

Kindergarten Readiness Assessments Help Identify Skill Gaps

Joanne L. Jensen, WestEd
Jessica Goldstein, Boulevard Research Partners LLC
Matthew A. Brunetti, WestEd

Researchers have long traced achievement gaps in the elementary years back to readiness gaps at the start of kindergarten (Duncan et al., 2007; Connor et al., 2011; Neuman & Dickinson, 2001). Educators seeking to address these gaps, which are associated with race and ethnicity, home language, disability status, and indicators of economic disadvantage (O'Donnell, 2008; Denton-Flanagan & McPhee, 2009), need systematic ways to identify which children need what kinds of support as they begin school. To help meet that need, over the past decade, states have developed a kindergarten readiness assessment (KRA) that schools and districts can use to evaluate how well prepared each child is to begin learning the state's academic standards across multiple domains.

Since 1965, the federal government has promoted equity for all students through the Elementary and Secondary Education Act (ESEA) and its subsequent reauthorizations. In 2001, the No Child Left Behind (NCLB) Act connected assessment to equity, with new tests for students in third grade through high school designed to monitor achievement gaps between traditionally underserved students and their peers. When President Obama reauthorized NCLB as the Every Student Succeeds Act (ESSA) in 2015, the federal

funding for education expanded to include children from birth through grade three. The ESSA legislation, along with federal funding opportunities like Race to the Top Early Learning Challenge (RTT-ELC) grants, Enhanced Assessment Grants (EAGs), and Preschool Development Grants, prompted and enabled state-level systems to evaluate learning and development as students started school — that is, kindergarten readiness — and also as they advanced to third grade.

ABOUT THIS BRIEF

Many children start school needing extra support to thrive academically in grades K–2 — the foundation for success as they move up the grades. This paper explains how states can address readiness gaps by identifying children at kindergarten entry who may need extra support. A companion paper discusses the design of early grade assessment systems that enable educators to intervene throughout the K–2 years to help students achieve success.

In this paper, we review the status of states' development of KRAs and how states are using KRA data to profile skills at kindergarten entry, help track longitudinal progress, provide early warnings for needed intervention, and guide policy decisions.

Development of Kindergarten Readiness Assessments

KRAs are assessments that offer a profile of students' knowledge and skills as they start formal schooling. KRAs are designed to gauge students' readiness to engage with the kindergarten curriculum at the start of kindergarten by measuring learning and development across five essential domains of school readiness. As defined by the federal government, those domains are: language and literacy development; cognition and general knowledge (including early mathematics and early scientific development); approaches to learning; physical well-being and motor development; and social and emotional development. Skills such as curiosity and persistence fall under "approaches to learning"; skills such as sharing emotions and initiating friendships are considered markers of social and emotional development.

The development of KRAs accelerated in 2011 when 20 states were awarded RTT-ELC grants and continued in 2013 when the U.S. Department of Education offered EAG funds for KRA development or enhancement. To date, as many as 41 states have KRAs either in development or full implementation (Center for Standards, Assessment, and Accountability, 2021; Weisenfeld et al., 2020). Because both federal grant programs gave states latitude to design or purchase assessments to meet their needs, KRAs across states include a mix of item types — that is, some include items that require a direct response from students while others

require teachers to make a summary evaluation of evidence of students' knowledge or skills based on criteria in observational rubrics. Some include a combination of the two item types (Ackerman, 2018).

Purposes for Kindergarten Readiness Assessments

States are using KRA data for multiple purposes, as described below.

