

**CCCS Early Elementary Subgroup
February 5, 2015 1pm**

Kindergarten Assessment Webinar

WEBINAR INSTRUCTIONS:

1. To prepare in advance for the conference please download the AT&T application (for all devices): <https://connect20.uc.att.com/vait/Prepare/>.
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<https://connect20.uc.att.com/vait/meet/?ExEventID=87107953>
3. When prompted, enter the Meeting Access Code: 7107953#
4. For audio, dial in to our regular conference call line (do NOT use line prompted by AT&T webinar program): 866-842-5779; and pass code 4399398107

AGENDA

- I. Welcome and Introductions
- II. Deborah Jonas: Analytic Insights and Virginia Early Childhood Foundation
Presentation on the Teaching Strategies Gold Kindergarten Assessment Pilot by VECF
[Full Report](#)
- III. Amanda Williford: UVA Center for Advanced Study of Teaching and Learning
Presentation on the results of the UVA - Elevate Early Education (E3) Kindergarten
Assessment Pilot
[Full Report](#)
[Executive Summary](#)
[Frequently Asked Questions](#)

Next Workgroup Meeting:

February 18, 2015 at 1pm
Conference Room 1, Patrick Henry Building
Via conference call: 866-842-5779 and with pass code 4399398107

Commonwealth Council on Childhood Success
Early Elementary Subgroup
February 5th Meeting Notes

Webinar Attendees:

Steven Staples, Superintendent, Dept of Education (Chair)
Patricia Popp, Education of Homeless Children and Youth
Jim Baldwin, VA Association of Elementary School Principals
Dora Wynn, Brunswick County Public Schools
Burnette Scarboro, NOVA PTA
Shannon Venable, Dominion
Dr. Antoinette Rogers, VEA
Deborah Jonas, Research & Analytic Insights and Chewing Research Fellow at VECF
Kathy Glazer, Virginia Early Childhood Foundation (VECF)
Amanda Williford, UVA Center for Advanced Study of Teaching and Learning
Lisa Howard, Elevate Early Education (E3)

Presentations on Kindergarten Readiness Assessments

Deborah Jonas, Chewing Research Fellow at VECF, Djonas@ResearchAnalyticInsights.com, 804-252-5714
[Presentation Slides](#)
[Final Report](#)

Summary:

-Wanted to examine the feasibility of incorporating a multi-dimensional assessment into Kindergarten classrooms and use it to inform efforts focused on strengthening children's early learning experiences.

The Teaching Strategies Gold Assessment Tool:

- Pilot used a customized version of GOLD, aligned to Virginia's Foundation Blocks for Early Learning and SOL's
 - 2 content areas (literacy, mathematics).
 - 4 developmental areas (social-emotional, physical, language, and cognitive).
- Designed to facilitate developmentally-appropriate, ongoing, observation-based assessment during regular classroom activities.
- Intended use is embedded into the teaching and learning process—not a separate paper/pencil or task-based assessment

Pilot:

- 14 school divisions
- 32 schools
- 79 classrooms serving ~1440 children from diverse communities
- Teachers ranged from novice (first- and second-year teachers) to veterans (teaching 30 or more years)

Results:

- Parents valued comparative data, know how their kids fared against others
- Teachers recognized and valued a holistic approach to children
- Teachers grew in consistency in their ability to reliably administer it throughout course of the year, but needed skill building in observation-based measures
- Survey and interview data made clear that the majority of pilot classrooms were not set up to support multi-dimensional, observation-based assessment.

Recommendations:

- Just like SOL Reform, Virginia needs a robust, multi-stakeholder, statewide conversation about how we want to structure these important early years in education.
- A strategic approach is critical, with curriculum, instruction, assessment, professional development, classroom structure, incentives and expectations aligned with academic and developmental learning goals.

-Defining the assessment piece of this puzzle in isolation can have unintended and in some cases predictable consequences.

Discussion:

- Kindergarten expectations will help inform pre-k curricula and expectations
- Teachers and schools are reluctant to try assessments, we might consider how to track how children learn when freed from the SOL constraints and compare to how those tied to SOL's are doing
- There is a need to better inform how teachers do their jobs to ensure all students are meeting expectations
- TS Gold as a complement to PALS helps focus on social and emotional learning as well in a feasible way
- How much time did it take teachers to complete? A lot of variability.

Amanda Williford, Assistant Research Professor, UVA Center for Advanced Study of Teaching and Learning, apw2c@eservices.virginia.edu

Final Report

Summary:

- Wanted to determine feasibility and capture snapshot of how kids are doing throughout the Commonwealth
- Describe the ways in which children and classrooms vary in readiness skills
- Present recommendations to implement a statewide comprehensive readiness assessment

Assessment Tools:

The selected measures included:

- a) the Tools for Early Assessment in Mathematics-Short Form (TEAM-SF) - a 20-item, teacher-administered direct assessment of preschool children's number and geometric/spatial competencies; and,
 - b) the Child Behavior Rating Scale (CBRS) - a 17-item rating scale completed online by the teacher that measures children's self-regulation skills (e.g., follow classroom rules, concentrate on activities,) and social skills (e.g., cooperate with peers, comply with adult directives).
- Teachers conducted these additional readiness assessments immediately prior to their administration of PALS
 - Domains aligned with VA Foundation Blocks and Standards of Learning
 - Data with longitudinal potential
 - Administered right before doing the PALS (w/in 2 weeks of PALS, which are required in first 6 weeks of Kindergarten)

Pilot:

The participating teachers and children included 2,036 kindergarten students drawn from 100 classrooms and 41 schools within 16 districts across the eight superintendents' regions of Virginia.

Results:

- Thirty-four percent of children entering kindergarten in Virginia are lacking key skills in at least one early learning domain. This multi-skill estimate falls in stark contrast to rates of readiness based solely on literacy, i.e. PALS, which estimates that approximately 12% of students statewide enter kindergarten unprepared.
- Children enter school less "ready" in self-regulation and social skills than in literacy and math.
- Schools serving more economically disadvantaged students enrolled more children identified as "not ready." Boys, younger children, English Language Learners, and children who had an Individualized Education Plan were more often identified as "not ready."
- Teachers can assess a broader array of readiness skills and find having this data useful but note concerns around loss of instruction time.

Recommendations:

1. Skills beyond literacy should be included in Virginia's kindergarten readiness assessments. There is great value in understanding kindergarten readiness in Virginia beyond early literacy skills.
2. Implement a voluntary, statewide rollout of a comprehensive readiness battery.
 - a. Build consensus among stakeholders
 - b. Finalize assessment protocol and teacher assessment training
 - c. Develop an integrated data system
 - d. Make data useful for teachers

- e. Provide teachers with training around individualized instructional strategies linked to readiness data
- 3. Target social-emotional skills for early intervention prior to and within kindergarten.
 - a. Developing social-emotional learning standards for K-12 students
 - b. Providing teacher training on evidence-based strategies for supporting social-emotional learning
- 4. Use kindergarten readiness assessments to make data-driven policy decisions.

Upcoming Meetings

February 18, 2015 at 1pm in Conference Room 1 of the Patrick Henry Building; and via conference call: 866-842-5779 and with pass code 4399398107 (*This will include a kindergarten teacher panel presentation and a full discussion of kindergarten readiness issues*)

March 4, 2015 at 1pm Webinar (Fairfax early Literacy Program and Prek Summer camp presentations; plus Kindergarten data (retention rates, # pre-school experience) from VDOE)

March 30, 2015 at 2pm in Conference Room 1 of the Patrick Henry Building and via conference call: 1-866-842-5779 and with pass code: 8047865834 **Please note the date and conference number change** (Achievement Gap discussion and development of preliminary areas of focus for recommendations)

May 4, 2015 3-5pm: Meeting of the full Commonwealth Council on Childhood Success, West Reading Room, Patrick Henry Building, 1111 East Broad Street Richmond, VA 23219

Virginia's Smart Beginnings Kindergarten Readiness Assessment Pilot

Results summary from the 2013/14 pilot of
Teaching Strategies GOLD® in 14 Virginia
school divisions

Why KRA?

- Since the inception of Smart Beginnings, VECF has heard about a need for more information about children's readiness for Kindergarten.
- Having more information about children's school readiness, growth, and development:
 - Supports program monitoring, evaluation, and improvement.
 - Informs local program choices and daily instruction/lesson plans.
 - Helps identify children's strengths and challenges, enabling earlier intervention.

Why Teaching Strategies GOLD®?

- School superintendents, local early childhood leaders, teachers, and state early learning and school improvement staff indicated an interest in:
 - A single, online tool to measure readiness for and growth in Kindergarten
 - Authentic, observation-based measure with potential to improve instructional practice
 - Tool that complemented PALS
- Selected GOLD based on recommendations from a technical committee with representation from:
 - Virginia’s school divisions, researchers from UVA, VT, VCU, the Virginia Department of Education, and Smart Beginnings.

TS GOLD assessment system

- Pilot used a customized version of GOLD, aligned to Virginia's Foundation Blocks for Early Learning and Standards of Learning
 - 2 content areas (literacy, mathematics).
 - 4 developmental areas (social-emotional, physical, language, and cognitive).
 - Measures of fall readiness and progress were available.
- Designed to facilitate **developmentally-appropriate**, ongoing, observation-based **assessment during regular classroom activities**.
- Teachers document children's skills and abilities based on whether they **demonstrate** content, concept, and skill **mastery** in the classroom.
- Intended use is **embedded into the teaching and learning process**—not a separate paper/pencil or task-based assessment.

Pilot participation in Virginia

- 14 school divisions
- 32 schools
- 79 classrooms serving ~1440 children from diverse communities
- Teachers ranged from novice (first- and second-year teachers) to veterans (teaching 30 or more years)

VECF's pilot was designed to:

- Examine the feasibility of incorporating a multi-dimensional assessment into Kindergarten classrooms.
- Inform efforts focused on strengthening children's early learning experiences.
- Add value while supporting effective and excellent teaching and learning in Kindergarten.
- Assess the benefits of consistent multi-dimensional assessment across diverse communities.

What teachers valued

- The focus on the whole child—teachers recognized and valued a holistic approach.
- Clear information on the developmental continuum.
- Systematic, ordered learning trajectories, sufficiently granular to inform lesson planning.
 - Helped teachers ensure that children succeeded in each step of the continuum, without skipping important content, concepts, and skills.
- Children’s learning and developmental levels in multiple domains, relative to the norm.

Reliability and validity

- Reliability
 - Three measurement approaches suggested that teachers became more reliable in their use of GOLD throughout the school year.
 - Results further suggest a need for additional skill building in the use of observation-based measures.
- Assessed teachers' perception of GOLD's appropriateness for Virginia's Kindergarten classroom.
 - Most teachers reported that GOLD was appropriate for students.

Feedback from teachers

- Survey and interview data made clear that the majority of pilot classrooms were not set up to support multi-dimensional, observation-based assessment.
- Teachers reported not having time to observe children demonstrating skills in practical, hands-on activities.
 - They are expected to deliver whole- or small-group instruction nearly all day.
- Instruction is focused on English/language arts and mathematics.
 - Teachers reported not having the time or incentives to focus on other domains of learning and development.
- Teachers in the pilot voluntarily added GOLD without eliminating other assessments, highlighting redundancies and burden.

We learned so much more...

- This pilot demonstrated was that **there are no simple, quick solutions to our readiness challenges.**

“GOLD focuses a lot of attention on social-emotional that I do not typically monitor. I appreciate that GOLD draws my attention to this important aspect of teaching, yet got frustrated with my inability to adequately provide opportunities for students to use those skills to be assessed because of the pace and expectations of K.”

-- VECF pilot teacher, 2013

We learned so much more...

- To make thoughtful decisions that benefit children, the conversation needs to be about more than just data, more than just what percent of children aren't ready.

“Although my philosophy totally embraces looking at the whole child ...time for children to play, interact with each other in natural situations, develop social skills, and grow at their own rate are not valued right now in education. Kindergarten classes are regimented, toys and blocks are being removed, written tests and paperwork are being increased....”

--VECF Pilot teacher, 2013

Recommendations

- Just like SOL Reform, Virginia needs a **robust, multi-stakeholder, statewide conversation** about how we want to structure these important early years in education.
- A strategic approach is critical, with **curriculum, instruction, assessment, professional development, classroom structure, incentives and expectations aligned** with academic and developmental learning goals.
- Defining the assessment piece of this puzzle in isolation can have unintended and in some cases predictable consequences.

Pathways forward/opportunities

- Virginia's preK expansion grant (federal funding)
 - Focuses on underperforming schools and preschool excellence for at-risk children
 - Requires assessment in preK and K
 - Allows Virginia to test a comprehensive, vertically aligned system of curriculum, instruction, assessment, and support.
 - Participating communities are diverse in size, geography, and existing support systems.
 - Includes funds for program evaluation.
- Work with partners (VSBA, VASS, VEA, VAESP, PTA, etc.) to develop and support strong professional development pathways for teachers of young children.
- Thoughtful alignment with SOL Innovation Committee activities and stakeholders.

More Information

- Read VECF's full report:
http://vecf.org/Portals/5/PDFs/VECF_KRA_Pilot_Report_Final.pdf.
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Virginia's Smart Beginnings Kindergarten Readiness Assessment Pilot

Report from the Smart Beginnings 2013/14 school year pilot of Teaching Strategies GOLD® in 14 Virginia school divisions

Prepared for the Virginia Early Childhood Foundation

By

Deborah L. Jonas, Ph.D.

Laura Kassner, Ed.D.

November 2014

FULL REPORT



The VECF Kindergarten Readiness Assessment Pilot was made possible with funds from private, corporate, and foundation donors, with additional support from federal funding through the Virginia Department of Education and local school division contributions. Maureen Genderson, Ph.D., provided statistical and methodological expertise throughout the evaluation.

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Executive Summary

Introduction.....

As a business-led public-private partner with a statewide network of local partners, the Virginia Early Childhood Foundation is committed to discerning gaps in Virginia’s school readiness and serving as a catalyst to find innovative solutions.

Consistent feedback from communities, schools and families across the state has indicated that having more information about children’s readiness for Kindergarten is needed to support their optimal growth and to understand the effectiveness of their early care and education experiences. On the local level, teachers are burdened with assessment responsibilities, yet may still feel that they don’t have the needed data to effectively plan instruction and support individual students’ progress. At the state level, the Standards of Learning Innovation Committee is grappling with assessment and accountability issues, charged by legislation that calls for a reduction of the number of tests amid growing distaste for standardized testing. Nationally, educators are tackling assessment reform, seeking more effective ways to ensure and measure student growth.

The Pilot.....

To address these challenges and opportunities in a way that supports local school systems by testing a potential option for effective assessment, VECF conducted a Kindergarten readiness assessment pilot in the 2013-14 school year. Based on input from a diverse group of local-level stakeholders and a team of experts including researchers from the University of Virginia (UVA), Virginia Polytechnic Institute and University (VT); Virginia Commonwealth University (VCU); local school division and Smart Beginnings leaders; and Virginia Department of Education (VDOE) staff, VECF piloted the implementation of Teaching Strategies GOLD,[®] a multi-dimensional, observation-based assessment of children’s Kindergarten readiness and skills throughout the year. GOLD was implemented in 79 classrooms in 14 Virginia school divisions, in a pilot that was designed to ascertain the feasibility of implementing this type of assessment in Virginia’s classrooms.

Findings.....

