Best Practice Strategies for Monitoring Progress to Improve Outcomes in Early Learning Classrooms

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Lilla Dale McManis works with parents and organizations using assessment and best-practices to promote positive outcomes for children. In addition to being a former special education teacher, she has held positions in applied research in a number of organizations including Hatch, the University of Texas, the Massachusetts Departments of Education and Public Health, and the University of Florida.
Vital Role of Progress Monitoring

Research has demonstrated that when teachers engage in the progress monitoring of their students, the children learn more. In addition, the decision making of the teacher improves and children become more aware and reflective of their own performance.

However, without a way to accurately and consistently know how children are performing and moving toward their school readiness and early school goals, the teaching and learning cycle is incomplete.

Using the steps and strategies outlined in this document can help ensure your efforts to effectively monitor progress are carried out both easily and regularly. Being thoughtful, intentional and focused are the keys to success!

Did you know?

When progress monitoring is well implemented the benefits can include:
- Appropriate child expectations
- Accelerated child learning
- Documentation of child progress
- More efficient communication with others

Progress monitoring for the purposes of informing instruction is particularly relevant for those children experiencing difficulty.

CONSIDER THIS:

A large body of research carried out over the past three decades shows progress monitoring predicts subsequent performance on a number of outcome measures in a valid and reliable way (Shapiro, 2008). This makes it very relevant and important for instructional decisions.

If you don’t know where you’re going, any road will get you there.

- Lewis Carroll, “Alice in Wonderland”
What is Early Childhood Progress Monitoring?

Progress monitoring is a scientifically based practice for assessing a child’s academic and social-emotional performance and evaluating the effectiveness of instruction.

It’s cyclical, targeted, standardized and individualized to each child, where teachers regularly assess a student’s performance either weekly or monthly for two purposes:

1. To determine whether children are profiting appropriately from the typical instructional program.

2. To build more effective programs for the children who benefit (Fuchs & Fuchs, 2002)
To implement progress monitoring, current levels of performance are determined and goals are identified for learning that will take place over time.

Performance is measured on a regular basis and progress toward meeting the goals for the child is measured by comparing expected and actual rates of learning. Instruction is then adjusted based on this information and to best meet the individual child’s learning needs (Fuchs & Fuchs 2002).

Any domain (physical, cognitive/academic, and social-emotional) is appropriate to measure, along with any skill or behavior the child needs to improve to be successful in school and life. Success is determined by a variety of sources including the education programs, teachers and parents.

Did you know?

Characteristics of Progress Monitoring:
- Based on curriculum or standards
- Highly sensitive to student growth
- Time efficient
- Produces results that are easy to understand

Progress monitoring practices share components with Response to Intervention (RTI) models and Curriculum-Based Measurement (CBM).

More than 70 percent of teachers say interactive whiteboards stimulate discussions & creativity AND are directly related to student achievement.

- Grunwald 2011
Capturing Authentic Work

Capturing a child’s authentic work and ability to understand essential skills as shown by development over time is the basic goal in effectively monitoring child progress.

Teachers can use digital cameras, computers, tablets, interactive whiteboards, multi-touch tables, video recorders, scanners, Word, Excel and many other tools to monitor progress in their classrooms.

Collecting pieces like work samples, photographs, video, audio and observational notes at the beginning, middle and end of the process makes the “data” collected authentic, personal and realistic. Additionally, capturing progress in this way aids in the communication of progress with parents, other teachers and administrators.

CONSIDER THIS:

When progress monitoring is implemented effectively, the children learn more. At the same time, the decision making of the teacher improves and children become more aware and reflective of their own performance.

Tools of the Trade

- Digital cameras
- Computers
- Tablets
- Interactive whiteboards
- Multi-touch tables
- Video recorders
- Scanners
- Microsoft Word & Excel
How do we know it works?

It stands to reason that if you know what a child knows and does not know, it is far easier to individualize instruction to fit their needs, than it would be if you could not identify the knowledge and performance gaps.

Research confirms that progress monitoring works. Studies show:

- A significant improvement in contextual conventions and contextual language (McMaster, Wayman, Deno, Espin & Yeo 2010)
- A significant improvement in quantity discrimination and mixed numeracy (Olson & Foegen, 2009)
- An average gain of 5.75 normal curve equivalent units on math assessment—six times the rate of growth over the prior school year (Spicuzza & Ysseldyke 1999)
- Decoding, fluency, and comprehension skills improve significantly (Fuchs, Deno, Mirkin 1984)

The University of Oklahoma, Sooner T.A.L.K. (Teachers Advocating Literacy to Kids), 2002 Early Reading Frist Cohort, demonstrated that before progress monitoring, children showed no significant improvements in learning pre-literacy concepts, but with progress monitoring, the gains were tremendous. See graphs below.