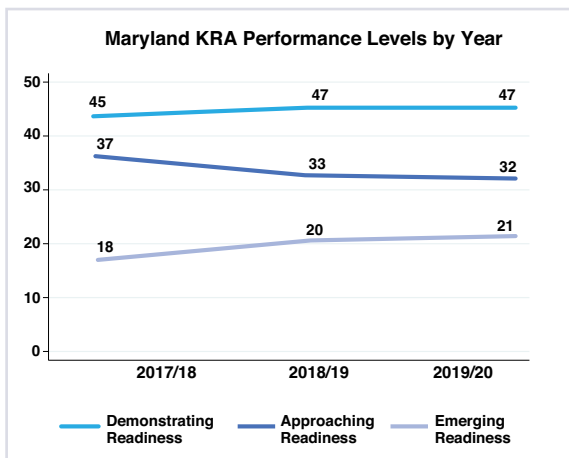
Using KRA Data to Provide a Profile of Students' Skills at Kindergarten Entry

Early childhood advocates often point to skill differences at kindergarten entry as opportunity gaps (U.S. Department of Education, 2015; Solano & Weyer, 2017), since they result from inequitable distribution of opportunities for children to acquire foundational skills before they start school. KRAs can help districts and schools measure whether such gaps exist, and if so, where they exist, as each cohort enters kindergarten.

With RTT Early Learning Challenge and EAG funding, Maryland and Ohio jointly developed a KRA that has been used in both states since the 2014/15 school year. The assessment includes all five of the essential domains of school readiness and categorizes students into one of three performance levels: demonstrating readiness, approaching readiness, or emerging readiness. Students demonstrating readiness possess the foundational skills and behaviors that prepare them to engage with curricula based on kindergarten standards. Those at the approaching level demonstrate some of the foundational skills. Students at the emerging level are expected to need targeted support or interventions to be successful in kindergarten.

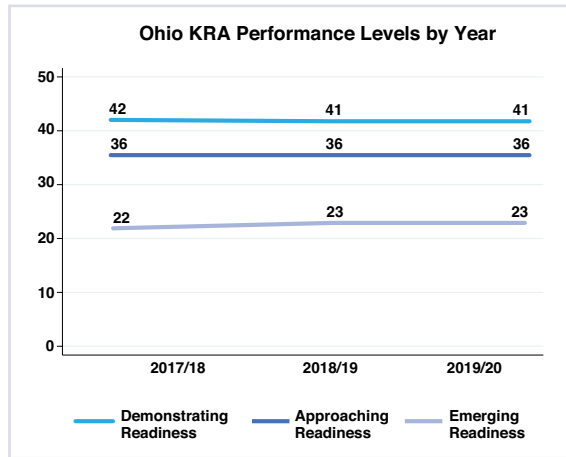
Figures 1 and 2 show the percentage of students at each performance level for Maryland and Ohio based on these states' last three years of published KRA results (Maryland Department of Education & Ready At Five, 2020; Ohio Department of Education, n.d.). The data for both states demonstrates that the percentage of students at each performance level has remained relatively stable across the three years. In addition to the overall data, both states provide breakdowns by domain, gender, ethnicity, English language learner, disability, and socioeconomic status. Moreover, Maryland provides data based on students' prior care status. Both states provide the subgroup performance data for each district in addition to overall performance data, thus allowing the depth of analysis needed as the states and districts monitor progress, adjust practices, redirect resources, and adapt policies to achieve the goal of increasing the kindergarten readiness of all students.

Figure 1. Percentage of Students by Performance Level for Maryland's KRA



Note. Authors used data from Maryland Department of Education & Ready At Five. (2020). *Readiness matters: The 2019–2020 Kindergarten Readiness Assessment report*. https://earlychildhood.maryland-publicschools.org/system/files/filedepot/4/200178_ready5_book_web.pdf

Figure 2. Percentage of Students by Performance Level for Ohio's KRA



Note. Authors used Ohio state data summary for school years 2017/18, 2018/19, and 2019/20. Ohio School Report Cards. <https://reportcard.education.ohio.gov/download>

Using KRA Data as a Baseline for Longitudinal Tracking

A number of states that initiated KRA programs in the 2014/15 school year were able to study connections between students' KRA scores and their reading and mathematics proficiency at third grade, as measured by end-of-grade summative assessments from 2017/18.