Results showed that GOLD is aligned with most teachers’ personal philosophies of Kindergarten assessment, and that teachers value the type of information available from GOLD. Further, teachers appreciated having information about children’s status in the context of a learning continuum and in

comparison with widely-held expectations for kindergarten children, in addition to status results typically available with other assessments. The pilot also illuminated challenges associated with implementing observation-based assessments in Virginia's Kindergarten classrooms, and resulted in suggestions for supporting teachers and leaders in this process:

- The majority of teachers reported value in the multi-dimensional nature of GOLD. They reported a firm belief in the importance of establishing a learning environment that focuses on multiple dimensions of learning and development associated with children's later school and life success. Teachers further reported that their current environments do not seem to value such whole-child environments or assessments, hyper-focusing on academics alone. There are few incentives to utilizing whole-child assessments in classrooms.
- The version of GOLD used in the pilot had a continuum of learning objectives from birth to Kindergarten, but did not include objectives for first grade or higher.¹ Yet many children in the pilot met or exceeded Kindergarten learning expectations by mid-way through the school year. In choosing any assessment for Kindergarten, it is important to ensure that teachers can assess children across the learning continuum. Teachers and administrators were interested in vertically-aligned assessment that would, at the minimum, span preK to 1st grade.
- Through surveys and interviews, it became clear that pilot classrooms and teaching expectations were not aligned with an instructional approach that requires children to demonstrate skills in realistic settings and requires teachers to observe and document children's levels on a learning continuum. Teachers reported that they were expected to deliver direct instruction to young children in whole or small groups throughout the day, and that it was difficult to deliver instruction and take notes on children's levels simultaneously. To successfully implement observation-based or other new assessments, it is important to ensure that teachers have aligned curricula, pedagogy, and the time and support to ensure that lesson plans and learning activities are aligned with the new assessment approach.
- Consistent, reliable use of observation-based measures will require additional training and ongoing support to ensure that teachers can update their instructional strategies and the learning environment to use observational methods reliably and with fidelity. During the pilot, teachers' responses to surveys, information provided during interviews, and GOLD data suggested that the two-day Teaching Strategies-provided training on the use of GOLD was necessary but not sufficient to enable teachers to use GOLD reliably and with fidelity throughout the school year. The pilot results suggested that reliability improved over the course of the year.

¹ During the Smart Beginnings KRA pilot year, Teaching Strategies was in the process of finalizing a version of GOLD that includes learning objectives for children through grade 3.

However, results also point to a need for pre-service and in-service skill-building for teachers to successfully use observation-based assessment.

- During the pilot, the use of GOLD was added to teachers' existing responsibilities without taking anything away. This led to redundancies in assessment, and in some communities, excessive burden on teachers. It is critical that when determining a new assessment strategy, it is developed strategically, and avoids layering new assessments on top of old without consideration for assessment purpose.

Recommendations.....

Moving forward with Kindergarten assessments, it is recommended that Virginia take steps toward creating a continuum of early learning and support structures, to include assessment systems that facilitate teaching excellence, accelerated learning, and children's successful development. With funding challenges at the state and local levels, a productive first step could be a cohesive focus on creating this continuum in communities with chronically underperforming elementary schools. Designing a pilot for these communities should include aligned and coordinated curriculum, lesson planning, comprehensive assessment practice, and professional development and learning communities in classrooms from pre-K to third grade. Piloting a seamless process in targeted communities and reaching the highest-need students could leverage federal funding opportunities, reduce strain on the state's financial commitment during budget shortfall, and inform the ongoing review and reform of Virginia's assessment system.

Introduction

The [Virginia Early Childhood Foundation](#) (VECF) is a non-partisan, public-private partnership formed in 2005 to provide substantive leadership and drive innovative initiatives to ensure that Virginia's children enter Kindergarten healthy and ready to learn. A significant component of VECF's activities is to support a statewide network of [Smart Beginnings collaborative partnerships](#) that convene parents and leaders from K-12 education, the child care community, health, local government, family support agencies, social services, higher education, faith leaders, and the business community to build the capacity of local communities to create optimal environments for children's growth and development.

Since the inception of Smart Beginnings, VECF has received feedback from communities, schools, and families asserting that they need more information about children's readiness for Kindergarten. Local stakeholders need this information to support children's optimal growth and to understand the effectiveness of children's early care and education experiences. Currently, state funds support access to information about children's early literacy skills through local use of PALS (Phonological Awareness Literacy Screening), but no consistent information is available about children's readiness in other domains of learning and development. Nonetheless, research suggests that readiness in other domains, such as cognitive development, social-emotional and mathematics skills, are predictive of children's school success (for example, see Snow, 2007). Having access to a comprehensive measure can help teachers understand levels of mastery and enable the targeted strengthening of the diverse and developmentally-important skills that children need for school and life success.

Virginia communities are not alone in their interest in requesting Kindergarten readiness measures. In their report on pre-Kindergarten and Kindergarten assessments, the Center on Enhancing Early Learning Outcomes (CEELO) reported that state policy related to Kindergarten assessments was in "flux" in 2011/12, and, that by December 2013, a review of state websites showed that a number of states were in the process of updating Kindergarten readiness measures. States vary in their status, with some beginning the process of defining readiness and others reviewing, changing, or implementing new measures in Kindergarten (Schilder & Carolan, 2014).

While the need for more information about children's school readiness is clear, a variety of contextual factors have affected Virginia's ability to add any new measures to local testing requirements. Already, teachers are burdened with assessment responsibilities, although the specific assessments and schedule used in Kindergarten vary widely among schools and divisions. Further, despite having local assessment data, teachers may still feel that they do not have the specific data needed to effectively plan instruction and support individual students' progress. In addition, at the state level, the Standards of Learning Innovation Committee is grappling with assessment and accountability issues and the growing distaste for standardized testing, charged by legislation calling for reduction of the number of tests. Nationally, educators are tackling assessment reform, seeking more effective ways to ensure and measure student growth.

Kindergarten Readiness Assessment pilot

While most of the attention at the state and national level has been focused on assessment and accountability at third grade and beyond, VECF has targeted Kindergarten assessment for several reasons. There is growing recognition of the importance of third grade reading proficiency as a powerful predictor of school success. Yet student performance in third grade is shaped by experiences and interventions beginning in the earliest years of life, and persistent achievement gaps among groups of students begin long before third grade. Like the critical transition points from elementary to middle and middle to high school, supporting children from home or child care or preschool into the K-12 system requires careful navigation. Kindergarten is an important “hinge” between the early childhood years and elementary school, and effective assessment during the Kindergarten year can provide significant information about the effectiveness of children’s prior experiences. This assessment-based information can inform educators regarding children’s relative strengths and challenges, and thereby support their success on the elementary path ahead.

While there is broad-based interest in gathering more information about children’s readiness for kindergarten, there are also ongoing challenges related to understanding options for integrating informative and useful assessment into local school systems so as to improve teachers’ ability to support children’s success navigating the path in elementary school. To address these needs, VECF partnered with 14 school divisions to conduct the Virginia’s Smart Beginnings Kindergarten Readiness Assessment (KRA) pilot project during the 2013/14 school year.²

Overview

The pilot was aimed at assessing the feasibility of incorporating a multi-dimensional assessment into Kindergarten classrooms that would a) inform efforts that focus on strengthening children’s early learning experiences, and b) give teachers the information needed to provide children with an appropriate learning environment—to meet them where they are and move them on the path to success in multiple academic and developmental domains.

The [pilot approach](#) was shaped by feedback from local-level stakeholders and the work of a team of experts including researchers from UVA, VT, and VCU; local school division and Smart Beginnings leaders; and Virginia Department of Education (VDOE) staff. Based on input from Smart Beginnings stakeholders and early childhood researchers and educators, and information available from other states’ experiences, VECF chose to pilot *Teaching Strategies GOLD*[®]. GOLD is a tool that supports a formative assessment process and provides teachers and administrators with a summary of children’s status along a developmental continuum at agreed-upon checkpoints throughout the year. This assessment is currently being piloted or is in use in several states, including Washington, New Jersey, Colorado, and Hawai’i.

² Funding for this grassroots pilot was provided by private, corporate, and foundation donors, with additional support from local school division contributions and federal school improvement funding through the VDOE.

In 2013, VECF secured commitments from 14 school divisions to participate in the 2013/14 pilot. Within these 14 school divisions, there was participation from:

- 32 schools
- 79 teachers
- Approximately 1,440 Kindergarten children

Participating school divisions represent urban, suburban, and rural communities in Virginia. Schools serve diverse learners, with some serving relatively large and others serving relatively small populations of English language learners and economically disadvantaged students. Teacher experience ranged from novice (first- and second-year Kindergarten teachers) to veteran (30 years or more). Appendix A lists participating schools and divisions.

Prior to beginning the pilot, a team of technical experts and educators provided input to VECF on the questions they hoped the pilot could answer. Based on this information, VECF and the evaluator developed an evaluation plan that focused on answering the following questions:

- To what extent do schools, teachers, and students gain value from use of an authentic, observation-based assessment in Virginia’s Kindergarten classrooms?
- To what extent is Teaching Strategies GOLD an instrument that has potential for reliable use in Virginia’s Kindergarten classrooms?
- What factors must be considered in terms of feasibility of implementation of a new assessment in Virginia’s Kindergarten classrooms?

Teaching Strategies GOLD assessment system

The GOLD assessment system is designed to facilitate teachers’ ability to conduct developmentally-appropriate, ongoing, observation-based assessment during regular, everyday classroom activities throughout the school year. This authentic assessment approach is different from paper-based tests or one-on-one task-based approaches often used in public schools. Rather than separate assessment time from the teaching and learning process, GOLD asks teachers to document children’s skills and abilities on a developmental continuum based on each child’s demonstration of skills in the classroom environment. When using GOLD, teachers document children’s developmental levels on an ongoing basis and provide ratings of children’s status by finalizing “checkpoints” multiple times per year. In theory, this approach offers teachers more teaching time than traditional paper-pencil and one-on-one assessment methods, and also provides children with the opportunity to demonstrate content, concept, and skill mastery in a more realistic environment. As well, it offers teachers an opportunity to reflect on student learning, adjust practice if needed, and provide students with feedback on how they can improve their own learning. To implement this approach with fidelity, and to use the results to inform the teaching and learning process, it is important for teachers to have access to curricula and lesson plans that are intentionally designed to embed learning opportunities into the instructional environment in ways that afford children the chance to demonstrate their level of mastery of the

learning objectives within the regular classroom environment. The complete GOLD tool includes 38 learning objectives that align with the knowledge, skills, and abilities that are predictive of children’s school success. Teaching Strategies organizes these learning objectives into four developmental areas (social-emotional, physical, language, and cognitive), and five focus areas on content learning (literacy, mathematics, science and technology, social studies, the arts), and English language acquisition.

After each checkpoint is complete, GOLD provides teachers and administrators with scaled scores in each domain of learning and development. The tool also provides information about children’s status based on their scaled scores. In the fall, GOLD provides data for each child determining whether they met the *Kindergarten Readiness Benchmark* for each domain. The Kindergarten Readiness Benchmark indicates whether children met the expectation of what they should know and be able to do upon *arriving* at kindergarten, and is aligned to preK learning standards. After each checkpoint, GOLD also provides a *Widely Held Expectations* (WHE) indicator for each domain. The WHE indicates whether children met objectives for what children should know and be able to do by the time they *leave* kindergarten.

Teaching Strategies’ analyses of data collected nationwide suggest that GOLD can be a valid and reliable tool for ongoing assessment (see Box 1). For purposes of the pilot, Virginia educators worked with Teaching Strategies content experts to review and determine GOLD’s alignment with Virginia’s Kindergarten and preschool learning standards, which are the *Standards of Learning* and the *Foundation Blocks for Early Learning*. Through this process, Teaching Strategies customized the VECF pilot version of GOLD to align with Virginia standards and to ensure that the resulting tool retained adequate reliability on each learning and developmental area.

Box 1: Summary of psychometric properties in Teaching Strategies GOLD

- Internal consistency, measured by Cronbach’s alpha (α), ≥ 0.957 for each domain of learning and development (Lambert, Kim, Taylor & McGee, 2010).
- Inter-rater reliability, $\alpha \geq 0.859$ for each domain (Lambert, et al., 2010).
- To assess whether GOLD is measuring the intended constructs (i.e., assess validity) Teaching Strategies has compared children’s GOLD scaled scores in each domain with other diverse assessments. Correlations were low to moderate in expected domains (see Teaching Strategies GOLD® Assessment System, 2013). Correlations were estimated with measures such as the Preschool and Kindergarten Behaviors Scales (PKBS, Merril, 2003); Peabody Picture Vocabulary Test, Fourth Edition (PPVT®-4; Dunn & Dunn, 2007), Woodcock-Johnson III NU Tests of Achievement (W-J III, Woodcock, McGrew, & Mather, 2007), pencil tapping (via the Preschool Self-Regulation Assessment, Smith-Donald, Raver, Hayes, & Richardson, 2007), and Head-Toe-Knees-Shoulders Task (HTKS) (Ponitz, McClelland, Matthews, & Morrison, 2009).

The customized version of GOLD included measures of children’s knowledge, skills, and behavior related to 23 learning objectives in the following areas:

- Social–Emotional

- Physical
- Language
- Cognitive
- Literacy
- Mathematics

The selected objectives for development and learning used in this pilot are shown in Appendix B.

Context of the evaluation

As they finalized preparations for 2013 summer training and fall implementation, VECF and the pilot implementation team became aware of relevant contextual factors in the pilot communities that had the potential to influence the pilot. Most notably, there was remarkable turnover in key leadership positions in the pilot divisions. Working with divisions over the 1½ year term of the pilot planning and implementation, there was turnover among the key pilot contact, superintendent, and/or chief academic officer in almost every one of the 14 participating divisions. This was concurrent with fairly typical change caused by teacher retirement, shifts to other grades or shifts to non-pilot schools. While the evaluation plan did not have a specific focus on leadership, this churn likely influenced schools' and teachers' ability to fully integrate GOLD into children's learning environments.

Other local contextual factors also impacted implementation. As budgets were cut across Virginia, potential supporting resources, such as teacher assistants, impacted the initiative. For example, one participating division lamented that because of budget challenges, all assistant teachers in Kindergarten classes had been cut back to part time, seriously impacting the capacity of lead teachers. Also, in almost every case, pilot participation resulted in *adding* to teachers' already-full expectations related to curriculum, lesson planning, and assessment; the GOLD pilot was layered on top of these local requirements with limited support for adjustments.

Other outside curriculum come first. If it was just GOLD it would be easy simple and very user friendly. However, when paired with [other curricular and assessment requirements] it becomes very overwhelming.

Teacher, KRA pilot, 2013/14

During the pilot planning year, some administrators had hoped to eliminate existing assessment practices and replace them with GOLD in participating Kindergarten classrooms, at least during the pilot year. As it turned out, teachers throughout the pilot schools continued with their schools' existing assessment and screening practices and voluntarily added this new assessment. During the same time period, teachers in every grade in every public school in Virginia were working to meet new teacher evaluation objectives, including measuring student progress over the course of the year with existing assessments or "SMART" goals, which added additional requirements to teachers' already full plates. Recognizing these pressures, and learning from other

states' experience exploring Kindergarten assessment, VECF expected to encounter teacher fatigue and dissatisfaction with the assessment over the course of the year.

Despite challenging dynamics in Kindergarten classrooms during the 2013/14 school year, participating teachers demonstrated eagerness to serve as pioneers in this field test of an observation-based assessment. This is a testament to teachers' commitment to their students' success and to having the necessary tools to teach and plan well.

GOLD implementation in VECF KRA pilot

KRA pilot activities began during the summer of 2013. During that time, teachers participated in a two-day training on using the GOLD assessment and framework in their classrooms. Teaching Strategies delivered the training program in four geographic regions in Virginia to accommodate teachers across the state. For purposes of the pilot, training included Teaching Strategies' standard 2-day training plus an added component aimed at helping teachers understand good observation techniques and accurate ratings.

At the end of the training, teachers were asked to complete the Teaching Strategies-provided inter-rater reliability (IRR) assessment. Teachers had the opportunity to begin the IRR assessment process at the end of the 2-day training, and were asked to pass the test in all five GOLD domains of learning and development before completing the fall checkpoint.

