NATIONAL GOVERNORS ASSOCIATION

White Paper

The Untapped Potential of an Early Childhood Assessment System: A Strategy for Improving Policies and Instruction from Early Childhood through 3rd Grade

Executive Summary

Children's academic and social development before third grade is highly predictive of later success in school and beyond. Research shows that during those early years, the gains children make in language and literacy, mathematics and social skills, and their growth as learners and thinkers are associated with a range of benefits, from academic achievement to economic stability to healthy habits and behaviors.[1] As a result, funding for high-quality early learning programs has demonstrated a significant, positive return on investment.[2] And the investment is substantial. As of 2013, states spend $5.5 billion for pre-K and $2.2 billion for child care annually, the two early care and education programs with major state investments that serve children before they enter kindergarten.[3]

Research also shows that gaps in development and achievement among children from different income and racial groups appear before kindergarten.[4] In order to determine whether children are developing critical skills during the early years, educators and policymakers need high-quality assessments that can measure what children are expected to learn from year to year. Assessments take many forms and include any tool that is used to measure what students know and can do at a particular point in time. However, state leaders usually do not have comprehensive data about how young children are progressing because most states lack a common approach to defining learning benchmarks or measuring progress against those benchmarks until common, statewide assessments are conducted in reading and mathematics in third grade. Historically, state policymakers have not developed assessment policies and strategies to support early education—from early childhood through third grade (EC-3rd grade)—as much as they have for the later elementary years through high school. As a result, most providers of early education and local school systems have developed their own assessment strategies based upon local expectations and resources.

Developing and putting in place more common systems for assessing the progress of young children through third grade offer numerous benefits for students, families, teachers and policymakers. By defining common benchmarks for learning and common expectations for the ways by which progress toward those benchmarks is measured, policymakers can create a large-scale picture of how students are progressing statewide that can influence meaningful policy decisions while creating economies of scale for educator training and professional development. Further, common expectations about learning across the state mean students and families can anticipate similar learning trajectories even if they move from one community to another. Data based on more common, high-quality assessment strategies would allow a number of important questions to be answered, among them:

- Which demographic groups of young children are falling behind in learning and developing the knowledge and skills that will set them up for success when they enter kindergarten?
- Are early elementary students making sufficient progress in math, reading and social-emotional learning?
- What resources should states direct toward

interventions for students and professional development of early-childhood educators and in which specific areas of learning and development?

To answer such questions, state policy leaders need to adopt an assessment system for the early years that provides high-quality, comprehensive data about children's learning and enables teachers, administrators, parents and policymakers to use the data to improve teaching and learning. Such an assessment system spans early childhood through third grade, is grounded in commonly held expectations of what children should know and are able to do during those years, provides educators useful and timely information so they can improve their students' learning and is aligned with assessment activities in later years. It also supports the use of assessment tools that allow educators, parents and policymakers to make valid comparisons of children's learning and development among schools and communities within a state. Those tools will necessarily differ from the typical tests taken by older students. Assessments that are appropriate for young children tend to rely on teachers' observations, students' work samples and their performance on well-designed tasks.

Building such a system does not necessarily require adding more assessments, but it does require a thoughtful examination of five key elements of effective assessment systems: benchmarks or standards for what is assessed; assessment tools for effective measurement; the skills educators need to properly administer and use assessment tools; communications pathways for families who are responsible for monitoring learning and development; and data systems that enable tracking of learning statewide over time. In some cases, state leaders might be able to reduce or streamline the assessments being used in early learning programs and elementary schools, achieve economies of scale for educator training and leverage existing data systems to yield more powerful data to inform decision-making.

Why States Need an EC-3rd Grade Assessment System

Assessment is an essential part of effective teaching and learning. At its core, it is the process of determining what students know and are able to do, interpreting the data, and using the information to improve instruction, intervention and policies so that students can more effectively reach their learning and developmental milestones.[5] Effective assessment systems support both instruction and policy decisions because they provide consistent expectations for learning and a common way of measuring progress. Educators need formative assessments—the practice of routinely gauging what students know and are able to do and using that information to adjust instruction—to inform their interactions with students and family members. Studies have demonstrated that effective use of formative assessment significantly improves student learning.[6] However, summative assessments, which demonstrate what children have achieved at the end of an intervention, school year or developmental period, are needed to inform decisions about students' promotion among grade levels or classes as well as local or state policy decisions, such as those related to educator professional development and program improvement strategies.