### Upper Case Alphabet Scores
Maximum Score 26

**Without Progress Monitoring**

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Reading First</td>
<td>7.4</td>
<td>14.1</td>
</tr>
<tr>
<td>Comparison</td>
<td>7.2</td>
<td>14.0</td>
</tr>
</tbody>
</table>

**With Progress Monitoring**

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Reading First</td>
<td>8.3</td>
<td>20.1</td>
</tr>
<tr>
<td>Comparison</td>
<td>6.7</td>
<td>13.7</td>
</tr>
</tbody>
</table>
5 Simple Steps for Monitoring Progress

These strategies can help ensure that your progress monitoring efforts are easy, effective, consistent & regular.

Tips to Remember
- Follow the steps in the order presented
- Be conservative in how much data you collect
- Set up a calendar with reminders
- Use a comfortable format
- Share with those who need to know
- Practice makes perfect

Monitoring Skills & Behaviors

1) Any domain is appropriate (see chart to right)
   - Physical
   - Cognitive/Academic
   - Social-Emotional

2) Any skill/behavior needs to increase or decrease to be successful

3) Success is determined by a variety of sources
   - Programs, Teachers, Parents

<table>
<thead>
<tr>
<th>Physical</th>
<th>Cognitive</th>
<th>Affective</th>
</tr>
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<tbody>
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</tbody>
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Domains of Development

Whole Child
Step One: **Determine Current Performance Levels**

There are several ways to assess current learning that can be collected by both the teacher and computer software designed to capture child progress.

- Presence or absence of skill
- Number of times understanding of skill is shown
- Number of correct/incorrect responses
- Number of responses before the correct response
- Amount of assistance needed before child shows knowledge

### Assessment Tools
- Curriculum-Based Measurement (CBM)
- IGDI Early Movement Indicator (EMI)
- Early Childhood Research Institute’s Early Social Indicat or (ESI)

### The Context
- Collect pieces that demonstrate/illustrate the skills and behaviors such as work samples, photographs, video, audio and observation notes
- Do this at the beginning of the monitoring period, two times during the learning process and once at the end.
- Collecting data over time makes it more authentic, personal, realistic and aids in communication with others.

**Did you know?**

- **Software by Hatch** is designed to help teachers with small and large group instruction with built-in digital portfolio capabilities that capture authentic work samples.

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**The teacher is the critical factor in the full development & use of educational technology.**

– U.S. Congress, Office of Technology Assessment
Step Two: Identifying Goals for Learning

In order to know if you’ve achieved success, you must identify goals for student learning that will take place over time.

These goals should be:
- Amenable to change or intervention
- Specific
- Discrete
- Measurable
- Attainable (adjustable)

Example Goals

<table>
<thead>
<tr>
<th>Vague Goal</th>
<th>Specific Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jane will learn to read.</td>
<td>Jane will be able to name half of the lowercase letters of the alphabet when</td>
</tr>
<tr>
<td></td>
<td>presented on individual cards by Dec. 15th.</td>
</tr>
<tr>
<td>Sam won’t bother others.</td>
<td>Sam will reduce touching other children’s belongings and toys to less than</td>
</tr>
<tr>
<td></td>
<td>three times a day by Nov. 1st.</td>
</tr>
</tbody>
</table>

CONSIDER THIS:
Don’t allow time and resource issues to prevent you from implementing progress monitoring in your classrooms. Concentrate on children with the most need and the domains and skills/behaviors that are most essential.

Combining knowledge about teaching and learning practices with how technology and content best work together allows educators to use technologies to teach in creative ways. Whether choosing to monitor progress through technology or traditional observation, first determine the typical performance of children in specific classrooms and the entire program so reasonable expectations can be set for individuals based on the “norm.”

Think about the data you need and want and how you will gather it:
- Will you use progress monitoring tools within technology-based educational programs?
- Will you photograph samples of every child writing his/her name throughout the year?
- Will you design a form & observe how each child performs on software lessons over time?
- Will you have each child complete a screener on a regular basis?

Performance

Low  Average  High
Measure Performance Regularly

Once at the beginning and once at the end of a program is not enough frequency for effective progress monitoring. But, too much measurement is burdensome for the teacher and is less likely to happen consistently. Measuring each goal separately might require a different schedule. The more fine-grained the goal, the more often it needs to be measured.

Frequency of Monitoring

- Should be weekly, bi-weekly or monthly
- Frequency depends on the goal; some goals require more frequent measurement
- Depends on time teacher can devote. Too often = burdensome = less likely to happen

Scheduling & Tracking

- Set up a calendar that illustrates how you will monitor progress toward specific learning goals
- If a child continues to struggle, you may want to consider monitoring their progress more often to determine if they need intervention
- Put data in an easy-to-use format such as digital portfolios and/or spread sheets

CONSIDER THIS:
It is rare to find one method of progress monitoring that fits all of your educational goals. So, when evaluating your program, it’s important to keep your priorities in focus. Rank your goals to help you determine what you’d most like to achieve through monitoring child progress.