Participating teachers were asked to use GOLD during their regular classroom activities throughout the school year. For pilot purposes, teachers were asked to document students' developmental levels by completing and submitting GOLD checkpoint evaluations three times during the school year—fall, winter, and spring.

In support of the pilot, each school division committed a central office administrator as the KRA pilot coordinator who worked with teachers and acted as a liaison to VECF. VECF also employed a project coordinator who coordinated trainings, supported teachers and administrators in meeting participation expectations, and served as a resource for teachers and administrators throughout the pilot. The evaluation was conducted independently, and included review and approval from an Institutional Review Board. VECF leadership, the pilot coordinator, and evaluator worked closely to coordinate implementation and evaluation activities.

Seventy-nine (79) teachers participated in the two-day training during the summer of 2013. In the fall, 75 teachers completed the GOLD checkpoint, although six teachers did not complete the fall literacy and mathematics areas due to technical difficulties. While participating divisions experienced significant changes in leadership, there was minimal teacher attrition during the pilot year. In the spring, 71 teachers completed the GOLD benchmark. Teachers who left during the course of the pilot were on medical leave, retired, resigned, or were reassigned to another grade level during the school year.

Data collection

The pilot evaluation plan included several data sources. The evaluation included data from the GOLD assessment ratings, which Teaching Strategies provided for each of the fall, winter, and spring checkpoints. When providing data for this pilot, Teaching Strategies prepared a data set that included de-identified child-level data from GOLD, including ratings on each learning objective, scaled scores by domain, Kindergarten Readiness Benchmark by domain (fall only); and the Widely Held Expectations indicator by domain (fall, winter, spring).

The evaluation team also collected data directly from teachers and administrators. Following each checkpoint, teachers received a personalized link to an online survey asking questions about their experiences using GOLD. Teachers and local administrators also had the opportunity to participate in interviews after the second checkpoint.

The final source of data was provided by the Virginia Department of Education (VDOE). VDOE provided children's demographic data (i.e., race/ethnicity, economically disadvantaged status), program participation (i.e., for students with disabilities, English language learners) and fall PALS K data for each child in the pilot. Data were de-identified prior to analysis.

Implementation results

A primary goal of the evaluation was to learn about teachers' use of GOLD in Kindergarten classrooms. Specifically, the evaluation team designed the survey and interview protocols to better understand how teachers used GOLD, whether they valued the information they learned from the measure, and how well it aligned with classroom practices. In addition, the surveys asked teachers to provide information related to practical matters, such as the amount of time it took to use GOLD in their classrooms.

This section of the report summarizes findings and implications of the results related to teachers' perspectives on GOLD's value and its implementation in Virginia's Kindergarten classrooms. In general, results showed that GOLD aligns to the vast majority of participants' teaching philosophies (86 percent), and nearly all teachers recognized at least some potential value of using GOLD in their classrooms. Nonetheless, it was difficult to implement GOLD with fidelity in Kindergarten classrooms. The following summarizes the pilot findings related to implementing GOLD in Virginia's Kindergarten classrooms.

GOLD's value in Kindergarten classrooms

The following information is based on information that teachers reported via surveys and interviews, with additional information provided from administrator interviews.

Focusing on the whole child

The most common benefit teachers reported from GOLD was the continuous reminder to learn about and understand their Kindergarten children from the perspective of multiple domains of learning and

development. This in turn encouraged teachers to do their best to embed instructional activities into daily teaching routines to focus on children’s social-emotional and cognitive development, which they reported supports children’s success in academic content areas. For example, one teacher commented that having GOLD’s social-emotional learning objectives provided information about the goals she needed to work on with her students, such as taking the time to teach children how to join a game, how to share, and how to take turns, etc. She then could readily embed activities to build these important skills into academic (e.g., mathematics) lesson plans. Another commented that GOLD helped focus on observing more areas of children’s learning such as how children hold their pencils, how they’re running around on the playground, etc., which led to changes in her teaching approach.

While there was near-universal agreement that most GOLD domains were important for children, teachers did not have consensus about the value of the physical domain relative to the perceived value of other domains, particularly the social-emotional domain. While teachers recognized the importance of physical and motor skills, many considered it the physical education teachers’ responsibility to screen, monitor, and facilitate development of children’s physical and motor skills, with less of a direct focus in core classroom routines.³ In fact, some classroom teachers asked the PE teachers for assistance during the pilot, to capitalize on their expertise.

[Having clear information on the developmental continuum and future learning expectations](#)

Several teachers commented on the value of having clear expectations about children’s progress along a readily-accessible continuum for both academic and non-academic learning domains. Several teachers used the learning objectives and complementary instructional materials that focused on the development of writing skills as an example of how they used this information. Teachers described value in having access to systematic, ordered learning objectives to move each child forward on the writing continuum. Grounded in developmental learning trajectories, the learning objectives were at a level of granularity that could directly inform daily/weekly lessons for each child. For some teachers, these ordered objectives helped validate an existing teaching approach, and continuously reminded them not to skip important steps in the learning process—even if this meant spending more time with some students on particular skills. For others, the information was useful in refining lesson plans to ensure students were given opportunities to focus and succeed at each developmental stage.

Some teachers also reported that seeing the developmental continuum in multiple learning and developmental domains strengthened their understanding of the knowledge, skills, and behaviors that are considered at, above, and below typical for Kindergarten children. This was a particularly prominent comment from teachers working in schools serving relatively large concentrations of children at risk for academic challenges, such as those who live in poverty. Many of the teachers in these schools appreciated having

³ Since 1994, schools have been required to screen all Kindergarten children for fine and gross motor functions within 60 days of enrollment. The assessment is typically completed by the physical education teacher, and children are referred for additional diagnostics and services as needed. Kindergarten teachers support this process.

access to normative data on all learning objectives. They reported that this helped them understand where their children were performing compared to children from other communities, and helped them to recognize each child's strengths. In addition, based on the developmental trajectories, these teachers often realized that the children in their classrooms were not actually behind the norm in all areas of learning and development.

Using GOLD to inform instruction

Teachers reported using GOLD for a variety of purposes. In the fall, about one-third of teachers reported that the data from GOLD were useful for learning about individual students in their classes, and more than half (55 percent) reported that the information they learned from GOLD was useful for instructional planning. Teachers' views of the usefulness and reported use of GOLD to inform instruction decreased somewhat over the course of the year. Information collected through the survey and from interviews suggested that GOLD's value decreased for two key reasons. First, the version of GOLD used in 2013/14 included the developmental levels that describe what children are expected to know and be able to do with regard to each objective by the end of Kindergarten, but it did not include developmental levels for children who were performing above widely-held expectations for Kindergarten. Nonetheless, by the winter checkpoint, GOLD data suggested that more than half of the children in the pilot had already met or exceeded Kindergarten learning expectations, and were ready to move on to first grade levels. The second reason is related to the overall implementation challenges, including reported redundancies with other assessments, lack of time to observe children demonstrating their knowledge and skills, and limited alignment with lesson plans and expectations. These challenges are described in more detail in the next section of this report, *Implementation Challenges*.

Using GOLD's resources

Throughout the pilot, teachers added GOLD to existing curricular, assessment, and scheduling requirements. This resulted in several teachers reporting that they did not have the time or incentive to fully leverage GOLD resources. However, teachers who reported accessing the instructional resources available found them useful. Teachers who looked for instructional resources reported that they were readily accessible, making it easy to "grab" fully developed lesson plans that aligned to learning objectives.

During interviews, several teachers reported that they might have used the GOLD resources more fully with additional training or time. However, many of these teachers also found the GOLD online system challenging to use without direct and focused support for finding the resources they needed.

Implementation challenges

Despite the majority of teachers reporting that GOLD was aligned with their personal teaching philosophies, nearly all teachers reported that GOLD was challenging to implement. In the fall, about one-third of teachers reported that using GOLD was somewhat to extremely easy. This was expected, as the implementation was new for all pilot teachers, and as was learned in the pilot, the formative assessment process is different from approaches that teachers currently use. By the spring, nearly half of the teachers reported that GOLD was somewhat to extremely easy to use, and one-third of pilot teachers reported that they had sufficient time in

the spring to enter data into GOLD for pilot purposes. While GOLD implementation became easier with experience, throughout the pilot year, teachers reported significant barriers to implementing GOLD that would likely impact their ability to use any type of comprehensive, observation-based assessment on a regular basis. Each of these is discussed below.

GOLD took time to implement

The most common challenge that teachers reported, by far, was finding the time within the structure of their current teaching routines to observe children, document children's levels on the continuum, and enter children's levels in the GOLD online data system. The majority of teachers (54-69 percent across the three checkpoints) reported spending 1 to 5 hours a week conducting observations and collecting data for the pilot, although some teachers reported that GOLD required more than 10 hours per week (23 percent of teachers in the fall and 1.7 percent in spring). While this may seem like a significant amount of time, 60 percent of the teachers also reported that at least half of their time spent observing or collecting data for GOLD was *also* part of another data collection/assessment requirement already in place.

GOLD was added to teachers' already full day, without removing other assessment requirements

Another factor influencing teachers' implementation of GOLD was existing assessment requirements that continued during the pilot year. Many teachers in the pilot reported having local requirements to administer assessments in mathematics and English/language arts in addition to GOLD, and, as such, reported that GOLD was often (but not always) redundant with local requirements. The amount of assessments that teachers were required to use varied from school to school, with some schools only using PALS K, and others having a continuous cycle that included multiple progress and benchmark measures of mathematics and English/language arts skills.

While use of other assessments led to teachers feeling burdened, none of the teachers interviewed for the pilot⁴ reported regular use of comprehensive assessment systems (other than GOLD).⁵ Several used PALS in addition to other measures, including the Developmental Reading Assessment (DRA), Reading Levels, and assessments that are provided with the local curricula. A few teachers reported using the Developmental Spelling Analysis (DSA) and keeping running records of children's spelling words. Teachers also reported diverse approaches to measuring mathematics skills. Most teachers interviewed during the pilot reported using no math assessment or else assessments developed at the school division, school, or on their own. These locally-developed assessments come in a variety of forms, such as teacher checklists and formal benchmark measures. A few teachers reported using the Measures of Academic Progress (MAPS) to assess children's progress in mathematics over the course of the year. A summary of assessments teachers **reported**

⁴ Teachers interviewed were from 9 of 14 participating school divisions and had a range of population characteristics. For example, in interview participants' schools, on average, 60 percent of Kindergarten children were economically disadvantaged, with a range from zero (0) to 86 percent.

⁵ One teacher shared that they do some small scale assessment of fine and gross motor skills, but not to the extent that they can use the information to differentiate instruction. Specific information about existing assessments represents information provided by interview participants.

using is shown in Table 1, and one example of the extent of testing conducted locally during a Kindergarten year is shown in Table 2.

Table 1. Teacher-reported assessments used in pilot Kindergarten classrooms

Reading	Mathematics	Spelling
DRA	MAPS	DSA
MAPS	Division developed (includes checklists, benchmark measures)	Running records
PALS Quick Checks	School-developed	
Reading Levels	Teacher-developed	
Curriculum-based (e.g., McKenna Walpole)	Portfolio	
Division developed (includes checklists, benchmark measures)		

NOTE: These assessments were in place, and using GOLD became an additional requirement.

Table 2. Example of one school's Kindergarten assessment requirements

Measure	Fall	Winter	Spring
PALS K	X		X
Reading benchmark	X ¹	X ¹	X ¹
Measures of Academic Progress (MAPS), reading	X	X	X
Measures of Academic Progress (MAPS), reading	X	X	X

¹Administered after every 2 instructional units.

Teachers reported that using other assessments had various influences on their use of and reported value of GOLD. In practice, having multiple assessments in addition to GOLD often meant that teachers were not using an observational process that is integral to using GOLD with fidelity. Rather, teachers used results of other assessments to inform GOLD checkpoints in the winter and spring. This required that data be entered into two places using different formats during the pilot, adding a task to teachers' already-full plates.

In terms of reported value, teachers who did not have formal assessments beyond PALS were more likely to find value in GOLD, and to appreciate what it had to offer. Most teachers who used other assessments reported that the reading and math information in GOLD was mostly redundant with other information.

Despite reporting some redundancy with existing measures, several teachers gave examples of useful information from GOLD that was not available from other sources, even when they had a long list of other assessments. For example, several teachers commented that GOLD's emphasis on writing skills was unique in their toolkit, and useful. More generally, when considering GOLD relative to their existing assessments, some

teachers appreciated the expectation in GOLD that children consistently demonstrate the knowledge, skills, and behaviors associated with a developmental level before moving on to the next. This helps to reduce situations where children succeed on a test on one day, but lose the concept the next. Several teachers emphasized with GOLD, they had more information available than they do with assessments that provide information about children's status (e.g., met the benchmark or not; average score), but do not offer information about where children are going next. GOLD includes information about where they needed to go next in each domain, which several teachers reported as being more useful than having assessment results as status information in isolation.

Local expectations demand whole or small group instruction nearly all day, with limited time for observation

Most teachers who participated in the interviews reported that it was difficult to find time in the day to conduct observations, which is required to use GOLD with fidelity. When probed as to why, teachers typically reported that their existing schedules required that they deliver direct instruction to students in whole or small groups throughout the day, and that it was difficult to both deliver instruction and take notes on specific GOLD objectives simultaneously. Due to the structure of their day, most teachers reported having limited if any time to directly observe children outside of the whole or small group environment. The majority of teachers interviewed reported that children no longer used centers or had self-directed activities that would permit the types of observations GOLD demands. There were a few exceptions. For example, teachers from one pilot school reported that they had not used centers in Kindergarten classrooms for many years. However, during the pilot, the local administration approved the teachers' request to bring learning centers into their classrooms so that they could use GOLD as it was designed. Once they had centers, they were able to find some additional time for observations. There were also a few teachers who reported using observational methods in their classrooms for many years, although with less formal processes than GOLD requires.

Narrow curriculum and limited incentives to focus on learning objectives beyond reading and mathematics

Teachers reported that current Kindergarten classrooms focus almost exclusively on the academic subjects of reading and mathematics. Through open ended comments in the surveys and during interviews, teachers reported that their school leaders' lack of emphasis on learning and development in non-academic domains leads to a narrowed curriculum. The narrowed focus left teachers little to no time to observe children in social, emotional, and physical domains. The common teacher perspective was summed up by one teacher, who commented that "Cognitive and other skills aren't a priority--children need strong academics."

A common sentiment that teachers shared was that if a particular area of learning is not included in the local report card, there is no incentive, support for, or perceived need for instruction that fosters children's growth and development in those areas. Their reality is consistent with the common phrase, "what gets measured

gets done.” They reported that the lack of information required for school report cards in social-emotional learning, physical development, and cognitive skills⁶ results in limited attention to these domains in the classroom. Some teachers went so far as to suggest that they would like to see the GOLD outcomes be the report card items, in order to establish broad support for sustained focus on all areas of children’s learning and development.

Despite reporting that it was challenging to use GOLD as it was designed to be used, several teachers shared that *if* they could structure their Kindergarten to use GOLD—to include both developmental and academic content—they believed children would be better served. Most teachers interviewed for the pilot preferred to create learning environments that focused on the whole child, including social-emotional and cognitive development, but the vast majority reported not having the support, incentive, or tools to deliver differentiated instruction on non-academic subjects.

I believe in looking at the whole child, but unfortunately, I was not able to use that information to change what or how I was teaching the children, which is very prescribed right now.

Teacher, VECF KRA Pilot, 2013/14

Reliability and validity in a one year pilot

The pilot evaluation served as a starting point for assessing Virginia’s classroom teachers’ ability to use GOLD consistently and accurately (i.e., reliably), so that the resulting data are an accurate reflection of children’s developmental levels in each domain. The evaluation also provided a limited opportunity to assess GOLD’s validity. Both of these are discussed in this section of the report.