In most states, there is no reliable, comparable data about how children are doing until third grade. Whether students from kindergarten through second grade are assessed and how they are assessed are decisions that are left largely to local districts and schools. Some communities and districts have more comprehensive information about children during this age span than others and are more able to make better decisions about curriculum, educator professional development and other improvement efforts. States often have policies that govern assessment in early learning programs, especially for state pre-K and early childhood special education, but in most states, a minority of children participate in those programs.[7] That patchwork of assessment policies contributes to wide variability in information on the quality of instruction and learning, which leads to variation in

readiness for kindergarten—even among students who participated in pre-kindergarten education programs.

Inconsistent assessment policies also make it impossible for state policy leaders to understand how, on the whole, children are developing as they progress from early learning programs through the primary grades. As a result, state and district leaders have less data with which to inform interventions before third grade, long after achievement gaps appear and potentially become entrenched. Moreover, the lack of consistent information at the state or district level makes it difficult to use common metrics with which to evaluate educators, schools, early learning programs and districts. It also makes it challenging to identify and employ educator professional development and interventions that are relevant across schools and districts, align with educator evaluation systems and improve instructional quality.

Finally, state policies and systems for early childhood through third grade (EC-3rd grade) assessments that don't focus on a common set of knowledge and skills throughout the age span create gaps in information about children's learning and development. To the extent that states have policies or guidance for EC-3rd grade assessments, they tend to have different expectations for early learning programs than for elementary schools. Some states require or encourage early learning programs to assess children on a broad set of skills that include not only literacy and math but also children's social emotional learning (SEH), such as collaboration, communication, persistence, focus and creative thinking, which research has shown are critical to academic success and college and career readiness.[8] However, state policies for assessment in the early elementary grades tend to focus on literacy and sometimes math. Thus, although state policymakers might have some information about how some young children are developing in SEH before kindergarten, most educators and policymakers do not have such comprehensive data after kindergarten. That lack of information hinders educators' efforts to improve their students' learning. It also prevents policymakers from making sound decisions about investing in interventions and training programs that can enhance students' SEH in the elementary years.

A more coherent, comprehensive early childhood assessment system can help state leaders improve the education that children receive from early childhood through third grade and understand the returns for their investments in early learning, which as of 2013, included $5.5 billion for pre-K, $2.2 billion for child care and billions more in K-3 education.[9] To promote such a system, state leaders can draw from a significant body of knowledge and experience. The past two decades have seen growth in state-funded preschool programs and, with it, increased efforts to monitor those programs' quality that include child assessments.[10] Federal policies related to Head Start and special education programs for infants, toddlers and preschoolers have also yielded lessons about best practices in the design of assessments, their implementation and appropriate uses of the results.[11] More recently, the Race to the Top–Early Learning Challenge and the Enhanced Assessment Grant programs have provided federal funding opportunities to develop more comprehensive systems of early-childhood assessment and expand the use of kindergarten entry assessments in states. Finally, recent efforts in states to improve teacher evaluation policies by integrating data about students' learning and growth have elevated the need for better assessment tools and strategies in the early elementary grades and for improving educators' ability to assess young students. In the midst of all those policy actions, research-based guidance on assessing young children has also expanded, from the National Education Goals Panel of the late 1990s to more recent recommendations from leading research and policy organizations, such as the National Research Council, the National Association for the Education of Young Children and the National Early Childhood Accountability Task Force.[12]

The advances in research, policy and practice described above have generated greater understanding about both assessments themselves and ways of effectively

administering assessments to younger children. The field now has more tools and knowledge to measure younger students' skills and development more accurately and to do so in a way that is aligned with learning progressions based on research and evidence.

