachers in determining at what level to begin instruction, and (c) helps teachers determine how to teach both content and skills. Moreover, accurate evidence of learning lets educators know which students are on track for meeting performance standards.

If evidence is systematically collected and documented frequently rather than periodically (e.g., beginning, middle, and end of school year), teachers can readily make instructional decisions and adjustments to meet student needs. Moreover, frequent, systematic data collection and documentation lead to more time-efficient instructional practices because time on learning can be focused on student needs, avoiding time spent on skills and content already mastered. Additionally, accurate evidence of student learning allows teachers to make informed decisions about providing intensive supplemental instruction in either a small-group or a one-to-one context (Hosp, 2008) as well as opportunities for enrichment.

Another important reason for collecting and documenting evidence is for facilitating communication between the teacher and other stakeholders. For instance, when documented performance data are shared at conferences with parents and other stakeholders, it permits all invested individuals an opportunity to objectively view the students’ pattern of performance, which in turn may assist in making more appropriate instructional recommendations for students.

**Types of Evidence**

The evidence collected should consist of student performance variables that are feasibly alterable and associated with achievement outcomes. Student performance variables that are feasibly alterable are those variables that can be mediated by changing environmental factors, such as adding effective instructional components in the lesson (Hosp, 2008). Student performance variables include acquisition levels, productivity levels, learning rate, maintenance, generalization, and social behaviors. When making decisions about what evidence to collect, teachers should keep in mind this array of variables that can represent starkly different aspects of student learning. Collecting evidence of student productivity (i.e., the quantity of work completed) provides very different information than the collection of evidence of acquisition levels (i.e., the percentage of correct responses).

**Methods of Collecting Evidence**

There are multiple ways of collecting evidence on students’ performance in the classroom. Teachers need to consider and select methods that correspond with the curricular learning targets as well as the individualized learning objectives (e.g., individualized education program goals). As such, teachers must administer assessments that directly measure the skills/content being taught (Hosp, 2008). An overview of different types of assessments and the types of student responses they evaluate is presented in Table 1.

**Direct Observation Methods**

Direct observation methods can be used when collecting evidence on students’ learning behaviors (e.g., Martens, Gertz, Werder, & Rymanowski, 2010; McDougal, Morrison, & Awana, 2012). For instance, collecting evidence on students’ level of task engagement is important, as it is well established that this behavior is associated with learning (Gettigner & Ball, 2008). Student engagement in learning can be observed through the use of systematic time-sampling and partial-interval direct behavioral observation methods. An example of this type of method is the Behavior Observation of Students in Schools (Shapiro, 2003). This method allows the teacher to observe target students and compare them with their peers by observing them on a partial interval schedule (i.e., every 15 s). The student behaviors that are observed include actively engaged on-task, passively engaged on-task, off-task verbal, off-task motor, and off-task passive.

The evidence gathered through this type of observation can inform teachers as to which students need additional support to access rigorous academic learning targets. For these students in need of additional support, teachers may establish “support targets” in addition to the primary academic learning targets. These targets may be academic or nonacademic and are individualized according to students’ needs. Support targets articulate foundational skills in need of improvement in order for the student to reach the primary academic learning targets. For example, an academic support target may focus on reading fluency as a skill needed to access more rigorous reading comprehension targets. Examples of skills that may be addressed with nonacademic support targets are increasing time on task, improving students’ social skills during cooperative learning activities, or keeping materials organized. For students with disabilities, support targets should be aligned with individualized education program (IEP) goals and objectives, and once these support targets are established, efforts should be made to collect and document evidence of student growth in these areas as well (see Table 1).