In Ohio, researchers found a direct and significant relationship between overall KRA scores and third-grade reading performance, as well as a connection between KRA language and literacy, and mathematics domain scores and third-grade proficiency (Justice et al., 2019). Students with higher KRA scores — including higher language and literacy scores and higher mathematics scores — had higher rates of third-grade proficiency as measured by the third-grade summative assessment. Positive and significant but slightly lower correlations were also evident between KRA domain scores for social foundations and physical well-being and motor development as compared to third-grade reading scores. The study

also showed that of the Ohio kindergarteners who demonstrated readiness on the KRA in 2014/15, nearly all demonstrated proficiency on the third-grade state assessment (88 percent for English language arts and 91 percent for mathematics).

Analyses of scores from Maryland's 2014/15 KRA and the performance of that same cohort on the 2017/18 third-grade summative assessment for reading and mathematics¹ yielded performance patterns similar to those seen in Ohio (Dragoset et al., 2019). Researchers in Maryland studied differences in third-grade performance based on KRA performance level (demonstrating, approaching, or emerging readiness). Only 9 percent of the kindergarten students who fell into the emerging readiness performance level in 2014/15 met third-grade performance expectations in reading, and 11 percent met those expectations for mathematics. Alternatively, of the kindergarten students demonstrating readiness in 2014, 59 percent met third-grade performance expectations in reading and 63 percent met them in mathematics.

Similarly, a 2019 study of data from the school district of Philadelphia identified a relationship between kindergarten entry assessment reading and mathematics item-level data and proficiency on the third-grade summative assessment (Harding et al., 2019).² And researchers in North Carolina found that only 36 percent of students who were identified as not proficient in early literacy and reading comprehension at kindergarten entry in 2014/15 demonstrated proficiency on the third-grade reading end-of-grade exam in 2017/18 (McNeill et al., n.d.).

While these findings are not surprising on the surface — we would expect students who struggle to demonstrate proficiency at kindergarten entry to be more likely than their peers to still be struggling in third grade — they are pronounced, a fact that underscores the critical need for targeted interventions in the early grades. KRA data is crucial to efforts to systematically identify and intervene with children who need extra support in their earliest years to thrive and be successful in school. By providing data from standards-aligned statewide measures of student performance at kindergarten entry and at third grade, these assessments allow longitudinal tracking of student performance which, in turn, allows educators to structure student support systems and track those systems' effectiveness.

Using KRA Data as an Early Warning

Predictive relationships between kindergarten readiness and later achievement have prompted several states to initiate academic support programs for students with lower KRA scores. Ohio, for example, passed legislation in 2012 establishing Ohio's Third Grade Reading Guarantee (TGRG), a program that uses assessment results to identify students from kindergarten through third grade who may need extra support in order to be proficient in reading by the end of third grade. Program requirements include: annual testing in kindergarten through third grade with reading and monitoring improvement plans for struggling students; highly qualified reading teachers; and, ultimately, the ability to retain non-proficient third-grade readers rather than

¹ As a member of the Partnership for Assessment of Readiness for College and Careers (PARCC), Maryland used the PARCC assessments through 2019.

² Pennsylvania uses the Pennsylvania System of School Assessment (PSSA).

automatically promoting students to fourth grade (Logan et al., 2019).

In the Ohio KRA study referenced earlier, researchers examined KRA performance levels (demonstrating, approaching, and emerging readiness) in relation to the cut score Ohio established for the TGRG (Justice et al., 2019). They found that approximately three out of four students who demonstrated readiness on the Ohio KRA met the cut score for reading proficiency by the fall of third grade. They also found, however, that just half of the children who were approaching readiness at kindergarten entry were proficient readers by the end of third grade. More troubling, they found that three out of four children who performed in the lowest category of the KRA entry did not meet the TGRG's fall term third grade cut point for reading proficiency — an “unexpectedly high” number, signaling that the TGRG's goals are not yet being met. The researchers note that these findings may suggest a need for additional supports for identified students, more efficient reporting of KRA results to kindergarten teachers, and/or immediate resources to help those teachers intervene effectively with students.