Using GOLD reliably

There are multiple ways to assess reliability. Teaching Strategies has reported results of several studies of randomly selected, nationally representative samples of children for whom GOLD data were collected to demonstrate GOLD’s internal consistency (Lambert, et al., 2013). There are a number of other methods to demonstrate reliability, such as test-retest reliability and inter-rater reliability. In this study, reliability was assessed using 3 approaches:

- 1) Requiring teachers to pass the GOLD-provided inter-rater reliability test during the pilot. This approach requires teachers to give children ratings that are similar to those of master teachers, and helps provide confidence that teachers understand GOLD’s learning objectives.

⁶ Cognitive skills include concepts such as paying attention and engaging in the classroom, demonstrating persistence and problem solving skills, using symbols and images to represent what is not present, remembers and connects experiences, etc. See Appendix B.

- 2) Determining the distribution of GOLD ratings within classrooms relative to the distribution of ratings between classrooms, by calculating intra-class correlation coefficient (ICC). This statistic provides information as to whether children's ratings were more similar within classrooms than between classrooms, which could indicate bias.
- 3) Assessment of measurement invariance of GOLD ratings across three checkpoints, to determine whether GOLD scaled scores reflected the domains being measured similarly throughout the pilot year.

Given the challenges that teachers faced implementing GOLD with fidelity, it was not surprising that the results of the analysis suggest that teachers had difficulty using GOLD in a way that reflects consistent, unbiased use of the observational assessment throughout the year. In general, results of all three approaches to measuring reliability suggest that teachers' use of GOLD changed and improved over the course of the year.

Inter-rater reliability test results

In the fall, on average across domains, 69 percent of teachers passed the inter-rater reliability (IRR) assessment on the first attempt, although the percentage varied from 41 percent in the social-emotional domain to 85 percent in language. In the spring, the vast majority of teachers (> 96 percent) passed IRR on the first attempt in all areas except for cognitive. In the spring, approximately 70 percent passed the cognitive IRR test on the first attempt, suggesting a potential area to work on for the remaining 30 percent of teachers. Other states have also shown that more teachers are challenged by GOLD's cognitive domain than other GOLD learning and developmental areas (Soderberg, Stull, Cummings, Nolen, McCutchen & Joseph, 2013).

Intra-class correlation coefficient

The intra-class correlation coefficient (ICC) helps to determine the between-classroom variance in children's GOLD scores. ICC ranges from 0.0 to 1.0. An ICC of 0.0 indicates that children's scores were randomly distributed throughout classrooms in the pilot and an ICC of 1.0 indicates classroom bias. In practice an ICC of 0.0 is not attainable, because children are not in fact randomly assigned to school divisions or classrooms, and several influences, such as children's preschool learning environments, teachers' ability to use GOLD with fidelity, and clustering of students with learning disabilities or those who have limited English language skills will lead to systematic differences in children's GOLD scores. For example, in the pilot sample of children, the ICC from fall PALS assessment was 0.10, which reflects more than a decade of assessment use, honed training, experienced leaders supporting teachers, and a different, one-on-one task-based assessment method. While in general, lower ICC are considered better when considering assessments of individual children, there are no commonly accepted guidelines to determine whether a particular ICC is too high.

In this pilot, the ICC was highest in the fall, when external factors are most likely to influence scores *and* when teachers were new to using the tool, both of which could increase ICC. The average ICC in the fall was 0.49, but ranged from 0.30 (social-emotional domain) to 0.67 (physical domain). The ICC was lower in the winter, averaging 0.38, and ranging from 0.29 in language and literacy, to 0.46 in the cognitive domain, with similar results in the spring. This suggests that over the course of the year, external and classroom factors had less of influence on GOLD scores than was evident in the fall. However, providing teachers with greater support for

implementation would reduce the challenges described earlier in this report, and reduce the unique influences that classroom placement has on GOLD scores.

Measurement invariance

The evaluation team used a statistical approach called factorial invariance to determine whether scaled scores on each of the GOLD domains reflected the same construct at each checkpoint over the course of the year, or whether it appeared that teachers' understanding of the domain changed over time. Consistent with results from the IRR and ICC methods, results suggested that teachers' use of the GOLD scales changed at each time point. It is quite possible that these differences are related to the learning curve associated with teachers' increasing experience with GOLD over time. While not possible in this evaluation, it would be helpful to assess measurement invariance for groups of teachers with more experience using GOLD, to determine how long and what type of training and support is required to show consistent use of the scales over time.

Validity

Given the results of the reliability assessment, the evaluation of GOLD's validity is limited to teacher reports of the appropriateness of GOLD for use in Virginia's classrooms. Teachers were asked to consider GOLD's appropriate use given the range of students' abilities, and linguistic, ethnic, and cultural diversity. The majority of teachers (75 to 80 percent across the year) reported that GOLD was appropriate for their students, and a larger percentage of teachers reported that GOLD was appropriate for use with students with disabilities and English learners. Through the surveys and interviews, the most common concern reported was GOLD's limited ability to assess children who met or exceeded Kindergarten learning levels before the end of the year. The number of children who were performing above grade level varied by classroom, but such children were enrolled in nearly all classrooms in the pilot. During the Smart Beginnings KRA pilot year, Teaching Strategies was in the process of finalizing a version of GOLD that includes learning objectives for children up through grade 3. This addition would significantly reduce the challenges teachers faced using GOLD for children who were performing above grade level.

Summary

The Smart Beginnings KRA Pilot was aimed at determining the feasibility of implementing a multi-dimensional, observation-based assessment tool in Virginia's Kindergarten classrooms to inform early childhood improvement efforts and to inform and guide teaching and learning in Kindergarten classrooms. The pilot results suggest that GOLD aligns with the majority of teachers' assessment philosophies and that Kindergarten teachers are interested in using these types of assessments. The following summarizes feasibility results from GOLD, and provides recommendations for choosing Kindergarten assessments in the future.

Include assessments in multiple areas of learning and development that research indicates are important for children's long-term success in school and life.

In the pilot, the most commonly reported value of using GOLD was the ongoing emphasis on multiple

domains of learning and development. While teachers struggled with this feature of GOLD, reporting that they had few incentives to focus the learning environment on content other than English/language arts and math, they also reported that they believe that focusing on the whole child is more beneficial to children than the current, narrowly-focused curriculum. These reports are consistent with national research suggesting that the curriculum has narrowed and now looks more like first grade relative to the past (Bassok & Rorem, 2014), and associated concerns with this narrow curriculum (e.g., Miller & Almon, 2009). Teachers' interest in focusing on the whole child is also consistent with suggestions that Kindergarten can and should focus on academic *and* developmental learning objectives, not one or the other.

Teachers value having information about the continuum of learning expectations.

Teachers commonly reported that having access to clearly-articulated learning expectations across the developmental continuum made the GOLD results more valuable than assessment results they currently receive, which are often isolated from the learning continuum and leave teachers unclear about the next critical step in each child's learning path. These results suggest that assessments that result in scores in the context of a clearly articulated learning continuum or pathway, and that provide teachers with instructional resources that can be linked to children's scores would be more beneficial to teachers than status-only assessments.

Assessments should include learning objectives and measures above grade level.

In addition to providing a continuum of learning objectives in multiple domains, this pilot made it clear that teachers and administrators need access to learning objectives and assessments that extend beyond grade-level, in vertical alignment with grades above and below children's actual grade. During the pilot, many students met Kindergarten exit expectations by the middle of the school year. Through the survey and interviews, teachers reported that GOLD's limited range impacted the tools' utility—some reported that having learning objectives and measures of progress for their higher performing children would be beneficial. The new version of GOLD that includes learning objectives through grade 3 should meet teachers' needs. Administrators further expressed a preference for measurement tools that were vertically aligned with pre-school or first grade measures.

Implementing developmentally appropriate, observation-based assessment will require a different learning environment than is present in most Virginia's Kindergarten classrooms.

Through surveys and interviews, it became clear that the majority of Virginia Kindergarten classrooms in this pilot were not set up to support the use of multi-dimensional, developmentally-appropriate, observation-based assessments. They are focused primarily on English/language arts and mathematics in a setting that encourages or requires teachers to deliver direct instruction nearly all day. Many teachers reported that in their current classrooms, they do not have time or incentives to focus on other learning and developmental domains that are predictive of future school success, including social-emotional skills. As well, teachers reported having little to no time to observe children demonstrating their skills in practical, hands-on activities. When moving to new assessment methods, it is critical that teachers have aligned curricula and the time and support to ensure that daily lesson plans and the learning environment more generally address all assessed

domains. Teachers and administrators in this pilot suggested that for long-term success in using observation-based measures, teachers could benefit from introducing this approach more slowly. For example, teachers could assess a limited number of children in all domains during the first year, and add children in subsequent years. Another suggestion was to ask teachers to assess all children in one or two domains in the first year, and add domains in subsequent years, once teachers have more experience with the approach more generally.

A strategic assessment strategy is important to avoid layering new assessments on top of existing assessments.

When considering adding new assessments in Kindergarten, it is critical that these be embedded in an intentionally-developed strategic plan for assessment use. Teachers reported using a wide range of assessments in pilot classrooms, from PALS-only to ongoing use of summative and benchmark assessments, with limited if any formative measures. Simply adding more assessments to Kindergarten classrooms without removing existing measures is burdensome to both teachers and students, taking time away from other instructional activities that are critical for teaching and learning. This applies to teachers' use of observational-based and other forms of assessment. When developing assessment strategies, it will be important for highly-experienced master teachers to have input, to ensure that the assessment approach provides classroom teachers and administrators with data and resources to inform teaching and learning.

Consistent, reliable use of observation-based measures will require additional training and ongoing support.

Teachers' responses to surveys and information provided during interviews suggested that the two-day Teaching Strategies-provided training on the use of GOLD was necessary but not sufficient to enable teachers to use GOLD reliably and with fidelity throughout the school year. The pilot results suggest that reliability improved over the course of the year. However, results also point to a need for pre-service and in-service skill-building for teachers to successfully use observation-based assessment. While this pilot did not test different implementation methods directly, it offers important insights into the types of supports teachers need to improve their ability to reliably use GOLD or similar measures. These are:

- Ensure that administrators provide support and perhaps incentives for teachers to focus on multiple dimensions of learning and development, including language and literacy, mathematics, social-emotional development, cognitive, and physical development. Several teachers suggested that including the GOLD domains on the report card would ensure that lesson plans included these areas of learning and development.
- Establish collaborative planning time with other teachers, administrators, and content/area experts to ensure lesson plans are developmentally-appropriate, align with content and developmental learning areas, and enable children to demonstrate the skills being measured through observation. Most teachers suggested that having planning time before implementation and after each checkpoint would be most helpful to improving their successful use of this type of assessment.

- Support the role of an implementation coordinator, to enable teachers and administrators ability to learn from each other’s experiences, share best practices, and more generally, to field questions that arise throughout the school year.
- Create a classroom structure that gives teachers time to observe children and reflect on their needs. Pilot teachers reported that their day is filled with direct whole- and small-group instruction, with limited if any time to observe children in authentic settings. Teachers could use additional support and model lessons that provide time for children to learn and demonstrate skills along the continuum, and for teachers to observe and document learning successes and challenges.
- Provide teachers with on-site coaching to help them better integrate observational methods and data collection into their daily teaching activities.

Recommendations

Supporting children’s preparation for and success in Kindergarten—particularly for at-risk children—is an important strategy for reducing the readiness gap that exists in Kindergarten, and for improving young children’s school and life success. This is particularly important in communities serving large numbers or proportions of children at-risk of not being school ready upon Kindergarten enrollment and more generally, who are at-risk of not reaching their fullest potential in school and life. Key factors in these children’s long-term success is effective early intervention, and the presence of highly-competent teachers who have the tools and supports needed to create effective learning environments. Such environments meet children where they are, and move children along a clearly defined learning path that ensures that all children meet or exceed expectations.

Moving forward, it is recommended that Virginia take steps toward creating a continuum of early learning and support structures that facilitate teaching excellence, accelerated learning, and children’s successful development in Virginia’s communities and school divisions. With funding challenges at the state and local levels, a productive first step could be a cohesive focus on creating this continuum in communities with chronically underperforming elementary schools. A pilot designed for these communities should include aligned and coordinated curriculum, lesson planning, comprehensive assessment practice, and professional development and learning communities in classrooms from pre-K to third grade. Piloting a seamless process in targeted communities and reaching the highest-need students could leverage federal funding opportunities, reducing strain on the state’s financial commitment during budget shortfall, as well as inform the ongoing review and reform of Virginia’s assessment system.

Supporting teachers in Virginia’s lowest-performing schools to deliver rich, high quality, developmentally-appropriate instruction with complementary assessments to measure progress should be a priority in Virginia’s reform efforts.

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Appendix A: Participating schools and divisions

Virginia School Division	School name
Augusta County Public Schools	Craigsville Elementary Guy K. Stump Elementary Verona Elementary
Buena Vista County Public Schools	F.W. Kling Elementary
Chesterfield County Public Schools	Bensley Elementary Marguerite Christian Elementary Woolridge Elementary
Danville Public Schools	G.L.H. Johnson Elementary Park Avenue School
Hampton City Schools	Phenix Elementary
Harrisonburg City Schools	Spotswood Elementary Stone Spring Elementary
Henrico County Public Schools	Mehfoud Elementary Twin Hickory Elementary
Hopewell City Schools	Dupont Elementary Harry E. James Elementary Patrick Copeland Elementary
Norfolk City Schools	Lindenwood Elementary Tidewater Park Elementary
Northampton County Public Schools	Kiptopeke Elementary Occohannock Elementary
Petersburg City Schools	A.P. Hill Elementary
Richmond City Public Schools	John B. Cary Elementary J.B. Fisher Elementary Ginter Park Elementary Mary Munford Elementary William Fox Elementary Southampton Elementary
Tazewell County Public Schools	Richlands Elementary Tazewell Elementary
Williamsburg/James City County Schools	Clara Byrd Baker Elementary J.B. Blayton Elementary

Appendix B: Summary of areas and learning objectives included in the Virginia KRA pilot

Social–Emotional

1. Regulates own emotions and behaviors
 - a. Manages feelings
 - b. Follows limits and expectations
 - c. Takes care of own needs appropriately
2. Establishes and sustains positive relationships
 - a. Forms relationships with adults
 - b. Responds to emotional cues
 - c. Interacts with peers
3. Participates cooperatively and constructively in group situations
 - a. Balances needs and rights of self and others
 - b. Solves social problems

Physical

4. Demonstrates traveling skills
5. Demonstrates balancing skills
6. Demonstrates gross-motor manipulative skills
7. Demonstrates fine-motor strength and coordination
 - a. Uses fingers and hands
 - b. Uses writing and drawing tools

Language

8. Listens to and understands increasingly complex language
 - a. Comprehends language
 - b. Follows directions
9. Uses language to express thoughts and needs
 - a. Uses an expanding expressive vocabulary
 - b. Speaks clearly
 - c. Uses conventional grammar
 - d. Tells about another time or place
10. Uses appropriate conversational and other communication skills
 - a. Engages in conversations
 - b. Uses social rules of language

Cognitive

11. Demonstrates positive approaches to learning
 - a. Attends and engages
 - b. Persists
 - c. Solves problems

- d. Shows curiosity and motivation
- e. Shows flexibility and inventiveness in thinking
- 12. Remembers and connects experiences
 - a. Recognizes and recalls
 - b. Makes connections
- 13. Uses classification skills
- 14. Uses symbols and images to represent something not present
 - a. Thinks symbolically
 - b. Engages in sociodramatic play

Literacy

- 15. Demonstrates phonological awareness
 - a. Notices and discriminates rhyme
 - b. Notices and discriminates alliteration
 - c. Notices and discriminates smaller and smaller units of sound
- 16. Demonstrates knowledge of the alphabet
 - a. Identifies and names letters
 - b. Uses letter–sound knowledge
- 17. Demonstrates knowledge of print and its uses
 - a. Uses and appreciates books
 - b. Uses print concepts
- 18. Comprehends and responds to books and other texts
 - a. Interacts during read-alouds and book conversations
 - b. Uses emergent reading skills
 - c. Retells stories
- 19. Demonstrates emergent writing skills
 - a. Writes name
 - b. Writes to convey meaning

Mathematics

- 20. Uses number concepts and operations
 - a. Counts
 - b. Quantifies
 - c. Connects numerals with their quantities
- 21. Explores and describes spatial relationships and shapes
 - a. Understands spatial relationships
 - b. Understands shapes
- 22. Compares and measures
- 23. Demonstrates knowledge of pattern



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The Virginia Kindergarten Readiness Project

Executive Summary & Legislative Report

Fall 2014, Phase II



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Executive Summary

Need for Kindergarten Readiness Assessments in Virginia

The results of the Virginia Kindergarten Readiness Project (VKRP) summarized in this report indicate that 34% of children in the Commonwealth arrive at kindergarten unprepared in one or more critical learning domains (literacy, math, self-regulation, and social skills). Children who enter kindergarten behind their peers rarely catch up; instead, the achievement gap widens over time. Absent early intervention, these children are also more likely to fall below grade level expectations, to be retained in school, to be placed in special education, and to drop out of high school. The Commonwealth currently uses the Phonological Awareness Literacy Screening (PALS), a pre-literacy measure, as its only assessment of children's skills as they enter kindergarten. VKRP implemented and evaluated a comprehensive readiness assessment, which provides the Commonwealth, districts, schools, and teachers valuable information about children's skills not only in literacy but in math, social skills, and self-regulation - other areas of performance key to school success. The availability of more comprehensive kindergarten readiness data across the state provides guidance to the Commonwealth's efforts to identify effective policies, interventions, and investments for young children. This executive summary report¹ provides a brief description of the VKRP, summarizes key results, and makes data-driven recommendations for next steps.