Direct observation methods can also be used to observe verbal academic responses. For instance, teachers can use a teacher-constructed data sheet to tally students’ correct responses while students are engaged in an academic task (e.g., class question/answer session, cooperative learning activity). Teachers can also make anecdotal notes about the
quality of students’ responses, noting who needs intervention or enrichment. Students can also collect data on their own learning and behavior. Chappuis (2009) identified increasing student ownership through student goal setting and progress monitoring as a key “assessment for learning” strategy.Student ownership is also a key component of formative instructional practices (Pearson & Battelle for Kids, 2012). For instance, students can use a monitoring chart or a cue card that is placed on their desk (Conderman & Hedin, 2011). Monitoring charts can be individualized based on students’ needs and or aligned with the day’s learning targets. A monitoring question/answer chart where the teacher, student, or both can mark or place a sticker next to the items that were completed correctly is depicted in Figure 1. At the end of the lesson, the teacher can collect these charts and examine them for patterns of responding across and within students in their class. It should be noted that it is challenging for teachers to conduct direct behavior observations of students in their classroom while they are directly teaching them. In those instances, other school resource personnel (e.g., coteacher, school psychologist, counselor, instructional assistant) can conduct the observations.

### Daily Entrance and Exit Slips

Entrance and exit slips are quick, informal prompts that enable teachers to efficiently assess students’ understanding of the learning targets. An effective means of determining what students know as they enter or at the conclusion of the instructional event, they can be completed by individuals or in small groups and may be written, verbal, or based on teacher observation. Entrance and exit slips can be used formatively to plan instruction, strategically pair or group students, and determine the need for additional practice and enrichment or to summatively evaluate student learning. The form they take depends on the target type (Chappuis, 2009) and purpose. For example, a teacher may design an entrance slip to probe understanding of a reasoning target by asking students to respond to carefully selected math problems.

### Teacher-Made Tests

Although teachers routinely design and administer classroom tests, little attention has been given to the quality of these assessments and the value that sound assessment design has in advancing student learning (Stiggins, 1998). By constructing well-designed tests, teachers can use the results formatively to guide instruction and provide their
students with effective feedback that helps them move their own learning forward or use results summatively to clearly establish what has been learned. The fundamental quality of a well-designed test is that it provides the teacher and student with accurate information about the intended learning. To achieve accuracy, educators construct assessments that are directly aligned and limited only to the targets that were explicitly taught. They appropriately sample the targets and use testing methods that are best matched to the target type. For instance, educators use written response as a method to assess reasoning or selected response as a means to collect evidence of knowledge attainment (Chappuis, Stiggins, Chappuis, & Arter, 2012). Teacher-made tests also require that items are well matched to the intended rigor of the target. When, for example, the test is more rigorous than the learning tasks upon which it was purportedly based, the data collected will not accurately represent student learning. Conversely, accuracy is also compromised when complex learning targets are assessed at low levels of complexity.

The construction and administration of teacher-made tests that provide accurate information require that educators ensure that item bias and distortion are minimized. Additionally, educators should take steps to ensure that their standards-aligned test items are socially valid, meaning they have real-life significance. Careful analysis of the items and student responses on items is needed to refine each test and sharpen its use as a tool that directly measures the learning target. When accuracy drives test construction, test use becomes more meaningful for collecting evidence of student learning and, consequently, for informing instructional decisions.

When teachers grade tests, it is important that they examine performance data on not only the final score but also students’ performance on specific items. Teachers should be clear about which test items measure which learning targets and then record data accordingly. An example of a data sheet used to analyze students’ performance by learning target is presented in Figure 2, and an example of performance feedback on tests that is given to students is shown in Figure 3. This level of feedback helps students recognize where they are and prompts them to think about how they can move their learning forward.

