Use of Ongoing Child Assessment to Inform and Individualize Instruction

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In 2012, the Office of Planning, Research and Evaluation (OPRE) at the Administration for Children and Families (ACF) contracted with Mathematica Policy Research and its partners to conduct the *Assessing Early Childhood Teachers' Use of Child Progress Monitoring to Individualize Teaching Practices* project.[1] The purposes of the project are to develop an evidence-based model of early childhood teachers' use of ongoing child assessment for individualizing instruction and to create a measure to evaluate how teachers assess the progress of children in their classrooms and use the data to inform and modify classroom instruction. This project has the opportunity to make a strong contribution to the early childhood field by defining the key aspects of systems of ongoing assessment for individualization and providing guidance on efficiently assessing implementation. Ultimately, it may lead to practice enhancements that will improve early childhood program performance.

Assessment has long played a critical role in determining whether early education promotes children's readiness for school, and the importance of ongoing assessment to individualize instruction during early childhood is recognized in Head Start. In the past five years, the Office of Head Start (OHS) has elaborated its vision for preschool child and family outcomes, added a stronger focus on program and classroom quality in its monitoring system, and developed tools to support ongoing assessment in daily practice. Recently, the Secretary of Health and Human Services' Advisory Committee on Head Start Research and Evaluation advocated investment in supporting evidence-based and data-informed practices across all domains of quality teaching and learning (Advisory Committee on Head Start Research and Evaluation 2012).

Despite the importance of using assessment to inform instruction and the requirements to do so, information on how teachers actually collect and use assessment data to inform their practice and individualize for children across early education–related disciplines is sparse. Policymakers, practitioners, and researchers continue to identify an urgent need for research in this area in the quest for better educational outcomes (Bambrick-Santoyo 2010; Black et al. 2003; Black et al. 2004; Fuchs and Fuchs 2006; Hamilton et al. 2009; Marsh et al. 2006).

A. Two Approaches to Ongoing Assessment

Ongoing assessment of child progress is increasingly a priority in early childhood classrooms, yet teachers' implementation of this process is not extensively researched. General outcomes measures (GOMs) and curriculum-embedded assessments represent two major approaches to ongoing monitoring of child progress.

General Outcomes Measures. The GOM approach involves frequent and standard assessment of child progress toward a long-term desired goal or outcome using a brief measure with strong evidence of reliability and validity. Central to the content development of a GOM is the repeated measurement across time of the same key skill elements (a subset of skills that represent the entire set of skills required to achieve a targeted outcome). Thus, a child's increasing proficiency on a GOM is indicated by improved performance on the same key skill elements repeatedly measured

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[1] This project focuses on all forms of ongoing child assessment, of which child progress monitoring is a common form.

over time. With a GOM, measurement focuses on just a few key skill elements and not the universe of possible age-appropriate skills. Children's performance using GOMs is measured from three times per year to as often as once per week (Jenkins et al. 2009), and the probes to obtain these performance samples typically range from one to five minutes, depending on the general outcome being measured. One common application of GOMs is Response to Intervention (RTI)—an approach to earlier intervention involving universal screening of all students at regular intervals throughout the year; children not progressing as expected receive more intensive support, and ongoing assessment is used frequently to evaluate the success of the intervention or approach (Hamilton et al. 2009; National Association for the Education of Young Children et al. 2012; Buysse and Peisner-Feinberg 2013). Most GOMs in preschool currently focus on language and literacy, and some focus on mathematics.