Project Goals and Approach

The VKRP, commissioned by Elevate Early Education (E3) and conducted by the University of Virginia's Center for the Advanced Study of Teaching and Learning (CASTL), had the following **key goals related to understanding kindergarten readiness in Virginia**:

- Select assessment tools for use statewide to accurately assess children's incoming school readiness skills across a range of readiness domains, beyond early literacy
- Pilot selected assessments to create a "snapshot" of Virginia's entering kindergarteners' readiness skills across a range of learning domains
- Describe the ways in which children and classrooms vary in readiness skills
- Present recommendations to implement a statewide comprehensive readiness assessment
- Present data that inform public policy and funding decisions in early childhood education

The final measures for assessing Virginia children's kindergarten readiness skills were selected from among a number of options that met the following criteria: a) complemented the PALS assessment; b) had been used successfully in early childhood education research; c) demonstrated prior evidence of validity; d) aligned with the Virginia Early Education Foundation Blocks and Standards of Learning; e) were feasible for teachers to administer accurately within a reasonable time-frame; and f) offered data to teachers to guide instruction

The selected measures included: a) the *Tools for Early Assessment in Mathematics-Short Form (TEAM-SF)* - a 20-item, teacher-administered direct assessment of preschool children's number and geometric/spatial competencies; and, b) the *Child Behavior Rating Scale (CBRS)* - a 17-item rating scale completed online by the teacher that measures children's self-regulation skills (e.g., follow classroom rules, concentrate on activities,) and social skills (e.g., cooperate with peers, comply with adult directives). Teachers conducted these additional readiness assessments immediately prior to their administration of PALS.

Children were identified as "not ready" if their scores fell below the fall benchmark/established cut point on any of the assessed learning domains (literacy, math, self-regulation, or social skills).

The participating teachers and children included 2,036 kindergarten students drawn from 100 classrooms and 41 schools within 16 districts across the eight superintendents' regions of Virginia. This sample was recruited to be representative of the students attending kindergarten in the Commonwealth and to

¹The full report of the VKRP Phase II pilot is available. Williford, A. P., Downer, J.T., & Hamre, B. K. (2014). *Virginia Kindergarten Readiness Project--Phase 2, Legislative Report*. Research report prepared for Elevate Early Education (E3)

be diverse with regard to geographic regions and child demographic characteristics (see Legislative Report for comparisons to statewide averages). On average, children in the pilot were 5.4 years old, 47.5% were female, 11.4% were identified as English language learners, and 7.2% had an Individual Education Plan. In terms of ethnicity, children were mostly White, Not Hispanic (51%), whereas 28% were Black, 9% were Hispanic, 6% were Asian and 6% were other.

Results and Conclusions

One third of children in Virginia enter kindergarten unprepared in at least one essential early learning domain.

Thirty-four percent of children entering kindergarten in Virginia are lacking key skills in at least one early learning domain (see Table 1). This multi-skill estimate falls in stark contrast to rates of readiness based solely on literacy, i.e. PALS, which estimates that approximately 12% of students statewide enter kindergarten unprepared. This higher estimate of children entering kindergarten “not ready” reflects the reality that kindergarten teachers are responsible for supporting children whose performance varies across learning domains. The additional information about math readiness is particularly relevant given an increasing focus on the importance of developing these skills in the early years of schooling. Although Virginia’s Standards of Learning do not directly cover social skills and self-regulation, decades of research demonstrate that these skills are foundational to later school and life success.

Table 1: Readiness Counts by Number of Domains

Readiness	Frequency	Percent
“Not ready” in at least 1 domain	647	33.9
“Not Ready” in 1 domain	374	19.6
“Not Ready” in 2 domains	182	9.5
“Not Ready” in 3 domains	61	3.2
“Not Ready” in 4 domains	30	1.6
“Ready” in all domains	1264	66.1
Sub Total	1911	100.0
Missing	125	
Total	2036	

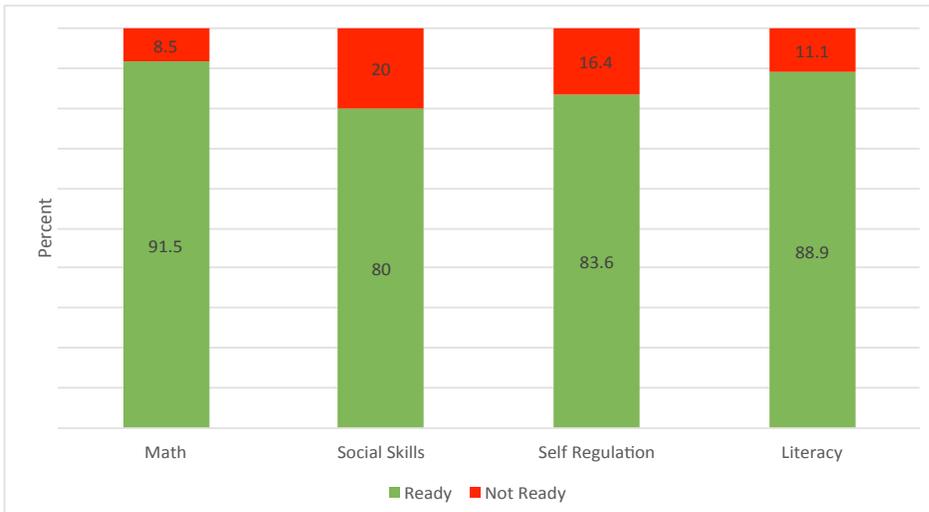
A substantial number of children perform poorly in several domains of early learning.

Fourteen percent of children entering kindergarten in Virginia demonstrate a lack of readiness in two or more domains of learning (see Table 1). These children provide unique challenges to kindergarten teachers. For example, a child who enters kindergarten without basic skills in literacy, but who can pay attention in the classroom and persist through challenges, is much more likely to respond positively to instruction than a child without these important self-regulation skills.

Children enter school less “ready” in self-regulation and social skills than in literacy and math.

Twenty percent of children entering kindergarten in Virginia face challenges with social skills and 16% do not possess the self-regulation skills needed in the classroom environment (see Figure 1). This is almost twice the rate of children who are “not ready” in the areas of either literacy or math.

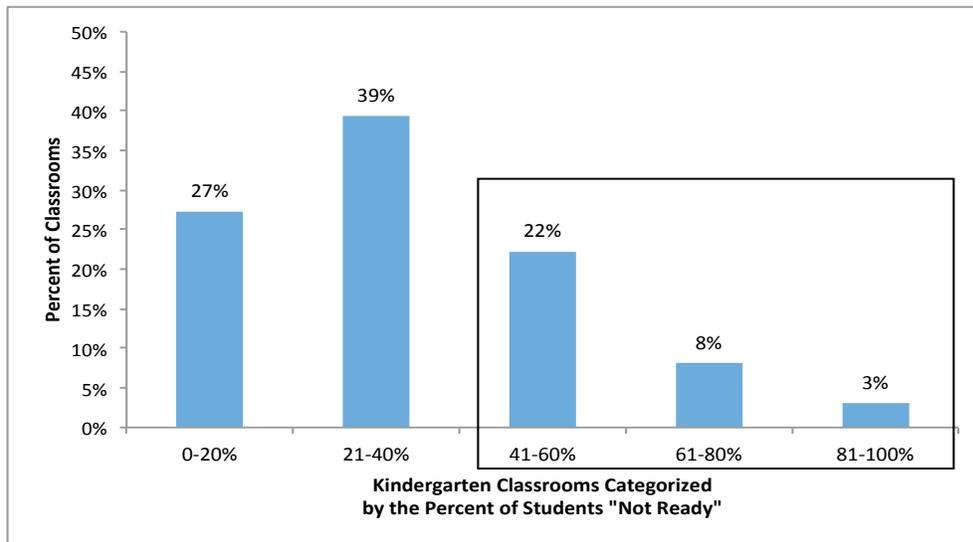
Figure 1: Percent of Students “Ready” or “Not Ready” by Domain



Many teachers are faced with classrooms in which a large percentage of children are not well prepared for the daily tasks of kindergarten.

One-third of kindergarten classrooms have more than 40% of students unprepared in at least one key learning domain (see Figure 2, adding the last 3 columns together equals one third of the classrooms in the sample). These classrooms present particular challenges for teachers as they work to support learning for all students.

Figure 2: Variability Across Classrooms in the Percent of Students “Not Ready”



Certain children are at much greater risk for being “not ready” as they enter kindergarten.

Schools serving more economically disadvantaged students enrolled more children identified as “not ready.” Boys, younger children, English Language Learners, and children who had an Individualized Education Plan were more often identified as “not ready.” Compared to White students, children of Black, Native American, Hispanic, or other races/ethnicities were also more likely to be identified as “not ready.” However, **significant percentages of children, regardless of their demographic backgrounds, enter kindergarten unprepared** in at least one key learning domain.

Teachers can assess a broader array of readiness skills and find having this data useful but note concerns around loss of instruction time.

Most teachers (over 94%) reported feeling confident in their ability to accurately assess their students using the chosen assessments. Furthermore, observations suggested that teachers administered the assessments as intended by measure developers. The majority of teachers felt it was useful to have readiness data broader than literacy for the children in their classrooms and that they had a better understanding of their students' skills after conducting the assessments. Half of the teachers felt that the time it took to administer the assessments was manageable and 35% of teachers indicated that the time to complete the assessments was worth it (with 41% being undecided and 24% indicating that the time taken to conduct the assessments was not worth it).

Recommendations

1. Skills beyond literacy should be included in Virginia's kindergarten readiness assessments.

There is great value in understanding kindergarten readiness in Virginia beyond early literacy skills. The adoption of a combination of direct assessments and teacher ratings across the developmental domains of literacy, math, social skills, and self-regulation will provide a more comprehensive snapshot of children's incoming readiness skills than is currently available.

2. Implement a voluntary, statewide rollout of a comprehensive readiness battery.

We recommend that a more comprehensive assessment be implemented on a voluntary, opt-in basis across Virginia in 2015-2016 and beyond, building from the success and infrastructure of PALS. Further development of this readiness assessment approach is required for successful implementation and requires several key steps:

a. Build consensus among stakeholders

In Virginia, it is critical that all stakeholders and the legislature work together to ensure that other relevant data and findings are used to develop an approach to kindergarten readiness assessment that improves young children's school success.

b. Finalize assessment protocol and teacher assessment training

The assessments used in this pilot demonstrated utility and feasibility. There are, however, modifications that should be made to enhance ease of implementation and minimize teacher disruptions to instructional time.

c. Develop an integrated data system

Teachers need a centralized, web-based system to efficiently input data on all assessments. Currently, each assessment has a separate data entry portal which is not feasible at-scale.

d. Make data useful for teachers

Teachers must be able to use the data to help them understand their students' skills and data must be linked to recommendations for individualizing instruction. Reports need to provide detailed information about individual students' strengths and areas of challenge, describe the variability of students' skills, and provide strategies for effectively instructing students.

e. Provide teachers with training around individualized instructional strategies linked to readiness data

Teachers need more training and support in how to use these data to individualize instruction, particularly in relation to strategies to support students' social skills and self-regulation.

3. Target social-emotional skills for early intervention prior to and within kindergarten.

Twenty percent of children were identified as "not ready" in their social skills and 16.4% were "not ready" in their self-regulation skills – larger percentages than in math or literacy. Decades of research demonstrate the ways in which children's self-regulation and social skills are foundational to later school and life success. For instance, self-regulation has a greater influence on a student's academic performance than his or her

intelligence. This indicates the importance of considering social-emotional learning skills as a learning target on the same level as academic skills. Thus, the Commonwealth should consider:

a. Developing social-emotional learning standards for K-12 students

Learning standards are an important driver of educational practice. Some states have developed free-standing and comprehensive standards for social-emotional skills while others have worked to more adequately integrate these standards within other subject areas (<http://www.casel.org/state-scan-scorecard-project>). Although Virginia identifies these skills explicitly in its Foundation Blocks, they are not described as subject areas within the K-12 Standards of Learning.

b. Providing teacher training on evidence-based strategies for supporting social-emotional learning

Teachers need training and support in the use of strategies to promote students' self-regulation and social skills. Strategies that help students pay attention, remain on task, and engage in productive group work with peers can be employed during academic instructional times, and thus are feasible for teachers to implement in their classrooms. In addition, there are effective, social-emotional curricula available at both the preschool and elementary levels that can be integrated into kindergarten instruction.

4. Use kindergarten readiness assessments to make data-driven policy decisions.

A more comprehensive kindergarten assessment is well positioned within the birth-to-3rd grade continuum to serve as both an evaluation of the effectiveness of Virginia's birth-through-preschool programs and an early predictor of later performance in school. As such, the results and recommendations in this report are likely relevant to the efforts of the newly established Commonwealth Council on Childhood Success, which is tasked to assess the health and educational needs of Virginia's youngest children (0-8 years). In order to use the data in these ways, Virginia needs a longitudinal data system that links data on young children across agencies (e.g., Office of Head Start, Department of Social Services, and Department of Education) and across time (e.g., early intervention, preschool, K-12). Such a system will increase our capacity to understand the outcomes of state and local investments including:

- Consideration of early childhood quality improvement models that are evidence-based, effective, and cost-sustainable
- Understanding what initiatives, policies, and interventions are currently being funded in Virginia and determine which are effective in promoting school readiness

Legislative Report

Background and Introduction

Need for Kindergarten Readiness Assessments in Virginia

Children who enter kindergarten behind their peers rarely catch up; instead, the achievement gap widens over time.¹ Absent early intervention, these children are also more likely to fall below grade level expectations, to be retained in school, to be placed in special education, and to drop out of high school.² These negative outcomes have significant financial costs, such as the costs of special education services and social welfare programs.³

Disparities in skills develop for many children prior to entry into the K-12 school system, with between 33 to 50% of children nationwide arriving at kindergarten significantly behind their peers in at least one early learning domain that is critical for school success. The proportion of children from low-income backgrounds who enter kindergarten possessing the needed readiness skills (48%) is disproportionately lower than their economically-advantaged peers (75%). This is known as the school readiness gap.⁴ In Virginia, 36% of children under the age of six are from low-income backgrounds and so are at high risk for entering school unprepared and struggling to catch up.⁵

What is School Readiness?

