

## Content alignment memo

**Date:** May 1, 2019

**To:** Oklahoma State Department of Education

**From:** Jodi Jacobson Chernoff and Celia Gomez, REL Southwest

**Subject:** Results from content alignment of Early Learning Inventory measures

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The Regional Educational Laboratory (REL) Southwest conducted a content alignment of two assessment measures to help the Oklahoma State Department of Education (OSDE) better understand the extent to which the selected instruments align to knowledge and skills delineated in the Oklahoma Academic Standards (OAS) for prekindergarten (preK) as well as to three social-emotional competencies associated with student learning. The two assessments examined were the New Mexico Kindergarten Observation Tool (KOT) and the Early Learning Quick Assessment—Kindergarten (ELQA-K). OSDE is considering the use of these instruments for a pilot study of an Early Learning Inventory (ELI) to be administered in a sample of participating schools at kindergarten entry. OSDE requested this content alignment to determine the extent to which these instruments assess incoming kindergarteners' mastery of the competencies and preK standards.

This memo includes a summary of the standards, a summary of the measures examined, a description of the content alignment approach, the results of the content alignment, and suggested next steps.

### Oklahoma Academic Standards

The OAS guide expectations about what Oklahoma students should know at the completion of each grade. The OAS offer the following eight English language arts (ELA) standards:

- Standard 1. Speaking and Listening
- Standard 2. Reading Foundations with Reading and Writing Process
- Standard 3. Critical Reading and Writing
- Standard 4. Vocabulary
- Standard 5. Language
- Standard 6. Research
- Standard 7. Multimodal Literacies
- Standard 8. Independent Reading and Writing

For standard 2, OAS delineates two separate components: Reading Foundations and Reading and Writing Process. Each component has its own description and objectives. The eight standards exist for all grades, but the specific objectives associated with them are tailored to the skill level of the students in each grade. For example, the Speaking and Listening standard indicates that by the end of preK, students are expected to be able to follow simple oral directions. However, by the end of kindergarten, they are expected to

follow one- and two-step directions. Thus, as children advance through the grades, the expectations for what they should know build on what was mastered in the previous year.

In mathematics, the standards are centered on four content areas:

- Standard 1. Number and Operations
- Standard 2. Algebraic Reasoning and Algebra
- Standard 3. Geometry and Measurement
- Standard 4. Data and Probability

Again, these standards are for all grades, but the specific objectives associated with them are tailored to the developmental levels of the students in each grade. The mathematics standards build on the previous year's standards, expanding on what children are expected to know as they advance grades.

Because OSDE is searching for an assessment that indicates what students know when entering kindergarten, it was decided to examine the alignment of the KOT and the ELQA-K to the preK standards. In this way, kindergarten teachers and other educators would have information about which preK standards were mastered prior to kindergarten and which ones still need to be addressed at the start of kindergarten to lay the foundation for success in kindergarten.

In addition to the preK ELA and mathematics OAS, OSDE requested that the content alignment also include an assessment of how well the measures address specific social-emotional competencies. The current standards do not include social-emotional competencies. Consequently, OSDE staff participating in the coaching sessions examined the social-emotional standards in four other states (Alabama, Illinois, Massachusetts, and Missouri). Based on this review, OSDE identified the following three competencies to include in the content alignment:

- Competency 1. Knowledge of Self (self-awareness and self-control)
- Competency 2. Knowledge of Others (mutual trust and cooperation)
- Competency 3. Approaches to Learning (task persistence and problem solving)

## New Mexico Kindergarten Observation Tool

The KOT was developed by the New Mexico Public Education Department (NMPED). Its goal is to provide kindergarten teachers with a tool to better understand children's knowledge and skills to inform curricular and pedagogical decisions for individual children and groups of children (Dahlke et al., 2017).<sup>1</sup> Developers also aimed to use the tool to assess children's knowledge and skills at the beginning of kindergarten statewide in aggregate and identify disparities in knowledge and skills across subgroups. The KOT was developed from an existing measure (the PreKindergarten Observation Assessment tool)<sup>2</sup> and aligned with the New Mexico Content Standards<sup>3</sup> and the Common Core State Standards.<sup>4</sup> NMPED worked with research partners and other experts in a multiphase development process.