The aforementioned North Carolina study, based on data collected between 2014/15 and 2017/18, also found that early literacy scores are strongly predictive (with 70 percent accuracy) of third-grade reading proficiency (McNeill et al., n.d.). As in Ohio, the researchers noted the value of having assessment data from kindergarten entry, rather than waiting until third grade. When educators can identify students who might need additional support at the start of kindergarten, they can use the assessment data to design targeted instruction, tutoring, and after-school support to change the trajectories of those students. Such

interventions appeared to be effective in North Carolina, where McNeill et al. (n.d.) assert that students were approximately three times more likely to achieve proficiency on the third-grade state summative assessment if they were identified as needing support at the beginning of kindergarten as compared to being identified at the beginning of third grade.

Early intervention can improve the skills of students identified at kindergarten entry as possibly needing extra support in order to achieve positive learning outcomes. Additional research is needed, however, to determine the features of interventions and supports most likely to help these students achieve proficiency by third grade.

Using KRA Data to Inform Policy

KRA data is also proving useful for informing state and local programmatic, funding, and policy decisions. KRA data and detailed score reports can help track systemwide trends and patterns, identify and address kindergarten readiness gaps (within and across cohorts and subgroups of students), and allocate resources and supports efficiently and effectively (WestEd, 2018; Regenstein et al., 2017). At least 25 states collect KRA data at the state level, and many publish annual reports of KRA results (Garver, 2020; Center for Standards, Assessment, & Accountability, 2021; Weisenfeld et al., 2020; Golan et al., 2016). Examples of such annual reports include Maryland's *Readiness Matters: The 2019–2020 Kindergarten Readiness Assessment Report* (Maryland State Department of Education & Ready At Five, 2020); South Carolina's *Analysis of Kindergarten Readiness Assessment (KRA) Results, School Year 2019–20* (South Carolina Education Oversight Committee, 2020); Illinois's *A Look at Kindergarten Readiness: 2019–2020 Illinois Kindergarten Individual Development Survey*

(KIDS) Report (Illinois State Board of Education, 2020); and *Utah's Kindergarten Entry and Exit Profile (KEEP) Report: 2019–2020* (Utah State Board of Education, 2020).

States that have made policy changes based on KRA results include Washington, where state officials deployed professional development resources to preschool and kindergarten teachers and education materials to parents based on WaKIDS (KRA) results (Golan et al., 2016). In South Carolina, after state-level KRA data showed that students who attended a full-day prekindergarten program in public schools outperformed their peers who did not attend such programs, the governor announced a plan to expand full-day prekindergarten programming to children living in poverty (Raven, 2020). At the district level, Baltimore district leaders have used the KRA data to improve prekindergarten programs. “We also use KRA data to vertically plan with our PreK and Kindergarten teams,” says Crystal Francis, the Director of Early Learning Programs in Baltimore City Public Schools. “We have created a toolkit that allows PreK and K teachers to work together to analyze data to identify trends and create responsive instructional plans based on their actual student data” (Maryland State Department of Education and Ready At 5, 2019, p. 4).

A Look Ahead

Kindergarten entry data has the potential to serve as a tool for equity by helping educators identify those students who might need extra support or intervention in order to succeed as they progress through the system. Educators can use baseline kindergarten data to target instruction and add supports so that all students can

access kindergarten learning standards. But kindergarten is only the starting point in the larger K–12 system. Sustained evaluation of students is critical for ensuring that all children receive the support they need to be able to demonstrate proficiency in reading and mathematics by third grade and beyond. Especially for kindergarten, first, and second grades — the foundational years for literacy and numeracy — school districts need more support to evaluate learning so that educators can continually adapt strategies to help all students succeed.

The companion paper in this series addresses the characteristics of a balanced assessment system for K–2, recognizing that ongoing assessment of student performance in these grades, prior to federally mandated assessments at grade 3, is critical to ensuring that all students receive the support necessary for success.

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Suggested citation: Jensen, J. L., Goldstein, J., and Brunetti, M. A. (2021). *Kindergarten Readiness Assessments help identify skill gaps*. WestEd.



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