School readiness is the set of skills that children possess when they enter school that prepares them for later school success. The key domains of school readiness include language, literacy, cognition and general knowledge, approaches to learning, physical health (including well-being and motor development), and social and emotional development (including self-regulation and social skills).⁶ These key domains of school readiness are represented in Virginia's Foundation Blocks for Early Learning, which provides a set of comprehensive standards for early education.⁷ School readiness assessments in Virginia, however, have focused only on children's pre-literacy skills. Through the Early Intervention Reading Initiative (EIRI) enacted in 1997, Virginia schools have resources to assess children's entry literacy skills and provide early intervention when indicated, with the vast majority of school districts using the Phonological Awareness Literacy Screening (PALS).⁸

1 Duncan, G. J., Dowsett, C. J., Claessens, A., Magnuson, K., Huston, A. C., Klebanov, P., ... & Japel, C. (2007). School readiness and later achievement. *Developmental Psychology*, 43(6), 1428. <http://dx.doi.org/10.1037/0012-1649.43.6.1428.supp>.

2 Isaacs, J. B. (2012). Starting school at a disadvantage: The school readiness of poor children. *The Social Genome Project*, 34. Retrieved from <http://www.brookings.edu/research/papers/2012/03/19-school-disadvantage-isaacs>

3 Belfield, C. R., Nores, M., Barnett, S., & Schweinhart, L. (2006). The High/Scope Perry Preschool Program cost-benefit analysis using data from the age-40 followup. *Journal of Human Resources*, 41(1), 162-190. <http://dx.doi.org/10.3368/jhr.XLI.1.162>; Reynolds, A. J., Temple, J. A., White, B. A., Ou, S. R., & Robertson, D. L. (2011). Age 26 cost-benefit analysis of the Child-Parent Center Early Education Program. *Child development*, 82(1), 379-404. . <http://dx.doi.org/10.1111/j.1467-8624.2010.01563.x>

4 Sadowski, M. (2006). The school readiness gap. *Harvard Education Letter*, (22)4. Retrieved from <http://www.plan4preschool.org/documents/school-readiness-gap.pdf>

5 National Center for Children in Poverty; Virginia Early Childhood Profile for 2012: http://www.nccp.org/profiles/VA_profile_6.html. Low income is defined as 200% or below the Federal Poverty Line.

6 Zill, N., Collins, M., West, J. & Hausken, E. J. (1995). Approaching Kindergarten: A look at preschoolers in the United States. *Young Children* 51, 35-38.

7 Virginia Department of Education. (2013). Virginia's Foundation Blocks for Early Learning: Comprehensive Standard for Four-Year-Olds. Richmond, VA: Author. Retrieved from http://www.doe.virginia.gov/instruction/early_childhood/preschool_initiative/foundationblocks.pdf

8 See PALS site: <https://pals.virginia.edu/rd-background.html>

Readiness Data Collected in Virginia

Data from the PALS has provided insight into Virginia kindergartners' readiness in literacy indicating that about 12% of children enter kindergarten lacking fundamental literacy skills.⁹ However, we know little about their skills in the other school readiness areas. Children's skills in other early learning domains, particularly math and self-regulation, are key indicators of their later success in school. We do not know the extent to which children in Virginia arrive at kindergarten demonstrating these skills. This lack of data provides little guidance for the Commonwealth on creating policies and making targeted investments for young children.

Recently, many other states have developed, or are in the process of developing, kindergarten entry assessments that measure children's skills across a variety of early learning domains. As of the 2013 school year, the majority of states have plans for Kindergarten Entry Assessments (KEA), which aim to provide practitioners and policymakers with key information about students' baseline knowledge across multiple learning domains.¹⁰ These KEAs are generally administered within the first few weeks of instruction, with many state education departments developing state-specific plans to make use of the information generated. States have used their kindergarten readiness data: a) to link kindergarten data longitudinally to K-12 data, b) to inform instructional practices aimed at closing the school readiness gap at kindergarten entry and during the school year, c) to inform parents of their child's readiness status, include them in decisions and provide guidance in working at home with their children, and d) to develop support resources for parents and professionals.

Virginia Kindergarten Readiness Project

The VKRP, commissioned by Elevate Early Education (E3) and conducted by the University of Virginia's Center for Advanced Study of Teaching and Learning (CASTL), had the following key goals related to understanding kindergarten readiness in Virginia:

- Select assessment tools for use statewide to accurately assess children's incoming school readiness skills across a range of readiness domains, beyond early literacy
- Pilot selected assessments to create a "snapshot" of Virginia's entering kindergarteners' readiness skills across a range of learning domains
- Describe the ways in which children and classrooms vary in readiness skills
- Present recommendations to implement a statewide comprehensive readiness assessment
- Present data that inform public policy and funding decisions in early childhood education

Design:

VKRP was conducted in two phases.

Phase 1 examined the concurrent validity of Teaching Strategies GOLD (an observation-based assessment) when used by teachers to assess children's school readiness skills in the

9 Smart Beginnings (2013). Virginia's Biennial School Readiness Report Card: <http://www.vareportcard.com/Virginia-School-Readiness-Report-2013.pdf>

10 Connors-Tadros, L. (2014). Information and resources on developing state policy on kindergarten entry assessment(KEA) (CEELO FASTFacts). New Brunswick, NJ: Center on Enhancing Early Learning Outcomes. http://ceelo.org/wp-content/uploads/2014/02/KEA_Fast_Fact_Feb_2014.pdf

fall of the 2013 kindergarten year. Based upon the results from Phase 1, UVa recommended piloting an alternative assessment battery in Phase 2. The executive summary and full report from the validity study can be found at www.e3va.org.

Phase 2 piloted an expanded assessment that would create a “snapshot” of readiness skills across a range of learning domains for children entering kindergarten in Virginia and more clearly define the readiness gap in the Commonwealth. The results of the pilot will inform public policy and funding decisions in early childhood education as well the implementation of a full-scale, statewide comprehensive readiness assessment.

This report focuses on Phase 2.

Methodology

State Sample

The sample included 2,036 kindergarten students in 100 classrooms and 41 schools drawn from 16 districts across the eight Superintendent’s regions of Virginia (Central Virginia, Tidewater, Northern Neck, Northern Virginia, Valley, Western Virginia, Southwest, and Southside). The sample was recruited to be representative of the state and adequately diverse with regard to geographic regions and child demographic characteristics. This sampling strategy provides for a representative, statewide snapshot of kindergarten children’s incoming readiness skills across critical domains of learning. To demonstrate the representativeness of these data, Table 1 compares school-level statistics of the pilot sample to statewide estimates (data obtained from VDOE school statistics for SY2013-14). For those participating in the pilot in the fall of 2014, children were on average 5.4 years old, 47.5% were female, 11.3% were identified as English language learners and 7.2% had an Individual Education Plan. In terms of ethnicity, children were mostly White, Not Hispanic (51%), whereas 28% were Black, 9% were Hispanic, 6% were Asian and 6% were other.¹¹

Table 1. Comparison of Phase II VKRP Sample with Virginia State Data¹²

	% White	% Black	% Hispanic	% Asian	% Other	% Econ Disadv	% Rural
VKRP Sample Aggregate School Level	49.5%	26.0%	13.6%	5.3%	5.6%	47.0%	22%
Statewide Target	50.2%	22.6%	14.7%	6.8%	5.7%	43.8%	14.7%

Selection of the Kindergarten Readiness Assessment Tools

There are numerous options for measuring children’s kindergarten readiness skills, including checklists/rating scales (completed by the parent and/or teacher), observations, and direct assessments (conducted either by the child’s teacher or by an independent assessor).

¹¹ The 2013-14 school level data were used to recruit districts and schools for the representative sample. The participating sample demographics presented in the text are calculated using only those classrooms that participated in the pilot during the 2014-15 school year. These demographics thus vary from (but are consistent with) the 2013-14 school level data.

¹² These statistics are aggregated from the school level data for the state sample. Data obtained from VDOE school statistics for SY2013-14. Note the percent economically disadvantaged is based on the proportion of students enrolled at a school who qualify for free- or reduced-price lunch, TANF, or Medicaid. http://www.doe.virginia.gov/info_management/data_collection/student_record_collection/data_definitions.shtml

Each method has its own strengths and weaknesses, so the most appropriate choice for the type of assessment, as well as the method of administration, should be based upon the intended use of the data. The primary goal for this project was to assess children's skills at the beginning of kindergarten across multiple domains of learning using assessments that would allow for comparisons of readiness skills across child characteristics such as age, gender, race, socio-economic status, as well as across schools, districts, and regions throughout the state.

The final measures for assessing Virginia's children's kindergarten readiness skills were selected from among a number of options that met the following criteria:

- complemented the PALS assessment
- had been used successfully in early childhood education research
- demonstrated prior evidence of validity
- aligned with the Virginia Early Education Foundation Blocks and Standards of Learning
- were feasible for teachers to administer accurately within a reasonable time-frame
- offered data to teachers to guide instruction.

The measures chosen for the fall 2014 pilot were:

TEAM-SF. The *Tools for Early Assessment in Mathematics-Short Form* (TEAM-SF)¹³ is a 20-item measure of preschool children's number and geometric/spatial competencies. The TEAM-SF was created from the Research Based Early Mathematics Assessment (REMA)¹⁴, which measures mathematics skills of students from age 3 to 8 years. The REMA evidences good reliability and validity from preschool through first grade and has been shown to be sensitive to early mathematics interventions.¹⁵ Children are assessed individually by teachers using a standardized protocol. Items assessing number sense include asking children to count to five, count a certain number of objects, subitize objects, and match amounts to numbers. Items assessing geometry include asking children to identify certain shapes, make shapes with straws, and identify certain aspects of shapes. In prior research, the TEAM-SF has demonstrated good construct validity (concurrent and discriminant). In the present study, the TEAM-SF demonstrated strong inter-item reliability ($\alpha = .94$).

CBRS. The *Child Behavior Rating Scale* (CBRS) is a 17-item teacher rating scale used to assess children's social skills and self-regulation.¹⁶ Teachers rate each child's behaviors with other students and adults as displayed in the classroom setting using a scale of 1 (never) to 5 (usually/always). The social skills subscale has 7 items (e.g., "Willing to share toys or other things with other children when playing; does not fight or argue with playmates in disputes over property," and "Takes turns in a game situation with toys, materials, and other things without being told to do so") and the self-regulation subscale has 10 items [e.g., "Concentrates when working on a task; is not easily distracted by surrounding activities," and "Completes learning tasks involving two or more steps (e.g., cutting and pasting) in an organized way"]. The measure has been used frequently in early education research, particularly the self-regulation subscale, and has been

13 Weiland, C., Wolfe, C.B., Hurwitz, M.D., Clements, D.H., Sarama, J.H. & Yoshikawa, H. (2012). Early mathematics assessment: validation of the short form of a prekindergarten and kindergarten mathematics measure. *Educational Psychology*, 32(3), 311-333.

14 Clements, D. H., Sarama, J., & Liu, X. (2008). Development of a measure of early mathematics achievement using the Rasch model: The Research-based Early Maths Assessment. *Educational Psychology*, 28(4), 457-482

15 Clements, D. H., Sarama, J., Spitler, M. E., Lange, A. A., & Wolfe, C. B. (2011). Mathematics learned by young children in an intervention based on learning trajectories: A large-scale cluster randomized trial. *Journal for Research in Mathematics Education*, 42 (2), 127-166.

16 Bronson, M. B., Goodson, B. D., Layzer, J. I., & Love, J. M. (1990). *Child Behavior Rating Scale*. Cambridge, MA: Abt Associates.

found to evidence sound reliability across different US samples¹⁷ and across other countries.¹⁸ The CBRS predicts children's academic outcomes both concurrently and longitudinally.¹⁹ In the present study, CBRS demonstrated strong inter-item reliability (Social Skills: $\alpha = .94$; Self-Regulation subscale: $\alpha = .94$).

SELweb. The *Social Emotional Learning, web-based* (SELweb) is an online direct assessment of students' social problem-solving skills and self-regulation.²⁰ SELweb is web-based, self-administered, and suitable for mass administration, taking approximately 20 minutes to complete. Children completed several modules assessing their social problem-solving skills and self-control abilities. All aspects of the assessment are audio-narrated and illustrated, requiring only limited reading ability. The social problem-solving module contains eight vignettes, that describe ambiguous peer interaction scenarios. After each vignette, children were asked to select: (a) a social goal, (b) the best solution, and (c) how mean they believed the provocateur's actions to be. The self-control composite consists of two modules, one aimed at assessing a student's delay of gratification (e.g., students were instructed to send rocket ships into space, and told to get as many points as possible, with the slowest rocket ship being worth the most amount of points) and the other designed to assess a student's ability to refrain from impulsivity when frustrated (e.g., students were instructed to press a button when they saw matching shapes on the screen, and the task was pre-programmed to become "stuck" on certain items, and the number of button presses, and length of each press were recorded). Compared to other measures of social-emotional comprehension, the SELweb demonstrates both convergent and discriminant validity. The SELweb is also concurrently and positively associated with teacher report of social-emotional competencies.

PALS-K. The *Phonological Awareness Literacy Screening-Kindergarten* (PALS-K) is a widely-used diagnostic assessment administered one-on-one to students by teachers after the first six weeks from the start of the school year in Virginia.²¹ It is intended to identify students who may need additional support in order to improve their literacy skills and reach grade-level expectations. The PALS-K measures children's print knowledge and phonological awareness.

17 Matthews, J.S., Pointz, C.C., & Morrison, F.J. (2009). Early gender differences in self-regulation and academic achievement. *Journal of Educational Psychology*, 101(3), 689-704. ; [Matthews, J.S., & Morrison, F.J. \(2009\). A structured observation of behavioral self-regulation and its contribution to kindergarten outcomes. *Developmental Psychology*, 45\(3\), 605-619.](#)

18 Wanless, S. B., McClelland, M. M., Acock, A. C., Ponitz, C. C., Son, S.-H., Lan, X., ... Li, S. (2011). Measuring behavioral regulation in four societies. *Psychological Assessment*, 23(2), 364-378.

19 Lim, S.M., Rodger, S., & Brown, T. (2010). Assessments of learning-related skills and interpersonal skills constructs within early childhood environments in Singapore. *Infant and Child Development*, 19(4), 366-384;

Matthews, J. M., Cameron Ponitz, C., & Morrison, F. J. (2009). Early gender differences in self-regulation and academic achievement. *Journal of Educational Psychology*, 101, 689-704.; Meisels, S.J., Liaw, F.R., Dorfman, A., & Nelson, R. (1995). The Work Sampling System: Reliability and validity of a performance assessment for young children." *Early Childhood Research Quarterly*, 10(3), 277-296; von Suchodoletz, A., Gestsdottir, S.,

Wanless, S.B., McClelland, M.M., Birgisdottir, F., Gunsenhauer, C., & Ragnarsdottir, H. (2013). Behavioral self-regulation and relations to emergent academic skills among children in Germany and Iceland. *Early Childhood Research Quarterly*, 28(1); Wanless, S. B., McClelland, M. M., Tominey, S. L., & Acock, A. C. (2011). The influence of demographic risk factors on children's behavioral regulation in prekindergarten and kindergarten. *Early Education and Development*, 22, 461-488.

20 McKown, C., Russo-Ponsaran, N., Johnson, J., Russo, J. & Allen, A. (2014). Web-Based Assessment of Children's Social-Emotional Comprehension. Manuscript submitted for publication.