The KOT assesses development in six content areas: physical development, health, and well-being; literacy; mathematics; scientific conceptual understanding; self, family, and community; and approaches to learning. To administer the KOT, teachers observe their students in a variety of regular classroom activities during the first 30 instructional days of kindergarten. After collecting evidence through

<sup>1</sup> The field test version of the KOT is publicly available within Appendix A of the applied research methods report: <https://files.eric.ed.gov/fulltext/ED578166.pdf>.

<sup>2</sup> The two measures (preK and kindergarten) together are called the Early Childhood Observation Tool.

<sup>3</sup> See <https://webnew.ped.state.nm.us/bureaus/instructional-materials/new-mexico-content-standards/>.

<sup>4</sup> See <https://newmexicocommoncore.org/subcategories/view/5/kindergarten>.

observation, teachers rate each child on the 26 items in the six above-mentioned domains using the scoring rubric. Teachers use a rubric to determine each child's development for each item. For example, when rating the first item within the literacy domain (demonstrates the ability to attend, understand, and follow increasingly complex directions), the teacher decides whether the child is making progress for kindergarten, is accomplished for kindergarten, and so on using the behavioral criteria specified in the rubric. Thus, the teacher relies on evidence gathered from his or her observations of the child in the natural classroom environment to determine the child's progress in terms of each behavioral indicator.

## Early Learning Quick Assessment—Kindergarten

The ELQA was developed by the University of Oklahoma, with the goal of providing early education teachers with a web-based tool to track formative progress of early literacy and mathematics skills (Kimmel, Kosanovich, Quillian, Trautman, & White, 2015). When developing the ELQA, a decision was made to target foundational skills related to literacy and mathematics achievement (L. Trautman & A. Romo, personal communication, March 19, 2019). The ELQA is administered at the beginning of the school year and at different points throughout the year to help identify children who need support as well as help teachers differentiate instruction to better meet the needs of their students. It was first created to help prepare preschool-age children for kindergarten. The ELQA-K was developed later for use during the kindergarten year.

The ELQA-K directly assesses early literacy and mathematics skills using an individual test on a tablet, laptop, desktop, or other electronic device. For example, to assess a child's alphabet knowledge, the teacher takes the child aside and administers the alphabet knowledge subtest of the ELQA-K to the child. The child is presented with the letters of the alphabet in lowercase and also in uppercase and asked to identify each letter. The teacher inputs into the computer or other electronic device whether the child is correct or incorrect for each letter presented. Teachers can then use the ELQA-K to generate reports to inform instruction and optimize student learning as well as tailor instruction to individuals with different learning needs. In this example, the teacher can produce a report of the child's alphabet knowledge that indicates which letters the child knows, and which still need to be learned.

The ELQA-K literacy tool assesses each child's knowledge of print concepts, expressive vocabulary, rhyming, the alphabet (uppercase letters, lowercase letters, and letter sounds), alliteration, syllable segmenting, phoneme blending and segmenting, phoneme deletion and substitution, phonics, reading fluency, and reading comprehension. Each domain has its own assessment on the computer consisting of approximately 10 items.

The ELQA-K mathematics measure is currently under development, and the items are being tested in a pilot study. Consequently, the items may be modified, and some may be dropped, pending the outcome of the pilot study. The ELQA-K mathematics tool assesses number recognition up to number 20, number and operations, displaying and analyzing data, geometry, algebraic thinking, and measurement and data. Moreover, because the ELQA-K mathematic tool is designed to be administered at several points during the school year, it has different sets of items for each timepoint that tap the same skills to guard against practice effects. The developers permitted inclusion of these items in this content alignment, noting that the measure is still in development. The content alignment included only the time one item sets.

The ELQA-K tool was not designed to examine social-emotional competencies. The measure focuses solely on literacy and mathematics. Thus, an examination of the ELQA-K with the social-emotional competencies chosen by OSDE staff was not included in the content alignment.