The field also has developed better guidance on how to appropriately use the assessment results and what knowledge and skills educators need to administer assessment and use the data effectively. Those advancements, coupled with clear evidence that many students are already well off track by third grade, make clear that state leaders need to harness the wisdom from various research and policy initiatives and incorporate younger students into states' overall education assessment systems.

Elements of an Effective EC-3rd Grade Assessment System

An effective EC-3rd grade assessment system would address the concerns highlighted above by providing more accurate insights about children at an earlier point in their development and about what supports they and their educators need at the community or district level

What Makes Assessing Young Children Different from Assessing Older Students?

Most people's conception of assessment is likely to be tests involving multiple-choice questions or group-administered oral exams. Such tests are challenging for children from the earliest ages through the primary grades and may produce invalid and/or unreliable results. Children in that age range have a limited capacity to demonstrate their abilities through traditional testing methods. It is more difficult for them to focus for a long period. They also may not be familiar with the purpose of tests and lack the motivation to perform that older children have.[13] Their performance on any given task is highly susceptible to environmental factors and, therefore, may differ from day to day or, even, minute to minute. This makes getting an accurate read of their ability challenging.[14]

For those reasons, assessing younger children usually calls for different assessment strategies and processes, including:

- Effective assessments often rely on rating scales or checklists that teachers complete through observations of children and collection of their work samples. They can also be based on students' performance of tasks that are designed specifically to gauge their proficiency against learning standards. For both types of assessments, the teacher has to be well-trained to conduct observations, implement the tasks and document evidence of learning.[15]
- Assessments should examine children's learning and development on a broad range of areas that are critical to academic and long-term success.[16]
- Because the assessment is usually based on an interaction between the assessor and student, it is important for the assessment to be conducted by someone who has at least a comfortable rapport with the child.[17]
- For the most reliable results, educators should assess children at multiple points in time, using several sources of evidence.[18]

and statewide. Such a system would provide educators, parents and policymakers comprehensive information about how children from early childhood through third grade are developing on a common set of learning and developmental areas, including at least language and literacy, math, SEH and motor development.[19] The system would also help school districts and early learning providers identify developmentally appropriate assessment tools and methods that yield high-quality data. That data would be valid for several purposes, including formative and summative assessments, screenings to identify special needs or delays and benchmark assessments to gauge whether children are making adequate progress toward learning and developmental goals.

In addition, the EC-3rd grade assessment system would have supports to ensure that users of assessment results—including educators, program directors, school administrators, policymakers and parents—can access data appropriate to their needs and use them to improve instruction, policies and children's learning and development. Such supports would encompass professional preparation programs and ongoing learning opportunities. In particular, they would help teachers and leaders strengthen their assessment literacy, including the ability to: design or select appropriate assessments; administer the assessments; observe and document children's responses; interpret and use data to understand what children know and are able to do; adjust their instructional strategies to help children reach learning and developmental goals; and involve family members as both sources and users of assessment data. Finally, the assessment system would also include a data management infrastructure that allows all users of assessment results to understand how young children are progressing and how that relates to other factors in their learning and living environments.

A Strategy for Building an Effective EC-3rd grade Assessment System

To build an effective EC-3rd grade assessment system, governors and other state policy leaders need to address five key elements of effective assessment systems: benchmarks or standards for what is assessed; assessment tools or strategies for effective measurement; the skills educators need to properly administer and use assessment tools; communications pathways for families who are responsible for monitoring learning and development; and data systems that enable tracking of learning statewide over time. Specific actions associated with each of those key elements that are available to governors and leading policymakers are described in more detail below.