21 Invernizzi, M., Juel, C., Swank, L., & Meier, J. (2014). PALS Kindergarten Technical Reference. https://pals.virginia.edu/pdfs/rd/tech/K_Tech_Ref_2014_B.pdf

More specifically, the PALS-K examines students' rhyme awareness, alphabet knowledge, beginning sound awareness, knowledge of letter sounds, spelling, concept of word, and word recognition. The PALS-K has been field-tested statewide and has demonstrated strong reliability and validity. Ninety-nine percent of school divisions in the Commonwealth choose to administer the PALS in their classrooms, and the assessment is available in both English and Spanish.²² One of the participating VKRP districts does not use the PALS-K as its literacy screener but their chosen assessment is very similar in timing, content, and administration.

Teacher Training & Administration

Teacher Training Procedures

A total of 100 teachers were recruited to represent the statewide target.²³ On average, participating teachers had 14.6 years of teaching experience (SD=9.52). About one-fifth of the teachers had been teaching for 5 years or less (20.4%). All teachers had earned at least a Bachelor's degree or higher with over half of teachers (52%) possessing a Master's degree. Teachers were an average of 41 years of age (SD=11.09), and the majority were White (85.7%) and female (99%).

Teachers were trained to conduct the assessments through a collaborative effort of UVA's research team and an experienced trainer from the publisher of the TEAM-SF. This training team held 10, in-person, single-day trainings (3 - 4.5 hours) between the end of July and the end of September with between 5 and 40 teachers in attendance at each session. Most teachers completed the training prior to the first instructional day for students.²⁴

Teachers were asked to conduct the readiness assessments during a 2-week window immediately before they began their administration of PALS. Thus, for most teachers, the assessments were conducted during the 4-5 weeks after the start of student instruction. Teachers administered the direct assessments (TEAM-SF and SELweb) during instructional time and completed the CBRS outside of instructional time (e.g., before students arrived in the morning, after school, during a break). All data were entered online by either the teacher (TEAM-SF and CBRS) or the child (SELWeb).

The classroom teacher administered the TEAM-SF individually by enlisting the help of teaching aides and assistants who instructed the larger group of students while she or he assessed students one at a time. Teachers generally administered the TEAM-SF in the back of the classroom, in another quiet space, or in a quiet section of the hallway. Teachers could choose whether to administer all items to a child in one sitting versus dividing the TEAM-SF into 2 or 3 smaller assessments. Teachers were instructed that if fatigue or inattention became an issue for the child that they should allow the child to take a break and resume the assessment at a later time during the two-week assessment period. On average, it took teachers about 20 minutes per child to complete the TEAM-SF.

For the SELweb, teachers were given three options for administration. First, small groups of 3-5 students were able to complete the assessment in a computer lab while monitored by either the teacher or another trained adult. This was the preferred format as it improved efficiency while maintaining a manageable testing setting. Alternatively, teachers could

22 Background of PALS. Retrieved from <https://pals.virginia.edu/rd-background.html>

23 Due to additional interest within participating districts an extra 23 teachers were involved in the study, but only data from the 100 classrooms selected for the state representative sample are reflected here

24 Teachers from three districts completed trainings two weeks after the start of school

assess their entire classroom of students at once in a computer lab, provided that they had an adult-to-child ratio of at least 1:5 so that adults could monitor students' engagement. Lastly, teachers could provide the assessment individually to their students at a computer in their classroom. Some teachers chose to use a combination of these three formats. The majority of teachers (50%) reported that they administered SELweb in small groups, while 38% reported that they administered the SELweb in larger groups. Thirty-three percent of teachers reported that they administered SELweb individually to at least one student in their classroom. The SELweb took an average of 20 minutes per child to complete. It should be noted that the total time taken per classroom was dependent upon how many students were assessed at the same time.

Teachers completed the CBRS online outside of instructional time. Each teacher rated their students individually on all 17 items of the CBRS and reported that it took about 10 minutes per child to complete the scale. Teachers were encouraged to take breaks when completing the rating scale and not to assess all of their students in one sitting to reduce teacher burden and improve the quality of assessments.

Fidelity of Test Administration - Observational data

To assess fidelity of test administration, UVA research staff observed the administration of the TEAM-SF and SELweb in 18 randomly selected classrooms (15% of the sample). The UVA research team created a set of items that the observer used to rate the fidelity of the assessments as they were implemented in classrooms. Items were created based on the areas of theoretical importance in general test administration (e.g., providing unbiased feedback, having all required materials), as well as the most important assessment-specific concepts highlighted in the training (e.g., exposing children to a stimulus for a specific amount of time). Additionally, these observational measures assessed the use of space and materials, delivery of questions, compliance with timing rules, and appropriate reactions to child responses. The TEAM-SF Observational Measure comprised 6 items, while the SELweb Observational Measure comprised 5 items.

For the TEAM-SF, items were rated on a 4 point scale (0-3) with 0 indicating the absence of the indicated behavior and 3 indicating optimal execution of the behavior. For the SELweb, items were rated as either "yes" or "no" with "yes" indicating competent delivery of the assessment and "no" indicating noncompliance with the guideline for delivery. The differences in the scales used to assess implementation of the TEAM-SF and the SELweb reflect the varying levels of administration complexity. The SELweb required a simpler adherence indicator (e.g., did the behavior happen or not?) because it was computer administered and self-paced, whereas the TEAM-SF required a quality rating of fidelity (e.g., to what degree of quality did the behavior happen?) due to the nature of the interaction between student and teacher and the more complex item delivery.

Results of the observation for the TEAM-SF indicated consistently high fidelity of test administration across all items (mean: 2.91; range: 2.43-3.00). The SELweb observations indicated moderate fidelity of test administration, with variability across items. These results are encouraging because the TEAM-SF fidelity ratings were higher despite the higher level of complexity involved in administration, indicating that it is possible to train a large number of teachers successfully with high rates of compliance on a relatively complex, individually administered math assessment. On the SELweb, most observed teachers responded to students' questions appropriately, not providing information on how the student should answer (82%) and using stop points to offset test fatigue (83%). However, the majority of teachers (67%) did not read the introductory script that describes the assessment to students before they began the assessment, although it should be noted

that SELweb provides an automated introduction that each student hears when the SELweb assessment is started. Additionally, only half of teachers were observed to closely monitor students during the assessment to ensure students were engaged and did not have questions.

Following the administration, teachers received a classroom report that showed their students' scores and provided them with an online link to a set of strategies that they could use to promote relevant social skills, self-regulation, and math skills.

Results

Descriptive Statistics for the Readiness Variables

Table 1A in the Appendix provides descriptive statistics for readiness variables used in this report. All of the variables demonstrated adequate variability.

Defining Readiness

The TEAM-SF and CBRS were combined with PALS²⁵ to determine the percentage of children who entered kindergarten not displaying key early learning skills (i.e., “not ready”) for this report. We chose the TEAM-SF and CBRS because these measures have been used repeatedly in early education and development research. In addition, we were able to establish theoretically derived cut points to identify children performing above or below expectations at kindergarten entry, which is consistent with how children are identified using the PALS kindergarten fall benchmark.

SELweb was selected to be part of the pilot battery because it is a newly developed direct assessment of children’s social-emotional skills that included both self-regulation and social problem solving, it was specifically designed for use with kindergarten children, and it could be efficiently administered by computer. However, there are less data examining the psychometric properties of the assessment given it is relatively new, and it does not yet have theoretically-derived or data-driven benchmarks. In addition, the subtests selected for this pilot measure particular aspects of self-regulation (i.e., delay of gratification and frustration tolerance) and social skills (peer social problem solving) that are different from those found in the CBRS, which measures children’s self-regulation skills and social skills more comprehensively as displayed in the classroom. Therefore, the CBRS was chosen as the indicator of social skills and self-regulation readiness.

Children were first identified as “ready” or “not ready” within each learning domain (math, self-regulation, social skills, literacy) if they scored below the fall benchmark for literacy (PALS) or below the established cut points for math (TEAM-SF), social skills (CBRS-SS), and self-regulation (CBRS-SR)²⁶. Consistent with prior research, children were identified as “not ready” if they fell below fall benchmarks/established cut points on **any** of the assessment measures.

²⁵ PALS was used in all but one district which used another literacy assessment

²⁶ Students were categorized as “not ready” if: their average score was less than or equal to 3.7 on the CBRS social skills subscale or less than or equal to 2.8 on the self-regulation subscale; they received a score less than or equal to 34% correct on the TEAM-SF; their summed score was lower than 28 on the PALS

How many children are “not ready” in Virginia?²⁷

Thirty-four percent of children sampled were identified as “not ready” in at least one of the assessed early learning domains (literacy, math, social skills, self-regulation).

Do children perform similarly across early learning domains?

Children’s scores varied across the early learning domains. For example, children who scored below the benchmark in literacy may or may not have scored below the threshold in math, self-regulation, or social skills. This is illustrated in Table 2 which shows that the majority of children identified as “not ready” fell below the threshold in only one domain of learning. However, 14% of children fell below the threshold in two or more learning domains.

Table 2: Readiness Counts by Number of Domains

Readiness	Frequency	Percent
“Not ready” in at least 1 domain	647	33.9
“Not Ready” in 1 domain	374	19.6
“Not Ready” in 2 domains	182	9.5
“Not ready” in 3 domains	61	3.2
“Not ready” in 4 domains	30	1.6
“Ready” in all domains	1264	66.1
Sub Total	1911	100.0
Missing	125	
Total	2036	

When examining children’s continuous scores across the readiness assessments (See Table 2A in the Appendix for a correlation matrix), we see that the associations tend to be positive and modest to moderate in strength but not redundant, which is consistent with prior research indicating that young children’s skills across readiness domains tend to be somewhat consistent within a child.²⁸

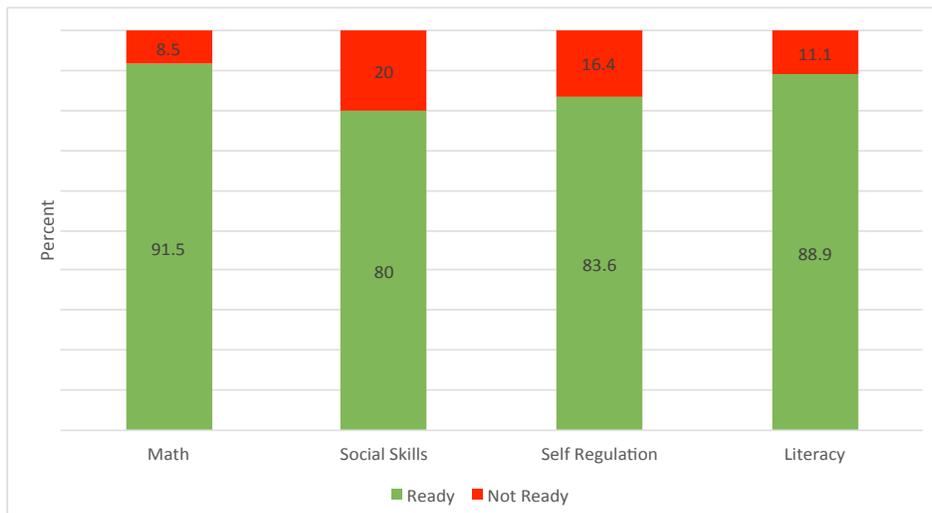
What does readiness look like across the early learning domains?

The number of children identified as “not ready” varies across domains. Twenty percent of children entering kindergarten in Virginia face challenges with social skills and 16% do not possess needed self-regulation skills in the classroom environment (see Figure 1). This is almost twice the rate of children who are “not ready” in the areas of either literacy or math.

²⁷ Six percent of the students in the state sample (n=125) were missing data from at least one learning domain and thus were not assigned to a readiness category. The majority of these students were missing PALS data (66%), with 34% missing CBRS data and 24% missing TEAM data. Most of the students were missing data for just one (59%) or two (31%) of the measures with a smaller proportion missing three (3%) and all four measures (7%). Students missing readiness data were spread across 47 classrooms in 33 schools across all 16 districts that were sampled. On average the students were 5.5 years old, 39.5% were female, 23.3% were identified as English language learners, and 7.4% had an Individual Education Plan. The majority of the students were White, Not Hispanic (48%), with 26% Black, 15% Hispanic, 10% Asian, and 1% other.

²⁸ Welsh, J. A., Nix, R., L., Blair, C., Bierman, K. L., & Nelson, K. E. (2010). The development of cognitive skills and gains in academic school readiness for children from low income families. *Journal of Educational Psychology*, 102, 45-53. <http://dx.doi.org/10.1037/a0016738>; Williford, A. P., Maier, M., Downer, J. T., Pianta, R. C., & Howes, C. (2013). Understanding how children’s engagement and teachers’ interactions combine to predict school readiness. *Journal of Applied Developmental Psychology*, 34, 299-309. <http://dx.doi.org/10.1016/j.appdev.2013.05.002>

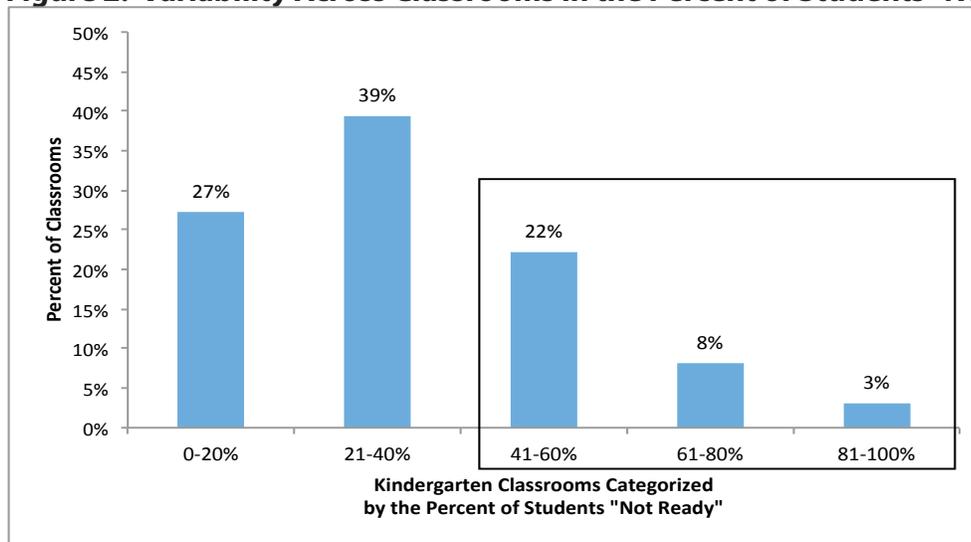
Figure 1: Percent of Students “Ready” or “Not Ready” by Domain



How does readiness vary across classrooms?

Not all classrooms have the same number of children who are “not ready”. One-third of kindergarten classrooms have over 40% of students unprepared in at least one key learning domain (see Figure 2, adding the last 3 columns together equals one third of the classrooms in the sample).

Figure 2: Variability Across Classrooms in the Percent of Students “Not Ready”



How does readiness vary depending upon school and child demographics?

Table 3 illustrates how the percent of students identified as “not ready” varies by child and school characteristics. Schools serving more economically disadvantaged students had more children identified as “not ready.” Boys, younger children, English language learners (ELL), and children who had an Individualized Education Plan (IEP) were more often identified as “not ready.” Children who were Black, Native American, Hispanic, or of other races/ethnicities were

also more likely to be identified as “not ready” compared to their White peers. However, as can be seen in Table 3, significant percentages of children, regardless of their demographic backgrounds, enter kindergarten unprepared in at least on key learning domain.