Rubrics

Teachers can also observe and evaluate students’ performance using rubrics. Rubrics can be used when students are demonstrating their knowledge of the learning targets or their application of a target skill through writing assignments, written exams, projects, oral exams, and oral presentations. Rubrics consist of a series of expectations associated with evaluative categories. Both students’ learning process and their products can be guided and evaluated using rubrics (Gallavan & Kottler, 2009). Rubrics can serve as a guide for learning when students are provided with a rubric before they begin an assignment. This practice clarifies expectations and allows students to work toward achieving expectations for completing the assignment proficiently. A high-quality rubric provides detailed levels of expectations associated with a product or performance. For instance, a high-quality analytic rubric typically includes a scale describing expectations across a continuum ranging from exceeds standard to needs improvement. In some cases, a set of rubrics may be given to evaluate students’ performance. For instance, if students are required to give an oral presentation during social studies, the teacher may use two rubrics to evaluate different aspects of the presentation. One rubric may include descriptions of the expectations for including critical social studies content in the oral presentation. Another rubric may consist of items that address organization of the presentation, clarity of speaking, and the clarity of visual aids.

It is important to note that rubrics are not just for teachers’ use; students should also be encouraged to use rubrics to conduct self-assessments on the quality of their work. Students can use the rubrics to guide them during learning and then use the rubrics to evaluate their final product. Students can monitor their achievement over time if they engage in self-assessments of this nature across several assignments throughout the school year (Gallavan & Kottler, 2009).

General Outcome Curriculum-Based Measures

Curriculum-based measurement (CBM), a reliable and valid fluency assessment method (Deno, 2003), has been shown to improve academic achievement (Stecker et al., 2005) and predict performance on large-scale statewide assessments (Nese, Park, Alonzo, & Tindal, 2011). An overview of standard CBM used as dynamic indicators of basic skills in reading, writing, and math skills is provided in Table 2. In addition to gathering fluency data (i.e., correct responses per unit of time), the teachers should also record the number and types of errors students make. For example, the teacher may record the number of omissions, substitutions, insertions, hesitations, and mispronunciations while collecting oral reading fluency data. Likewise, in addition to gathering data on math computation fluency measures, the teacher can record the types and frequency of errors made, such as place value, sign detection, and omissions.

Curriculum-based measurement may serve as a direct assessment of learning targets (i.e., targets aligned with fluency standards); however, in most cases, these general outcome measures serve as assessment of support targets. For instance, students who are struggling with written expression will have difficulty reaching a more advanced grade-level learning target if they are unable to write fluently, adhering to basic conventions. For such students, teachers must set and monitor progress toward individualized goals.
(e.g., IEP goals) that will help students access grade-level curriculum standards. Curriculum-based measurement is one tool that makes such progress monitoring relatively easy. Well-known and frequently used published CBM systems include Dynamic Indicators of Basic Early Literacy Skills (Good & Kaminski, 2002) and AIMSweb. Teachers who do not have access to published CBM materials can create their own (see Scott & Weishaar, 2003, for a step-by-step process for implementing CBM using teacher-developed materials).

Methods of Documenting and Evaluating Evidence

Teachers need to determine where students are in their progression toward mastering learning targets. Determining
whether students are on track or not for mastering learning targets by reviewing performance on every assessment (e.g., rubrics, test scores) can be quite an extensive, inefficient, and cumbersome task for teachers and stakeholders. Therefore, evidence of progress toward mastering learning targets should be recorded for each student in such a way that yields meaningful visual display of data and can be readily analyzed and evaluated for the purposes of making informed instructional decisions and communicating performance outcomes to stakeholders. This can be accomplished using class records, such as charts, graphs, and goal attainment scales.

**Chart Trackers**

Teachers can track students’ progress toward achieving learning targets by creating a chart of student performance on
classroom assessments, such as rubrics, exams, monitoring cards, and curriculum-based measures. Unlike a traditional grade book, these trackers should be aligned with learning targets rather than assignments. Teachers can view these charts frequently to determine which students are on track toward meeting learning targets and identify which students may need supplemental instruction (see Figure 4 for an example).