Establish learning benchmarks or standards for knowledge and skills

Learning standards identify what students should know and be able to do and inform what an assessment system should focus on. Aligning learning progressions and expectations from early childhood through third grade can help the state assessment system provide more consistent data about children's development. Policymakers in **Colorado** and **Washington**, for example, have developed early learning guidelines that encompass the EC-3rd grade continuum.[20] With such data, educators and policymakers can better understand where children are in their development, whether they are making adequate progress, what goals to target in the future and what supports and interventions some children may need to get on track.[21] Because research increasingly points to the importance of SEH to academic success, state leaders should consider incorporating those areas of development throughout the EC-3rd grade continuum. All states have included SEH in their early learning standards for children below the age of 5, and some have extended those standards into the older grades. **Kansas**, **Illinois** and **Pennsylvania** have developed social-emotional learning standards throughout the K-12 continuum. **Idaho** and Washington have incorporated those skills into grades K-3.[22] To help the state improve its K-3 assessment system, research and policy leaders in North Carolina articulated a set of learning goals "as the foundation for the formative assessment process." Those goals include: approaches to learning, cognitive development, emotional-social development, health

and physical development and language development and communication.[23]

Define specific assessments or parameters for assessing

State leaders needn't be overly prescriptive in their assessment strategy to achieve better, more consistent data. Policymakers can set policies or provide guidance on a number of areas so that early learning programs and school districts share a common vision of an effective EC-3rd grade assessment system and have the tools and resources to implement it well. States can focus on the following three actions: define when a child's education assessments must take place; identify assessments or characteristics of assessments to be used; and provide assistance to school or center leaders to coordinate assessment requirements. Each action is further detailed below.

Identify key times when assessments are required or encouraged

State leaders can bring experts and practitioners together to help make decisions about when it is critical and appropriate to have more systematic data about children's development before third grade and what kind of data is needed at different stages. For example, recent attention to improving third-grade reading levels has led states to develop more systematic strategies to assess children's progress in language and literacy development during the primary grades. Currently, 30 states require districts to assess literacy annually from kindergarten through third grade.[24] In addition, state leaders increasingly understand the need to get a sense of what children know and are able to do when they enter kindergarten both to improve early childhood policies and to inform early elementary practices. At present, 26 states require districts to administer kindergarten entry assessments (KEAs) that serve those purposes.[25] In some of those states, the assessments focus only on reading and math skills. However, through the federal Race to the Top–Early Learning Challenge initiative, 20 states are developing KEAs that cover all of the critical areas of learning and development, including language and literacy development; early mathematics and early scientific development; approaches to learning; physical well-being and motor development; and social and emotional development.[26]

For the years before kindergarten, states can improve policies related to their pre-K programs, Quality Rating and Improvement Systems (QRIS) for early care and education (ECE) programs and screenings for health and developmental challenges to ensure that ECE providers, educators and policymakers have more comprehensive data about children's learning and development. Of the 40 states that invest in statewide pre-K systems, 32 require programs to assess participating children at least once during each program year. However, some states only use assessments that focus on reading, which does not provide a comprehensive perspective of children's learning and development.[27] Pennsylvania has used its QRIS to promote more systematic assessment of children from infancy onward. In addition to requiring its state-funded programs for preschoolers—including child care programs that have earned high ratings on the state's QRIS—to assess children across all areas of learning and development, the state also requires infant-toddler programs that are similarly highly rated to select an assessment tool aligned to the state's Early Learning Standards and conduct periodic assessments according to the protocol assessment periodicity.

Finally, Medicaid regulations require states to set and implement a schedule for screening children, starting at birth, for physical and developmental challenges, many of which are associated with academic difficulties.[28] State leaders can ensure that the schedule follows professional guidelines and standards, such as those from the American Academy of Pediatrics (AAP).[29] Although almost all states adhere to AAP-recommended practice for toddlers and children from 1 to 5 years old, most states have not set policies that meet that standard for infants under age 1 or for children from 6 to 9 years of age.[30] With their unique position as leader of the executive branch, governors are well-positioned

to initiate efforts across education, health and human services and other relevant agencies to consider how policies on screenings can promote a more coordinated, effective EC-3rd grade assessment system.