Table 3. Percent of Children Identified as “Not Ready” by Child and School Characteristics

Demographic Characteristic	% “Not Ready”
Gender ^{***}	
Female	27%
Male	41%
Ethnicity ^{***}	
Black	37%
Native American	27%
White not Hispanic	28%
Hispanic	49%
Asian	29%
Multiple	36%
Other	55%
Child age ^{**}	
Lower 50% (younger)	37%
Upper 50% (older)	31%
ELL status [*]	
Not ELL	33%
ELL	42%
IEP status ^{***}	
No IEP	32%
IEP	58%
School economic disadvantage ^{***}	
Lower 50% (not disadvantaged)	29%
Upper 50% (disadvantaged)	39%
School rurality	
Rural	34%
Not rural	35%
Overall	34%

Note. ^a = tested continuously; * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

How did teachers perceive the assessments?

Following completion of the assessments and receipt of their classroom report, teachers completed a survey online where they reported their thoughts about the training, usefulness, and feasibility of the assessments used in the pilot. The survey results are provided in the Appendix (Table 3A).

In terms of training, teachers overwhelmingly indicated that the trainings were appropriate and prepared them to conduct the assessments in their classrooms.

With regard to usability, most teachers felt they could accurately administer the assessments and that the online systems were easy to navigate. Most teachers also reported that using the assessment gave them a better understanding of their students’ skills. Finally, the majority of teachers reported that having data beyond literacy was useful.

Teachers reported that the assessments took substantial time away from instruction. Half of teachers indicated that the time needed to conduct the assessment was manageable but only 35% of teachers indicated that the information they gained from the assessments was worth the time investment. Teachers reported greatest concerns about the TEAM-SF, which had to be given individually to each child.

Limitations and Considerations

It is important to acknowledge the limitations of this study. First, the sample for this study is relatively small in terms of the number of classrooms. This small sample does not allow us to answer specific questions about how particular schools or localities are performing compared to the state as a whole. In addition, it limits our ability to make comparisons using any data collected at the school level.

Second, being about to randomly select from the full population of classes in each of the Superintendent's regions would have been the ideal sampling approach and would have allowed for the assumptions that participating classrooms are equivalent to those classes not selected on both observed and unobserved characteristics. However, this sampling approach was not (and rarely is) feasible in practice. The VKRP utilized a purposive sampling strategy described in previous sections in order to ensure that the students and classrooms included in the study were diverse and closely represented the Commonwealth in terms of their socio-demographic make-up, which permits us, with caution, to make some generalizations to Virginia. There are some groups and regions that are over- or under-represented in the present sample relative to the state as whole. In particular, a higher proportion of students from the Tidewater and Southwest Regions were sampled relative to these regions' overall percentage of Virginia kindergarten enrollment. Despite this, we are confident the sample provides a good snapshot of the state of readiness in the Commonwealth.

It is important to consider that determining the percentage of students identified as "not ready" may be contingent upon the methods used to create the thresholds/cutoffs. There are multiple ways to define readiness. Consistent with how early education research has defined readiness, we decided to define readiness as falling above the threshold or cutoff on all the assessed learning domains. Thus, a student was identified as "not ready" if they fell below the threshold on any of the assessed measures. In addition, we used theoretically derived cut points for the math, social-skills and self-regulation assessments which are consistent with the PALS benchmarks. Other methods for determining readiness would be to identify children who fall below a certain score based upon normed data (either national or local). The assessments chosen do not have national norms at this time, but we did examine the rates of readiness when using a cutpoint of one standard deviation below the sample mean for each assessment. When we defined readiness in this way, we arrived at almost the same estimate of kindergarten students in Virginia being identified "not ready". Determining the most valid method for defining the readiness cut points will require longitudinal data to examine how performance at kindergarten entry relates to later school success.

Finally, careful thought should be placed on the usefulness of this data to help teachers differentiate and individualize their instruction so that their students learn the skills they need to be successful in kindergarten and beyond. As part of this pilot we created a simple classroom-level report and provided a small set of strategies online for teachers to access and use in their classrooms. However, delivery and use of the teacher report and strategies was not a focus of this project. This most likely resulted in lower teacher satisfaction ratings of usefulness and worth. We are confident that the data from these assessments can be linked with effective and feasible strategies to promote children's readiness skills and teachers can be supported in their implementation of these strategies.

Conclusions

One third of children in Virginia enter kindergarten unprepared in at least one essential early learning domain.

Thirty-four percent of children entering kindergarten in Virginia are lacking key skills in at least one early learning domain. (see Table 2). This multi-skill estimate falls in stark contrast to rates of readiness based solely on literacy, i.e. PALS, which estimates that approximately 12% of students statewide enter kindergarten unprepared. This higher estimate of children entering kindergarten “not ready” reflects the reality that kindergarten teachers are responsible for supporting children whose performance varies across learning domains. The additional information about math readiness is particularly relevant given an increasing focus on the importance of developing these skills in the early years of schooling. Although Virginia’s Standards of Learning do not directly cover social skills and self-regulation, decades of research demonstrate that these skills are foundational to later school and life success.

A substantial number of children perform poorly in several domains of early learning.

Fourteen percent of children entering kindergarten in Virginia demonstrate a lack of readiness in two or more domains of learning. These children provide unique challenges to kindergarten teachers. For example, a child who enters kindergarten without basic skills in literacy, but who can pay attention in the classroom and persist through challenges, is much more likely to respond positively to instruction than a child without these important self-regulation skills.

Children enter school less ready in self-regulation and social skills than in literacy and math.

Twenty percent of children entering kindergarten in Virginia face challenges with social skills and 16% do not possess the self-regulation skills needed to thrive in the classroom environment (see Figure 1). This is almost twice the rate of children who are “not ready” in the areas of either literacy or math.

Many teachers are faced with classrooms in which a large percentage of children are not well prepared for the daily tasks of kindergarten.

One-third of kindergarten classrooms have more than 40% of students unprepared in at least one key learning domain. These classrooms present particular challenges for teachers as they work to support learning for all students.

Certain children are at much greater risk for being “not ready” as they enter kindergarten.

Schools serving more economically disadvantaged students enrolled more children identified as “not ready”. Boys, younger children, English language learners, and children who had an Individualized Education Plan were more often identified as “not ready.” Children of Black, Native American, Hispanic, or other ethnicity (compared to children of White ethnicity) were also more likely to be identified as “not ready”. However, significant percentages of children, regardless of their demographic backgrounds, enter kindergarten unprepared in at least one key learning domain.

Teachers can assess a broader array of readiness skills and find having this data useful but note concerns around loss of instruction time.

Most teachers (over 94%) reported feeling confident in their ability to accurately assess their students using the chosen assessments. Furthermore, observations suggested that teachers administered the assessments as intended by measure developers. The majority of teachers felt it was useful to have readiness data broader than literacy for the children in their classrooms and that they had a better understanding of their students' skills after conducting the assessments. Half of the teachers felt that the time it took to administer the assessments was manageable and 35% of teachers indicated that the time to complete the assessments was worth it (with 41% being undecided and 24% indicating that the time taken to conduct the assessments was not worth it).

Recommendations

1. Skills beyond literacy should be included in Virginia's kindergarten readiness assessments.

There is great value in understanding kindergarten readiness in Virginia beyond early literacy skills. The adoption of a combination of direct assessments and teacher ratings across the developmental domains of literacy, math, social skills, and self-regulation will provide a more comprehensive snapshot of children's incoming readiness skills than is currently available.

2. Implement a voluntary, statewide rollout of a comprehensive readiness battery.

We recommend that a more comprehensive assessment be implemented on a voluntary, opt-in basis across Virginia in 2015-2016 and beyond, building from the success and infrastructure of PALS. Further development of this readiness assessment approach is required for successful implementation and requires several key steps:

a. Build consensus among stakeholders

In Virginia, it is critical that all stakeholders and the legislature work together to ensure that other relevant data and findings are used to develop an approach to kindergarten readiness assessment that improves young children's school success.

b. Finalize assessment protocol and teacher assessment training

The assessments used in this pilot demonstrated utility and feasibility. There are, however, modifications that should be made to enhance ease of implementation and minimize teacher disruptions to instructional time.

c. Develop an integrated data system

Teachers need a centralized, web-based system to efficiently input data on all assessments. Currently, each assessment has a separate data entry portal, which is not feasible at-scale.

d. Make data useful for teachers

Teachers must be able to use the data to help them understand their students' skills and data must be linked to recommendations for individualizing instruction. Reports need to provide detailed information about individual student's strengths and areas of challenge, describe the variability of students' skills, and provide strategies for effectively instructing students.

e. Provide teachers with training around individualized instructional strategies linked to readiness data

Teachers need more training and support in how to use these data to individualize instruction, particularly in relation to strategies to support students' social skills and self-regulation.

3. Target social-emotional skills for early intervention prior to and within kindergarten.

Twenty percent of children were identified as “not ready” in their social skills and 16.4 percent were “not ready” in their self-regulation skills – larger percentages than in math or literacy. Decades of research demonstrate the ways in which children’s self-regulation and social skills are foundational to later school and life success. For instance, self-regulation has a greater influence on a student’s academic performance than his or her intelligence. This indicates the importance of considering social-emotional learning skills as a learning target on the same level as academic skills. Thus, the Commonwealth should consider:

a. Developing social-emotional learning standards for K-12 students

Learning standards are an important driver of educational practice. Some states have developed free-standing and comprehensive standards for social-emotional skills while others have worked to more adequately integrate these standards within other subject areas (<http://www.casel.org/state-scan-scorecard-project>). Although Virginia identifies these skills explicitly in its Foundation Blocks, they are not described as subject areas within the k-12 Standards of Learning.

b. Providing teacher training on evidence-based strategies for supporting social-emotional learning

Teachers need training and support in the use of strategies to promote students’ self-regulation and social skills. Strategies that help students pay attention, remain on task, and engage in productive group work with peers can be employed during academic instructional times, and thus are feasible for teachers to implement in their classrooms. In addition, there are effective, social-emotional curricula available at both the preschool and elementary levels that can be integrated into kindergarten instruction.

4. Use kindergarten readiness assessments to make data-driven policy decisions.

A more comprehensive kindergarten assessment is well positioned within the birth-to-3rd grade continuum to serve as both an evaluation of the effectiveness of Virginia’s birth-through-preschool programs and an early predictor of later performance in school. As such, the results and recommendations in this report are likely relevant to the efforts of the newly established Commonwealth Council on Childhood Success, which is tasked to assess the health and educational needs of Virginia’s youngest children (0-8 years). In order to use the data in these ways, Virginia needs a longitudinal data system that links data on young children across agencies (e.g., Office of Head Start, Department of Social Services, and Department of Education) and across time (e.g., early intervention, preschool, K-12). Such a system will increase our capacity to understand the outcomes of state and local investments including:

- Consideration of early childhood quality improvement models that are evidence-based, effective, and cost-sustainable
- Understanding what initiatives, policies, and interventions are currently being funded in Virginia and determine which are effective in promoting school readiness

Appendix

Table 1A. Descriptive Statistics of the Kindergarten Readiness Measures

	<i>n</i>	Minimum	Maximum	Mean	Std. Deviation
CBRS: social skills	1994	1.14	5.00	4.2378	.71888
CBRS: self regulation	1994	1.00	5.00	3.7206	.87794
TEAM-SF	2006	0	100	55.99	15.616
PALS	1705	.0	102.0	63.799	23.9312

Table 2A. Within Readiness Measures Correlations

	CBRS-SS Social Skills	CBRS-SR Self-Regulation	TEAM-SF Math	PALS Literacy
1. CBRS-SS: social skills	--	.643**	.233**	.192**
2. CBRS-SR: self-regulation			.451**	.451**
3. TEAM-SF: Math				.558**
4. PALS: Literacy				

***p*<.01

Table 3A. Teacher Survey Results (Percent)

Training Items	Agree	Disagree	Undecided
I understand my participation/my school's participation in VKRP	96.4	3.6	0
Someone from my school district clearly informed me of the purpose of and my role in the VKRP	78.5	14.2	7.1
The TEAM training prepared me to use the assessments in my classroom	97.3	.9	1.8
The CBRS training prepared me to use the assessments in my classroom	94.5	.9	4.5
The SELweb training prepared me to use the assessments in my classroom	96.3	1.8	4.6
The time allocated for training was appropriate	93.8	3.6	2.7
This training could have been conducted successfully via webinar	23.9	46	30.1
I feel supported by others in the school in implementing these assessments in my classroom	80.5	12.4	7.1
UVA staff were able to satisfactorily answer questions about implementation	98.2	0	1.8

Usability Items (%)	Agree	Disagree	Undecided
I feel confident in my ability to accurately assess my students using TEAM	94.3	0	5.7
I feel confident in my ability to accurately assess my students using CBRS	94.3	0	5.7
I feel confident in my ability to accurately assess my students using SELweb	82.1	4.7	13.2
TEAM is an accurate measure of my students' kindergarten entry skills	66.3	18.7	15
CBRS is an accurate measure of my students' kindergarten entry skills	66	6.6	27.4
SELweb is an accurate measure of my students' kindergarten entry skills	51.9	16	32.1
I used the information I learned through conducting TEAM with my students to guide my instruction	61.9	26.7	11.4
I used the information I learned through conducting CBRS with my students to guide my instruction	44.2	27.9	27.9
I used the information I learned through conducting SELweb with my students to guide my instruction	36.9	33.1	30.1
I used the information I learned through the classroom level report to guide my instruction, TEAM	51.9	26.9	21.2
I used the information I learned through the classroom level report to guide my instruction, CBRS	40.8	27.2	32
I used the information I learned through the classroom level report to guide my instruction, SELweb	36.9	30.1	33
I used the information I gathered to inform parents, TEAM	27.8	48.1	24
I used the information I gathered to inform parents, CBRS	13.6	54.3	32
I used the information I gathered to inform parents, SELweb	11.6	56.3	32
I found it useful to have readiness data broader than literacy for the children in my classroom	68	8.5	23.6
The classroom report generated by CASTL was useful	65.1	11.3	23.6
The strategies that were included in the report were useful, Math	70.5	6.7	22.9
The strategies that were included in the report were useful, Social-Emotional	55.3	8.6	36.2
The information that I gained from conducting these assessments was worth the time lost to instruction	31.2	33	35.8
I would recommend TEAM to other kindergarten teachers	47.7	17.7	34.6
I would recommend CBRS to other kindergarten teachers	49	16	34.9
I would recommend SELweb to other kindergarten teachers	35.8	21.7	42.5
I had a better understanding of my students' skills after conducting TEAM	72.4	17.2	10.5
I had a better understanding of my students' skills after conducting CBRS	55.2	21.9	22.9
I would like to assess my students again using TEAM to track their growth over the year	53.8	30.2	16
I would like to assess my students again using CBRS to track their growth over the year	44.8	31.5	23.8
I would like to assess my students again using SELweb to track their growth over the year	46.2	31.7	22.1
I would like to use these assessments next year with my new students	36.2	21.9	41.9

Feasibility Items (%)	Agree	Disagree	Undecided
The amount of time it took me to complete these assessments overall seems appropriate	37.5	48.1	14.4
The amount of time it took me to complete TEAM seems appropriate	39.4	48.1	12.5
The amount of time it took me to complete CBRS seems appropriate	77.1	10.5	12.4
The amount of time it took me to complete SELweb seems appropriate	60	24.7	15.2
The amount of time it took me to complete the assessments was manageable	49.5	38.1	12.4
The amount of time it took me to complete these assessments was worth it	35.2	23.8	41
Implementing these assessments negatively impacted my instruction time	40.9	30.5	28.6

Technology Items (%)	Agree	Disagree	Undecided
The website was easy to navigate, TEAM	81.9	11.5	6.7
The website was easy to navigate, CBRS	88.4	7.8	3.9
The website was easy to navigate, SELweb	75.7	17.5	6.8

Assessment Items (%)	Better	Worse	Same
How does the TEAM compare to what your school is currently using?	47.6	16.5	35.9
How does the CBRS compare to what your school is currently using?	72.3	0	27.7
How does the SELweb compare to what your school is currently using?	68.4	5.3	26.3