**Graph Trackers**

Graphs are the recommended method for tracking students’ performance on CBM (Fuchs, 2003; Hosp, 2008). After students’ initial three CBM data points are depicted on a graph, a reasonable goal point can be established and recorded on that graph. Next, an aimline is drawn from the median baseline data point to the goal point (12 to 35 weeks after baseline). Throughout instruction, the teacher (and student, where appropriate) then continue to collect and record data on the graph. After reasonable instructional time has elapsed (i.e., approximately 3 weeks), the teacher evaluates students’ data (i.e., particularly, the last three to four data points depicted on the graph) in relation to the aimline. Students are not considered to be on track if three consecutive data points fall below the aimline, indicating a need to adjust instruction. An example of how reading instruction was altered to assist the student in making sufficient progress toward meeting the learning target is illustrated in Figure 5. Students are considered to be on track for meeting their performance goal if their data fall very close to or on the aimline, suggesting that instruction should continue until the learning target is reached. Students are considered to have exceeded their performance goal if their data fall consistently above the aimline. In this case, the teacher needs to either increase the goal or move on to the next target in the learning progression.

**Goal Attainment Scales**

Goal attainment scaling is a method for monitoring if students are approximating academic and behavior performance goals (Roach & Elliott, 2005). Scales can be used with the whole class, small groups, or individual students. This process typically involves identifying a learning target, defining that learning target in observable and measurable terms, and describing three to five performance-based outcomes that are ranked from most to least desired (Roach & Elliott, 2005). An example of a goal attainment scale form that can be used across three instructional delivery contexts (tiers) within the classroom is presented in Figure 6. In this example, spelling goals are addressed for large-group, small-group, and one-to-one instructional contexts. On most goal

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**Student Mastery Tracking Sheet**

<table>
<thead>
<tr>
<th>Student Name</th>
<th>Tiling Lab</th>
<th>Mastery: 3/3</th>
<th>Area Lab</th>
<th>Mastery: 3/3</th>
<th>Mastery: 4/5</th>
<th>Student Exit Slips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nico</td>
<td>1/3</td>
<td>2/3</td>
<td>3/3</td>
<td>✔</td>
<td>0/3</td>
<td>1/3</td>
</tr>
<tr>
<td>Kaya</td>
<td>0/3</td>
<td>2/3</td>
<td>1/3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Felipe</td>
<td>3/3</td>
<td>2/3</td>
<td>3/3</td>
<td>✔</td>
<td>2/3</td>
<td>3/3</td>
</tr>
<tr>
<td>Rachel</td>
<td>1/3</td>
<td>3/3</td>
<td></td>
<td>1/3</td>
<td>3/3</td>
<td>✔</td>
</tr>
<tr>
<td>Eric</td>
<td>2/3</td>
<td>2/3</td>
<td>3/3</td>
<td>✔</td>
<td>2/3</td>
<td>2/3</td>
</tr>
<tr>
<td>Michael</td>
<td>1/3</td>
<td>2/3</td>
<td>2/3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jesslyn</td>
<td>0/3</td>
<td>2/3</td>
<td>3/3</td>
<td>✔</td>
<td>1/3</td>
<td>1/3</td>
</tr>
<tr>
<td>Josef</td>
<td>3/3</td>
<td>2/3</td>
<td>3/3</td>
<td>✔</td>
<td>3/3</td>
<td>2/3</td>
</tr>
</tbody>
</table>

**Figure 4.** Targets-aligned chart tracker. Image used with permission from the Ohio Department of Education.
attainment scales, like the example in Figure 6, the zero denotes the level at which students performed on a screening or baseline measure and is labeled as “No Progress.” As students make progress toward mastering learning targets, they receive a rating of either “Slight Progress” (+1), indicating approximating the goal, or “Strong Progress” (+2), indicating meeting the goal. If students perform lower than baseline levels, they receive either a rating of “Slight Regression” (–1) if they performed slightly below their baseline levels or “Strong Regression” (–2) if they performed considerably below their baseline levels. A chart can also be included to document classwide, small-group, or individual student weekly progress toward meeting goals. Goal attainment scales do not replace charting and graphing daily performance derived from various assessment measures in the classroom. Rather, teachers use the data recorded on charts and graphs to complete the goal attainment scale form. The information on the form provides a weekly indicator of whether students are on track for meeting goals. Completed goal attainment scale forms can be particularly helpful documents to share with parents and other stakeholders.