Possible Goals to Explore

Cognitive Development
- Mathematics
- Language
- Literacy
- Science
- Social Studies

Approaches to Learning
- Curiosity
- Flexible thinking
- Creativity
- Persistence

Social-Emotional Skills
- Cooperation
- Collaboration
- Identifying Emotions
In order to determine if progress towards meeting specific goals is truly happening as planned, you must compare the expected and actual rates of learning.

**Step Four:**

**Compare Expected & Actual Rates of Learning**

Best practice suggests that in order to analyze student performance, you must establish a baseline performance measure or level of progress that is typical for the group (keeping in mind the group should consist of children with similar learning abilities). Then, compare how each child is matching with the ideal. Are they performing at, above or below this expectation?

**Baseline Performance**

Connecting the baseline performance to the learning goal offers a visual reminder of how rapidly individual children are expected to improve performance. This gives teachers the ability to continually compare each child’s projected and actual rates of progress so that instruction can be adjusted.

**Best Practice**

Consider this:

- “Aimline” connects the baseline performance to the learning goal
- Comparisons provide a visual reminder of how rapidly individual children grow
- Tracking allows teacher to continually compare a child’s projected and actual rates of progress
- This evaluation is key so that instruction can be adjusted for the best outcome
Step Five: Adjust Instruction Accordingly

Let the data continually inform instruction. This is where teachers apply the data to reflect on the strengths and needs of individual children.

- Identify knowledge gaps
- Differentiate instruction to meet individual needs
- Use small groups for focused instruction
- Try different teaching methods to change outcomes

Differentiate Instruction

As knowledge gaps are determined, teachers can differentiate instruction to meet the individual needs of children in small groups for more focused instruction. When progress is not being met according to the expected rate, a change in the program by the instructor must be made.

Possible Changes:

If adjustment is necessary, consider these options for change:

- **The environment** (such as seating or time of instruction) to better facilitate the child’s learning style & to improve focus
- **The type of instruction** (for example, from large group to small group)
- **The amount of time** the child has for guided and independent practices of essential skills
- The amount of time spent reviewing skills
- Simplifying directions

CONSIDER THIS:

Life events may impact whether a child is progressing in school. An example is a new baby joining the family, causing a disruption to the child’s normal routine. Be aware of these situations, but do not make instructional changes unless the situation will have a long-term impact on progress.

Instruction/Intervention

Not business as usual...

- Additional instruction
- More targeted approach
- Different presentation

Depending on skill level, intervention may be delivered by:

- Teacher
- Volunteer
- Tutor
- Parent
- Specialist
Progress monitoring is vital to effective instruction in early learning, and technology can greatly enhance, substantially support and facilitate the process.

Studies report positive outcomes using data collected by technology to inform instructional decisions. Technology-based progress monitoring tools can also provide insight on learners’ responses to instruction. Technology strengthens the practice of making instructional decisions based on data and allows teachers to better meet the diverse needs of children (Hupert, Heinze, Gunn et al 2007).

- Technology helps teachers easily store, organize, interpret and share progress information, whereas manual processes can be overwhelming.
- Technology builds on traditional screeners, checklists and observations with authentic work samples in digital portfolios and child performance data in computer-generated reports.

**CONSIDER THIS:**

Without professional development, training and support, educational technology tends to be ignored and looked upon as too difficult or time consuming to use. To avoid this, consider support for new technology as a ‘must-have’ rather than a ‘nice-to-have’.

**Did you know?**

Research suggest that teachers may not implement technology-based progress monitoring fully or regularly, which diminishes its power to help kids reach their learning outcomes. (Peneul & Yarnall 2005)

Educational technology can monitor children’s progress toward goals and outcomes that provide remediation and targeted instruction for the child. Authentic work can be captured in real time, demonstrating a child’s improvement over time.
Benefits of Technology with Built-in Progress Monitoring

Technology with built-in, robust progress monitoring capabilities strengthens the practice of making instructional decisions. These data-driven tools support teachers in better meeting the diverse needs of children.

Progress monitoring tools should be automatic, easy and available for teachers to use on a consistent basis to be successful. With the right tools, teachers can determine current levels of performance on an ongoing basis, regularly adjust instruction when needed and ensure children are appropriately and successfully supported with a complete learning cycle throughout the year.

Did you know?