Select or provide guidance on assessment tools

Taken together, the required or recommended tools should assess critical areas of learning and development and serve different purposes: informing everyday instruction, monitoring progress toward benchmarks, evaluating the effectiveness of a program or curriculum unit, identifying potential special needs that require more intensive interventions and informing performance evaluations and program improvement strategies. Providing access to a range of tools might not be sufficient, however. Guidance about how to use different types of assessments is also necessary to ensure appropriate use of data. For example, data from formative assessments that are used to guide day-to-day instruction are not appropriate for informing policy decisions or evaluating program quality or teachers' performance. Summative assessments that are designed to measure students' knowledge and skills at key points in students' academic careers, usually at the end of a certain period of learning, are best for those purposes.

State leaders also need to keep in mind that assessments must be developmentally appropriate. Assessing younger children during the EC-3rd grade continuum is more effective when teachers use everyday activities or games that elicit children's knowledge and competencies, rather than relying on traditional standardized tests.[31] Because younger children often can't focus for an extended period, read or write independently or be motivated to perform in testing situations, tests that require those skills don't consistently produce useful data about their knowledge and ability. Finally, not all assessments were designed with children of diverse backgrounds in mind. Assessments should produce data that accurately reflect knowledge and skills for all populations of children, including those with special needs, such as English language learners and students with learning disabilities.

To help local districts implement a new law that requires literacy assessments from kindergarten through third grade, the Colorado Department of Education developed criteria and a rubric to identify appropriate tools and established a bank of approved measures for districts to adopt. The online resource distinguishes assessments for different purposes and for different kinds of language and literacy skills.[32] Moreover, the department must ensure that "at least one of the recommended reading assessments for kindergarten and first, second and third grades is normed for performance of students who speak Spanish as their native language."[33] Similarly, in **Florida**, unless exempted by the state, all districts must implement a literacy assessment program in grades K-3 that includes screening, progress monitoring, diagnosis and outcome measures; assesses students' development in oral language, phonics, fluency, vocabulary and comprehension; and provides progress monitoring for students with reading deficiencies three times a year.[34]

As states establish policies related to the identification and selection of assessment instruments, policymakers will need to determine how much flexibility local schools, districts and early childhood programs should have in selecting assessment tools. One major factor is the purpose of the assessment policy. If the goal is for educators, parents and state leaders to understand how children are progressing toward stated expectations and standards in relation to their peers in different parts of the state, then the state might need to mandate a common, statewide assessment. Such a decision will likely require time and resources to communicate with the field about the rationale for the requirement, cultivate support from local practitioners and parents, involve teachers and leaders in the selection of the tool and provide the necessary technology, materials and training to ensure the assessment is used for its intended purpose.

However, if the main purpose of the assessment policy is to help educators and parents support children more effectively at the local level, then state leaders might consider providing districts, schools and early learning providers more flexibility. Because the state is likely to have more resources and expertise to evaluate the quality of various assessment tools, state leaders can identify the best assessments available and give local educators the flexibility to choose among those options.

Help schools and districts coordinate local, state and federal assessment policies

Any state policy related to assessment in the EC-3rd grade span should help early learning programs and schools gather data about children's growth across critical areas of learning and development and for multiple purposes. To work toward that goal, policymakers should be aware of local practices and requirements for assessments from state and federal regulations to avoid adding duplicative or conflicting provisions. They should also examine whether additional assessments will actually produce additional data about children that aids in strengthening their education. For example, policy leaders in **North Carolina** saw that there was a gap in information in the early grades about students' development in social-emotional skills and their approaches to learning, areas that research has demonstrated are critical to academic success. In response, they are developing a formative process for K-3 assessments and strategies that will provide data on those areas, as well as literacy and math. In other states, the goal may be streamlining assessment requirements. For example, Colorado, like many states, is implementing new K-3 literacy assessments and a KEA. Because part of the KEA also focuses on early language development, there was a potential for kindergarten teachers to conduct both assessments on the same set of skills for similar purposes. To avoid such duplication, the state passed legislation allowing schools and districts to administer only one assessment for the purpose of understanding kindergartners' language and literacy development.[35] The state education agency further provided guidance about how the KEA and literacy assessments are related and how performing one of them may provide sufficient information.[36]