Curriculum-Embedded Approaches. The most commonly used systems for assessing the progress of children in early care and education are curriculum-embedded approaches that assess children's progress relative to early learning standards and the skills and knowledge taught via a specific curriculum. In curriculum-embedded approaches, assessment information is collected often within the context of the delivery of the curriculum. Typically, the assessment tasks are intended to be authentic in context. Some curriculum-embedded assessments are developed by the curriculum developers to align closely with the specific curriculum (such as the Teaching Strategies: GOLD assessment used with the Creative Curriculum), while other curriculum-embedded assessments are derived from national standards and developmental expectations (such as Galileo and the Work Sampling System). Performance on task(s) is typically evaluated in relation to indicators on rubrics provided by the curriculum-embedded assessment system. The rubrics indicate different levels of performance looking toward end-of-year goals, but often no guidance is provided regarding expectations for progress at different points in the year. Although embedded within daily activities and aligned with curriculum goals, the specific activities and tasks used for assessment of each area are not standardized; therefore, teachers use varied sources of evidence for progress. While the majority of curriculum-embedded approaches include rubrics, they depend on the collection of multiple sources of evidence and may use a variety of data collection tools, such as observation recording forms, worksheets, standardized assessments, and portfolios.

B.   A Focus on Curriculum-Embedded Approaches

Because the curriculum-embedded approaches (1) are more common in early childhood settings than GOMs, (2) are more demanding for a teacher to implement (that is, require greater teacher skills and knowledge), and (3) look more broadly at the domains in the Head Start Outcomes Framework, this report addresses measure development planning for curriculum-embedded approaches.

Figure ES.1 presents the conceptual model for ongoing monitoring of children's progress that informs instruction and individualization when used within a curriculum-embedded approach. There are four iterative stages: (1) selecting the assessment target and method, (2) implementing the assessment, (3) interpreting the assessment data, including hypothesis setting and selection of instructional decisions, and (4) applying instructional decisions. Each stage and its quality indicators are explained below.

Figure ES.1. Conceptual Model for the Curriculum-Embedded Approach
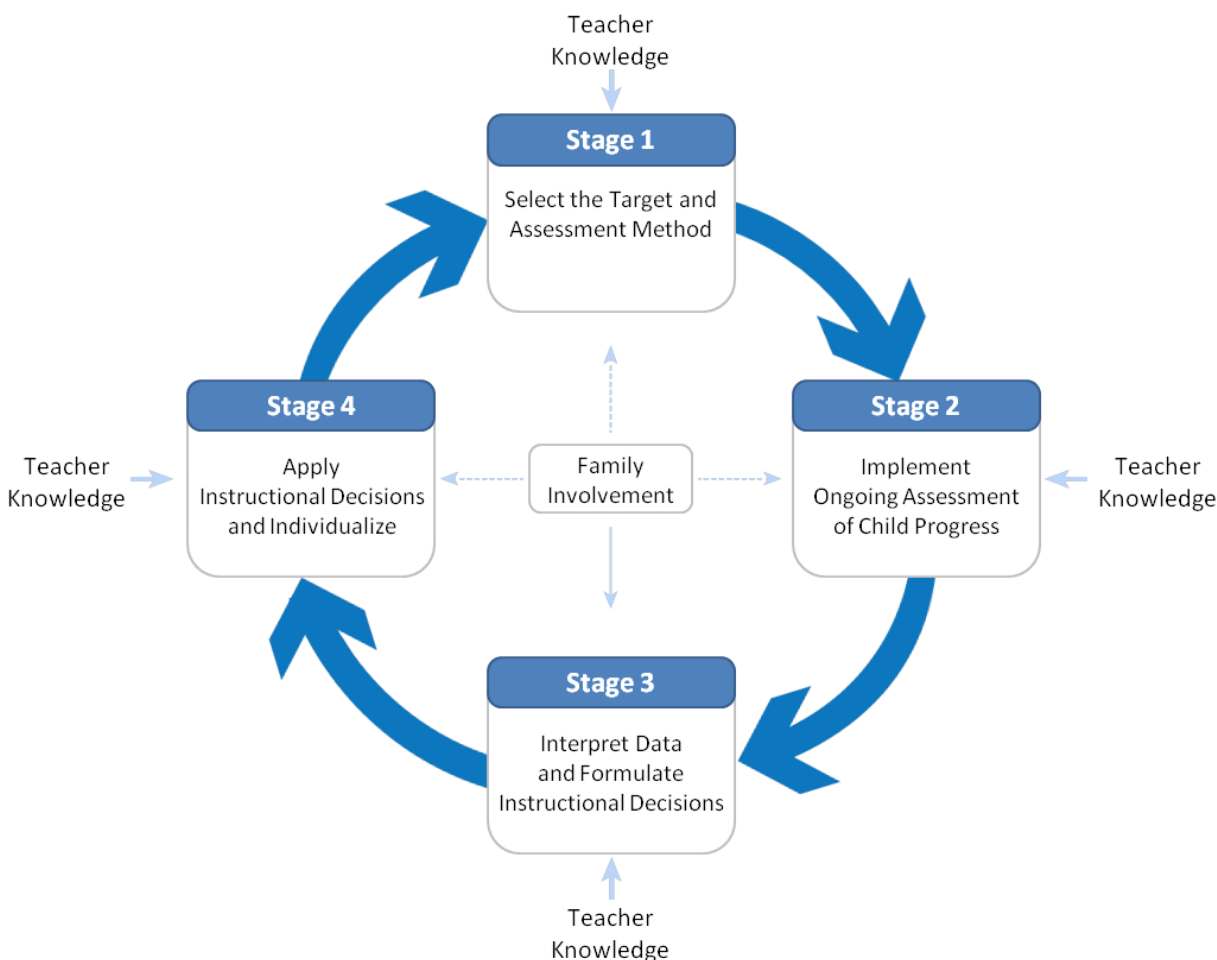
Context: Availability of (1) policy and supervisory support, (2) different methods for assessment, (3) frequency of progress monitoring, (4) technology support, (5) adequate time for teacher reflection and planning, (6) curriculum, and (7) teacher beliefs.