**Special and General Educators Working Together to Collect and Document Evidence**

Legislative requirements have long mandated that special educators collect and document evidence, as they are responsible for developing measurable goals and reporting progress on those goals as part of the IEP. As a result, special educators have developed skills and strategies to be highly efficient with this process. This puts special educators in a unique position to collaborate with their general education colleagues to improve outcomes for all children. With closer attention to student needs, general educators can begin to make instructional decisions based on those needs, addressing concerns as early as possible. This proactive approach increases the likelihood that students are educated in the least restrictive environment and may ultimately reduce unnecessary special education referrals.

When special educators coteach in general education classrooms, they can collaborate with content area specialists (i.e., general education teachers) to develop a plan for efficient and meaningful collection of evidence of student learning. For instance, one teacher can collect data while the other provides instruction. Or, one teacher can provide small-group instruction for students with higher needs and increase the likelihood of student success within the general education environment. Special educators may also teach students to self-monitor their performance in their general education classes to ensure that data are continuously collected, while decreasing the effort for the general education teacher.

**Final Thoughts**

These various methods for collecting and documenting evidence are not exhaustive of all possible methods for helping teachers improve instruction and promote students’ academic success. However, the methods described here are those that can be aligned with learning targets and can be administered repeatedly to document students’ growth toward mastering learning targets over time. Importantly, student performance data derived from the methods described here can assist teachers with collecting accurate evidence of student learning and making informed instructional decisions in the classroom.
<table>
<thead>
<tr>
<th>Level of Attainment</th>
<th>Class-wide Academic Intervention (Tier 1)</th>
<th>Small-Group Academic Intervention (Tier 2)</th>
<th>Individual Academic Intervention (Tier 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong Progress +2</td>
<td>Given a weekly list of 20 spelling words, the class on average spelled 20 words correctly.</td>
<td>Given a weekly list of 20 spelling words, the small group of 4 students spelled a minimum of 20 words correctly.</td>
<td>Given a weekly list of 10 spelling words, the student spelled a minimum of 15 correct letter sequences.</td>
</tr>
<tr>
<td>Slight Progress +1</td>
<td>Given a weekly list of 20 spelling words, the class on average spelled 18 words correctly.</td>
<td>Given a weekly list of 20 spelling words, the small group of 4 students spelled a minimum of 15 words correctly.</td>
<td>Given a weekly list of 10 spelling words, the student spelled a minimum of 10 correct letter sequences.</td>
</tr>
<tr>
<td>No Progress (Baseline) 0</td>
<td>Given a weekly list of 20 spelling words, the class on average spelled 15 words correctly.</td>
<td>Given a weekly list of 20 spelling words, the small group of 4 students spelled a minimum of 10 words correctly.</td>
<td>Given a weekly list of 10 spelling words, the student spelled a minimum of 6 correct letter sequences.</td>
</tr>
<tr>
<td>Slight Regression –1</td>
<td>Given a weekly list of 20 spelling words, the class on average spelled 10 words correctly.</td>
<td>Given a weekly list of 20 spelling words, the small group of 4 students spelled a minimum of 5 words correctly.</td>
<td>Given a weekly list of 10 spelling words, the student spelled a minimum of 6 correct letter sequences.</td>
</tr>
<tr>
<td>Strong Regression –2</td>
<td>Given a weekly list of 20 spelling words, the class on average spelled 5 words correctly.</td>
<td>Given a weekly list of 20 spelling words, the small group of 4 students spelled a minimum of 2 words correctly.</td>
<td>Given a weekly list of 10 spelling words, the student spelled a minimum of 3 correct letter sequences.</td>
</tr>
</tbody>
</table>

**Figure 6.** Goal attainment scale across multiteried instructional settings.

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