To help early learning programs, schools and districts identify potential gaps and overlaps in assessment policies, state leaders can provide tools that take stock of the various instruments that educators are using and the age group, purposes and skills for which they are designed. Illinois' state education agency developed an "inventory" tool for school districts based on work done by Achieve, an organization that helps states develop and implement policies that support students' readiness for college and career.[37] The Center on Enhancing Early Learning Outcomes has a similar product that focuses on the EC-3rd grade continuum and can be used by schools, districts and state leaders.[38]

Review requirements for early childhood and elementary educator preparation and certification programs

In both early learning programs and elementary schools, educators often lack assessment literacy—the skills to use assessment effectively to improve teaching and learning.[39] Assessment literacy is critical for helping educators determine whether students are within the range of age-appropriate expectations and how best to support them for the next step in their development.[40] Unfortunately, such coursework in child development is often insufficient and disconnected from classroom practice in teacher preparation programs.[41]

To address those issues, governors can convene institutions of higher education, state-level education and early childhood agencies, state boards of education, state and district education leaders and early learning providers to identify ways to improve accreditation policies for preparation programs, professional certification requirements and exams and course offerings to promote assessment literacy. For example, **Hawaii**'s Office of Early Learning, formerly part of the governor's office, worked with faculty from the University of Hawaii system to administer a

survey of coursework on early childhood assessments in order to identify gaps that need to be filled.

Develop a system of ongoing training and other supports for teachers, principals, district leaders and early childhood center directors

As with most educator competencies, teachers and leaders need ongoing opportunities to learn, practice and hone their assessment skills. **California** and Colorado have developed comprehensive resources to support early childhood educators' and leaders' assessment practices. Both include training resources for providers that help them effectively administer assessments, improve their observation and documentation skills and use the data to inform instruction.[42] Both also have online modules and videos so that educators can access resources remotely and practice their assessment skills on their own or in a group setting.

States can also help schools and districts set up and support peer learning groups that continuously collect and interpret assessment and other education data in order to improve their practices and policies. As part of its K-12 Race to the Top initiative, **Delaware** developed the Data Coach Program, which deployed trained coaches to schools to work with teams of teachers and administrators to examine data, make inferences about students' learning and development and use that information to develop new teaching strategies or identify students for more intensive interventions. **Oregon**'s Direct Access to Achievement (DATA) project, which operated as a statewide initiative from 2007 to 2014, trained and certified teachers and administrators to perform similar functions as Delaware's data coaches. In addition, the DATA project organized opportunities for educator professional development. Both programs were supported by evidence showing educators improved their understanding of assessment data and their ability to analyze and use them. Oregon's DATA project has also shown through an independent evaluation that participating schools experienced improved test scores.[43]

In both Delaware and Oregon, school and district leaders' buy-in and active involvement were critical to the success of the initiatives. However, when it comes to assessment in the EC-3rd grade continuum, K-12 leaders could need additional support because many of them have none or limited experience in early learning.[44] Recognizing that need, the **New Jersey** Department of Education collaborated with the Advocates for Children of New Jersey and the New Jersey Principals and Supervisors Association to develop the PreK-3rd Leadership Training Series, which provided professional development to increase the capacity of principals and other administrators to support early learning. The project included four days of training spread over five months, and early childhood assessment was one of nine components of the curriculum.[45] Based on participants' experiences and feedback, the trainers saw a need to focus more on the leaders' understanding and use of assessments in the early grades and developed a two-day training dedicated to that topic.[46]

When designing a strategy for providing ongoing supports for teachers, principals, district leaders and early childhood directors, policymakers should consider integrating such efforts into existing initiatives, such as continuing education resources and requirements for teachers and principals, recertification policies, instructional coaching programs and quality improvement efforts like QRIS for early learning programs.