Stage 1: Selecting the Target and Assessment Method. The selection of the assessment system is often determined at a program level. The supports available to the teacher within different tools and assessments vary, as does the strength of the link to the curriculum. The targets of assessment should look across the program year to the expected end-of-year outcome and track progress toward that outcome. Collection of data, interpretation of and reflection on data, and implementation of instructional changes should occur throughout the year on a frequent-enough basis to monitor and guide the expected changes. At any given point in time, teacher decision-making plays a large role in selecting the specific target for observation and assessment and in determining the method used to gather evidence of the child's skill, knowledge, or behavior.

Dimensions of quality to be measured when assessing teachers' selection of assessment target and method include targeting of meaningful and developmentally appropriate outcomes, key behaviors, knowledge, or skills; sensitivity to intervention and change; alignment of target with curriculum and method of data collection; focus on observable and generalizable behaviors; valid

method of data collection (including linguistic and cultural appropriateness); and efficiency and feasibility of frequent data collection.

Stage 2: Implementing Ongoing Assessment. Ongoing assessment is typically implemented by the classroom teacher during instructional activities. Efficient assessment is a priority in order to maximize instructional time. The assessment should be ecologically valid. Teachers need to document child progress objectively, accurately, and with relevant contextual information.

Dimensions of quality to be measured at this stage include various aspects related to the assessment itself (ecologically valid, individually appropriate, and fair) and the documentation (objective, including appropriate contextual information; efficient; and consistent).

Stage 3: Interpreting Data and Formulating Instructional Decisions. In an early education ongoing assessment system, teachers need to be able to interpret the data about each child's performance relative to expectations for performance, usually in relation to typically developing peers of the same age or curricular guidelines. After the data are collected, they must be interpreted and combined with other available data used as a complement to the current assessment information and evaluated in relation to developmental or curricular guidelines. Teachers would use the data to identify children's strengths, weaknesses, interests, and learning differences and would use that information to select the best way to support each child's continued progress. The process of interpreting data and formulating instructional decisions may be conducted in teams with the support of other teachers, coaches, consultants, and/or family members.

Dimensions of quality to be measured at this stage include the organization of the information to facilitate interpretation and communicate easily to families, impose a minimal burden on teachers, and provide consistent, reliable data entry. The reflection and interpretation should be evidence-based and consider alternative hypotheses.

Stage 4: Applying Instructional Decisions and Individualizing. Individualization is a requirement in the Head Start Performance Standards (Federal Register 2011) and important for maximizing child progress. In formulating and applying instructional decisions, individualization involves selecting and implementing high-quality, evidence-based instruction that is targeted for individual children and responsive to the data collected about each child.