When progress monitoring is built-in to technology and automatic:

1) It occurs while children play without any additional work required by the teacher.
2) Observations are objective, not subjective
3) Data is captured in real time to identify knowledge gaps and to demonstrate skill acquisition
4) Data can be used to improve instruction
5) The system can adjust to the child’s skill level and refocus them on activities where they need work
6) Data can be rolled up in reports that show progress across classrooms, schools and districts
7) The child is in control and learning at their own pace
8) Feedback and encouragement are frequent & timely
9) Progress can be represented as before & after photos or graphs that show progress over time

CONSIDER THIS:

iStartSmart by Hatch is a tablet and computer-based software solution that is designed to address 18 essential skill areas. Built-in progress monitoring features show the current level of the child’s performance as well as how they have progressed over time.

Combining child-directed discovery with direct teacher instruction to help scaffold & support children as they learn skills represents a highly effective educational environment for young children.

- Landry, 2005; NAEYC, 2009
Progress monitoring is vital to effective instruction. Here is a reminder of key points to make your program successful:

1) Is the progress monitoring tool easy to use? If it's not easy to use, it's not likely to be integrated into the curriculum.

2) Is the information easily shared with families and other educators who work with the children? Using authentic work samples and progress data in parent-teacher conferences is a powerful way to illustrate how children are developing. Additionally, data that can be shared with administrators presents a program-wide view.

3) Is the information easy to interpret for teachers, administrators and parents? Data should be presented in a simple way so that educators and parents can easily determine how a child is performing and areas that need additional instruction.

93% of teachers say technology helps them be more effective.

- Grunwald, 2011
Technology + Quality Content is Shown to Work

Two recent studies demonstrate that the Hatch technology can greatly increase child outcomes when used in best practice in the classroom. Both the TeachSmart® interactive whiteboard system and iStartSmart® computers and tablets provide progress monitoring components that are designed to help teachers inform instruction.

TeachSmart® Interactive Whiteboards

TeachSmart interactive whiteboard software can greatly increase a child’s readiness to learn reading and math. With an estimated one in three children unprepared to learn these core skills when they enter kindergarten, these findings are critical.

At the beginning of the study, only 46% of the children were ready to learn to read. Six months later, 82% exhibited the literacy skills required for reading readiness. Just 72% of children scored high enough during initial math testing to be considered ready for math in school. At the end of the study, that number had increased to 92%.

iStartSmart® Computers & Tablets

Preliminary results of a scientific research study on iStartSmart software showed children had significant gains on standardized tests in comparison to control group children who had not used iStartSmart software.

Did you know?

In many cases interactive whiteboards are being used merely as a high-tech chalkboards and computer games serve as entertainment, offering little or no instructional value. Hatch interactive whiteboard content, informed by research and tied to national standards, brings technology to life, featuring thousands of activities that 

**differentiate learning, engage students and support teachers.**
"Hatch Technology Ensures Positive Outcomes for Early Learners"

—Cynthia Johnson, PreK Early Start (PKES) Program Manager, Houston, TX

Interactive Displays & Whiteboards
With Lesson Planning Tools

Revolutionary Computers & Mobile Devices that Monitor Child Progress

Multi-touch Tables & Content Packages that Promote Cooperative Play

How can Hatch learning activities & tools work for you?

1. Save Time
2. Differentiate Instruction
3. Ensure Quality
4. Show Results

Thousands of research-based activities for preK to 1st grade that align with NAEYC & Head Start standards and vary from easy to advanced levels.

Includes easy-to-use tools that monitor each child’s progress, allow educators to base decisions on actual data and capture authentic work samples.

Plus, Hatch Technology is proven to work! A recent study of preschoolers showed gains that resulted in 82% “ready to read” and 92% “school ready” in math.

HatchEarlyLearning.com | 800.624.7968
**Progress Monitoring to Improve Outcomes**  
Lilla Dale McManis, Ph.D.

**Sources**


Additional Sources:

www.ceed.umn.edu/cceed/  
www.crtie.org  
www.studentprogress.org  
www.interventioncentral.org  
www.recognitionandresponse.org

The mission of the Center for Early Childhood Education and Development (CEED) at the University of Minnesota is to improve developmental outcomes for children. Through research, professional development, community outreach, and policy, CEED strives to effect positive change in early education, child care, and public policy.

Center for Response to Intervention in Early Childhood is a consortium of professionals committed to advancing early intervening services based on RTI and evidence-based practice in Early Childhood Education

National Center for Student Progress Monitoring is a progress monitoring resource website.

Intervention Central provides teachers, schools and districts with free resources to help struggling learners and implement Response to Intervention and attain the Common Core State Standards.

Recognition and Response provides educators with information and resources to help early educators address the needs of young children (3 to 5 year-olds) who show signs that they may not be learning in an expected manner, even before they begin kindergarten.