Develop policies that help EC-3rd grade educators engage parents and guardians

Involving parents and other family members can enhance both the assessment process and instruction because they can be a rich source of information about children's strengths and weaknesses. When they are informed of data from assessments of their own children, parents can provide support at home that reinforces what teachers are doing in the classroom. For example, the kindergarten entry assessment program in Washington includes a "Family Connection"

component in which kindergarten teachers meet with students' families to get a more comprehensive view of the child and his or her family life. The meetings can take place at the school or in the child's home. In 2013, the legislature passed a law giving kindergarten teachers three full days at the beginning of the school year to conduct those meetings.[47] Also, many states that have passed legislation in recent years to improve third-grade reading outcomes have included provisions requiring teachers to share literacy assessment data throughout the K-3 years with parents. In Colorado, for example, if assessment results show that a student has significant difficulties in literacy and reading at any point during the K-3 grades, teachers must notify parents or guardians of the situation, preferably through a meeting, develop an intervention plan with their input, inform them of strategies they can use at home to support their child and provide information about relevant resources in the community.[48]

Build or connect data systems and define reporting requirements to maximize utility of data for educators and policymakers

Assessment data are more useful to educators, school and program leaders and policymakers if they describe what children know and are able to do not only at a certain moment but over time and in the context of other factors in their lives. Preschool and kindergarten teachers who have access to data about their students' learning and development before they entered the public school system are better equipped to build on the children's strengths and address their needs. Coded longitudinal data also allow policymakers to examine relationships between different aspects of children's experience (for example, participation in early learning programs or extended school time) and their learning and development over the course of their education. At the same time, supplementing assessment results with data about the quality of the environments in which children learn and live—such as measures of teacher-child interactions, quality of the school or program environment, home and community characteristics—can help educators and policymakers identify more informed and strategic interventions that can improve children's learning and development.

Policymakers can take steps to promote data management and reporting systems that provide teachers, administrators and policymakers access to data about children over time and provide a context to interpret that data by supplying information about children's environments. To support access to longitudinal data, state leaders must overcome two barriers. First, data about children before kindergarten are often kept in different state agencies, such as education, health and human services, and typically, the disparate data systems do not allow information about the same child to be linked or combined. That means that a pre-K program leader may not have any information about students' experiences in other early childhood programs before or during the preschool year. Second, in 20 states, early childhood data are not linked to the public education data system, which prevents educators, administrators and policymakers from fully understanding the progress that children have made, their strengths and needs when they enter the school system and how their early learning experiences relate to their academic achievement in the early grades. State policymakers can address those barriers by convening leaders and users of the various data systems, along with legal and technical experts, to determine what data should be linked and shared, how to do it in a secure, legal way to protect students' privacy and what resources are needed to build such a system. As of 2013, Pennsylvania was the only state that linked data about children both across many early childhood programs (state pre-K, child care, early childhood special education and state-funded Head Start) and public education data systems. The state's data systems provide authorized users reports that allow them to review and analyze their previously enrolled students' learning in the later grades.[49]

Some states have also developed reporting systems that layer data about the communities in which children live and the support services they have access

to on top of information about children's learning and development. For example, both **Kentucky** and Pennsylvania produce county or district-level reports that put aggregated assessment data (for example, third-grade reading assessments and kindergarten entry assessments) in the context of other data about children and families, such as health, income levels and parental education levels; access to early learning and other support services; and early childhood program quality. Using those reports, state and county- or district-level leaders can analyze those relationships to develop a more informed and comprehensive strategy for improving children's learning and development.[50] In Kentucky, the state helps local communities analyze the data and identify patterns through a network of Community Early Childhood Councils so that they can develop strategies tailored to local needs.

Governors are well-positioned to lead in promoting strategies that produce more longitudinal or contextual data. Because data about young children, their programs and schools and their communities are collected and managed by different parts of the state government, changes will likely involve multiple agencies and data systems. Governors are in a unique position to convene the necessary decision-makers who can create data governance structures, craft data sharing agreements and develop technical solutions for linking the data across agencies and programs while protecting the privacy of children and families and ensuring the security of the data.