Dimensions of quality to be measured at this stage include the use of evidence-based strategies that are responsive to the data, implemented with fidelity, and evaluated in an ongoing manner. Classroom instruction is differentiated using a variety of approaches and builds on children's strengths and interests.

Personnel, Family, and Contextual Factors Affecting Most Stages. The conceptual model also identifies teachers' knowledge and beliefs about assessment, instruction, and children's development, and family involvement in the process of ongoing assessment as factors with implications across stages and areas of development. In particular, each stage of implementation calls for a particular kind of teacher knowledge. For example, Stage 1 calls for teacher knowledge of assessment and child development, whereas Stage 3 calls for teacher knowledge of instruction, pedagogy, and child development.

The context in which ongoing assessment occurs will also influence the quality of implementation, including key aspects of the program structure that will support or inhibit the successful implementation of ongoing assessment, such as:

- Policy and supervisory support for implementing ongoing assessment

- Availability of adequate time for reflection and planning

- A culture of data use and collaboration among teachers in assessing and interpreting the data

- Access to professional development opportunities and information about evidence-based or professionally recommended instructional strategies

C. Proposed Multi-Method Measure

The dimensions of quality identified in the conceptual framework of the curriculum-embedded approach served as the foundation for the development of a plan to measure teachers' implementation of ongoing assessment to inform instruction and individualization. The measurement plan also draws on information from a number of other sources, including a literature review, input from ACF and an expert consultant group, examples of teachers' ongoing assessment documentation, and reviews of manuals for ongoing assessments. Together, these sources helped us identify key constructs for measurement as well as data sources for measuring these constructs.

We propose a multi-method measure to assess teachers' use of ongoing assessment data called the **Quality of Ongoing Child Assessment for Individualization (QOCAI)**. When a complex and multidimensional process is measured, collecting data from various sources that provide both overlapping and distinct information is critical to understanding the components of the process. We propose that the QOCAI consist of an artifact review, video-based observations, and a one-hour teacher interview with a reflective think-aloud protocol. Video-based observations will be recorded over a two- to three-week period and followed by a one-day visit from an assessor to conduct the artifact review, rate the videos, and conduct the teacher interview. Scoring systems will be developed for each data source. The QOCAI attempts to capture the constructs in each stage of the curriculum-embedded assessment conceptual model while balancing the competing considerations of (1) the measure's reliability and validity, (2) the burden placed on assessors, teachers, and classrooms, and (3) budgetary considerations.

Artifact Review and Ratings. The artifact review will involve gathering ongoing assessment data (such as a portfolio) for two students, one performing well and the other facing challenges, to see how teachers are actually using ongoing assessment to individualize instruction. Assessors will also review current lesson plans for evidence of individualization. Assessors will rate assessment and instruction artifacts with rubrics, checklists, and ratings.

Classroom Observations. The teacher will be asked to video-record a combination of assessments and small-group instruction that includes one or both of the target children. Assessors will view the video after rating the artifacts and will evaluate the observations using rubrics, checklists, and ratings.

Teacher Interview with Reflective Think-Aloud Protocol.[2] During one-hour teacher interviews, assessors will probe for additional explanations about the artifacts and video data as well

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[2] The reflective think-aloud will take place after the video-recorded observations and artifact review and will ask the teacher to reflect on her thinking and decision making while collecting data and using the data to inform practice.

as teachers' planning and implementation of adaptations, modifications, and individualized teaching strategies. Teachers will describe how they use the data (for example, to determine whether children are making adequate progress, to make instructional decisions, to involve and communicate with families). Assessors will rate teacher interview data with a rating or rubric, coding interview responses and teachers' comments about their interpretation of data, any alternatives considered, their decisions about how to individualize, and the success of their efforts.

Limiting to Two Domains. For the initial pretesting of the QOCAI, we propose that language and literacy and the social and emotional domains be the focus of the assessments. In the pretest phase, limiting the number of domains will help narrow our focus, allowing greater opportunity to refine the measurement of one or two domains and stay within resource constraints. Despite limiting the focus to two domains, we will include items in the QOCAI that examine if teachers are drawing on information across domains to interpret child data and individualize instruction.