Anticipating the Costs of Building an EC-3rd grade Assessment System

The steps to build a comprehensive EC-3rd grade assessment system, such as those described above, would require states and local education agencies to shift how they spend existing resources or make new financial investments. There are two types of costs: those related to the assessments and those related to supporting effective implementation and use of data. As of 2013, it was estimated that public school systems spend just under $50 per child per year on state and local assessments and preparation materials, which represents less than half of 1 percent of the average per-pupil spending. The spending covers the physical tests and materials and the costs associated with developing the assessment, training and scoring and reporting the results.[51] Early childhood assessments that rely more on teachers' systematic observation and documentation of children's performance and behaviors rather than the traditional standardized test tend to be less expensive. The major assessments of that type currently used by states cost about $10 per child per year, which covers the assessment materials, as well as online training and supports and data reporting capability but not the time required to administer assessments or to educate teachers and leaders on how best to employ them.[52] Building an effective EC-3rd grade assessment system could require developing or purchasing new instruments and supporting materials, such as kindergarten entry assessments, which would most likely cost a fraction of states' existing spending on K-12 assessments. At the same time, state and district leaders can better examine how to spend existing resources for assessments by taking an inventory of what instruments early learning programs and schools are currently using within the EC-3rd grade continuum. Doing so could help educators and policymakers identify assessments that can be replaced with those that produce better or more comprehensive data about children's learning and development. The process may also uncover opportunities for eliminating duplicative assessments, which could partly offset any additional costs from new ones.

As discussed before, a comprehensive assessment system includes supports for EC-3rd grade teachers and leaders that help them implement and use assessments effectively, which also require resources. Because all states already invest in teacher and principal preparation programs, ongoing educator professional development and other supports such as data systems, state leaders should first examine how funding for those items are allocated and consider opportunities for reallocating dollars or leveraging existing

resources. For example, instead of funding a new cadre of coaches to support assessment and data analyses, state leaders may consider whether existing coaches for early learning programs and early elementary grades can be trained to provide more support on those issues. In other cases, states may need to dedicate resources to improve what exists. When Pennsylvania developed its early childhood data system, it initially invested more than $4 million for the project and an additional estimated $800,000 to $1.2 million per year to maintain the system. To support the effort, the state supplemented its own resources with federal grants and philanthropic contributions.[53]

Conclusion

Although almost all early EC-3rd programs currently assess students and collect data, the balkanized approach to understanding what children know and can do fails to make good use of an opportunity to strengthen both education and related policy. EC-3rd grade assessments are uncoordinated, often unsystematic and sometimes nonexistent or duplicative. As a result, it is questionable how reliable and meaningful the data about children are during that age span—especially from the state perspective. Training and ongoing supports for ECE providers and K-3 teachers and leaders are similarly lacking and uncoordinated, leading to uneven uses of assessment, collection of data and efforts to improve teaching and learning. Governors can lead by convening the relevant agencies, practitioners and experts to bring about a coherent vision for what should be assessed, how it should be done and how the data should be used to improve practice, policy and, ultimately, children's learning and development.

Furthermore, state leaders will do well to remember that the purpose of an EC-3rd grade assessment system is not only to learn whether children are proficient at a certain skill but to use that information to determine how best to improve instruction and interventions so that children develop the knowledge, skills and dispositions for learning necessary for long-term success. Such a system requires more than the right set of assessment tools. Just as critical are policies and strategies that ensure the quality of the data and support effective use of assessment results at the classroom, district and state levels. This includes improving training and ongoing supports for educators and leaders, enhancing the utility of assessment data with information from families and other sources and building data systems that provide a more complete and longitudinal view of children's learning and development. For educators, having the right tools and the right supports allows them to continuously tailor their instruction and improve student outcomes. For school or program leaders and policymakers, a more comprehensive EC-3rd grade assessment system can help them make more informed decisions about whether and how to allocate resources for children, families and teachers in both early learning programs and elementary schools.

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October 2016

Recommended citation format: Szekely, A. and Wat, A. *The Untapped Potential of an Early Childhood Assessment System: A Strategy for Improving Policies and Instruction from Early Childhood through 3rd Grade*. Washington, D.C.: National Governors Association, 2016.

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