D. Pretesting

Pretesting will encompass the earliest stages of developing the QOCAI and testing its feasibility. The proposed pretest consists of three rounds of data collection. Ultimately, the pretest will include visiting 5 centers and 10 classrooms chosen purposively based on the center's use of an ongoing assessment system. During the iterative pretesting process, we plan to try two different approaches to the focus and frequency of the video recording. After each round of data collection, the full team will debrief and consider changes to the items, protocols, and procedures. Recommended changes will be reviewed by ACF and expert consultants, and feedback will be incorporated.

E. Potential Uses

This project can contribute to the early childhood field—and Head Start, in particular—by assessing implementation and use of ongoing assessment to deliver high-quality, individualized instruction. For curriculum-embedded approaches, the QOCAI will provide information on how teachers use assessment data to understand children's development and to plan and individualize instruction.

The final, validated version of the QOCAI could be used by researchers, sponsoring agencies, administrators, teachers, mentors, education coordinators, and coaches from individual programs or by networks of programs for multiple purposes. Initially, this measure will be used primarily by researchers to help Head Start and the early childhood field to understand how this process is enacted in classrooms. In discussions with experts, they repeatedly noted that even basic information about the process of assessment and instructional individualization in early childhood classrooms is unknown. As a consequence, the QOCAI offers an unprecedented opportunity to inform the early childhood field's basic understanding of a process that is valued and even mandated but previously not measured. The QOCAI would inform teachers, mentors, and coaches about strengths and weaknesses of their programs' use of ongoing assessment. Ultimately, this could lead to stronger implementation of individualization and better outcomes for children.

REFERENCES

Advisory Committee on Head Start Research and Evaluation. "Final Report Submitted to the Secretary of the U.S. Department of Health and Human Services." Advisory Committee on Head Start Research and Evaluation, 2012.

Bambrick-Santoyo, P. *Driven by Data: A Practical Guide to Improve Instruction*. San Francisco, CA: Wiley, 2010.

Black, P., C. Harrison., C. Lee, B. Marshall, and D. Wiliam. *Assessment for Learning: Putting It into Practice*. Buckingham, UK: Open University Press, 2003.

Black, P., C. Harrison, C. Lee, B. Marshall, and D. Wiliam. "Working Inside the Black Box: Assessment for Learning in the Classroom." *Phi Delta Kappan,* vol. 86, no. 10, 2004, pp. 8–21.

Buysse, V., and E. S. Peisner-Feinberg (in press). *Handbook of Response to Intervention in Early Childhood.* Baltimore, MD: Paul H. Brookes Publishing Co., Inc.

Fuchs, L., and D. Fuchs. *What Is Science-Based Research on Progress Monitoring?* Washington, DC: National Center for Progress Monitoring, 2006.

Hamilton, L., R. Halverson, S. Jackson, E. Mandinach, J. Supovitz, J. Wayman, C. Pickens, E. Sama Martin, and J. Steele. "Using Student Achievement Data to Support Instructional Decision-Making." NCEE 2009–4067. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, September 2009.

Jenkins, J. R., J. J. Graff, and D. L. Miglioretti. "Estimating Reading Growth Using Intermittent CBM Progress Monitoring." *Exceptional Children,* vol. 75, 2009, pp. 151–163.

Marsh, J., J. Pane, and L. Hamilton. *Making Sense of Data-Driven decision-making in Education: Evidence from Recent RAND Research.* (OP-170). Santa Monica, CA: RAND Corporation, 2006.

National Association for the Education of Young Children, Division for Early Childhood of the Council for Exceptional Children, and National Head Start Association. "Frameworks for Response to Intervention in Early Childhood Education: Description and Implications." Review draft. Available at [http://www.naeyc.org/files/naeyc/RtI_in_ECE_Frameworks_DRAFT_FOR_REVIEW_6-27-12.pdf]. Accessed July 24, 2012.

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