## Content alignment method

We implemented an adapted version of the Webb method (Martone & Sireci, 2009) to examine content alignment for this project. The process involved the following basic steps:

1. **Initial objective-level ratings.** Two early childhood content experts independently rated the alignment of each assessment item with the objectives within each standard (and, with the OSDE identified social-emotional competencies for the KOT<sup>5</sup>). Raters noted whether the item partially or fully covered the objectives' content and difficulty. (It is possible for a single assessment item to demonstrate alignment to more than one objective.)
2. **Confirming objective-level ratings.** Then the two raters conferred and discussed places of disagreement. In this way, the raters adjudicated disagreements and decided on a common rating. For the KOT, raters' agreement on the preK ELA, mathematics, and social-emotional competencies was 95 percent, 93 percent, and 91 percent, respectively. With respect to the ELQA-K, the rater agreement was 99 percent for both the preK ELA and mathematics standards.
3. **Standard-level findings.** Finally, we determined if each standard is adequately covered by calculating the Range of Knowledge. The Range of Knowledge is defined as the percentage of objectives within a standard that are partially or fully aligned with the items in an assessment. If 50 percent or more of the objectives within a standard are measured at least partially by the items within a measure, then the standard is considered to have good content alignment.

**Each OAS standard consists of several objectives, and alignment ratings were first assigned at the objective level.**

For example, OAS preK ELA Standard 1 (Speaking and Listening) includes six objectives:

1. Students will actively listen and speak using agreed-upon rules with guidance and support.
2. Students will begin to ask and answer questions about information presented orally or through text or other media with guidance and support.
3. Students will begin to engage in collaborative discussions about appropriate topics and texts with peers and adults in small and large groups with guidance and support.
4. Students will follow simple oral directions.
5. Students will begin to orally describe personal interests or tell stories to classmates with guidance and support.
6. Students will work respectfully with others with guidance and support.

## Results

First, the results from the KOT alignment (tables 1–3) is presented, followed by results from the ELQA-K alignment (tables 4–5). Each table lists the standards, the number of objectives within each standard covered by the assessment, the total number of objectives in the standard, and the Range of the Knowledge (the percentage of objectives covered) for each standard. The standards with a Range of Knowledge of 50 percent or higher demonstrate good alignment and are flagged with an asterisk. The Appendix provides information about which specific objectives were not covered by each assessment.

<sup>5</sup> Again, because the ELQA-K was not designed to measure social-emotional competencies, this assessment was not compared with the selected social-emotional competencies.

## New Mexico Kindergarten Observation Tool

The KOT aligns with the following six of eight ELA standards (see table 1):

- Standard 1. Speaking and Listening
- Standard 2. Reading Foundations with Reading and Writing Process<sup>6</sup>
- Standard 3. Critical Reading and Writing
- Standard 4. Vocabulary
- Standard 7. Multimodal Literacies
- Standard 8. Independent Reading and Writing

The KOT does not align with the following two of eight ELA standards (see table 1):

- Standard 5. Language
- Standard 6. Research

**Table 1. Range of Knowledge for the KOT on the preK ELA standards**

ELA standard	Number of objectives covered	Total number of objectives	Range of Knowledge
<b>Standard 1. Speaking and Listening</b> —Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.	5	6	83*
<b>Standard 2. Reading Foundations<sup>a</sup></b> —Students will develop foundational skills for future reading success by working with sounds, letters, and text. Includes phonological awareness, print concepts, phonics and word study, and fluency. <b>Standard 2. Reading and Writing Process<sup>a</sup></b> —Students will use a variety of recursive reading and writing processes.	14	16	88*
<b>Standard 3. Critical Reading and Writing</b> —Students will apply critical thinking skills to reading and writing.	4	5	80*
<b>Standard 4. Vocabulary</b> —Students will expand their working vocabularies to effectively communicate and understand texts.	5	5	100*
<b>Standard 5. Language</b> —Students will apply knowledge of grammar and rhetorical style to reading and writing.	1	4	25
<b>Standard 6. Research</b> —Students will engage in inquiry to acquire, refine, and share knowledge.	0	2	0
<b>Standard 7. Multimodal Literacies</b> —Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non-verbal, and interactive texts.	1	2	50*
<b>Standard 8. Independent Reading and Writing</b> —Students will read and write for a variety of purposes including, but not limited to, academic and personal.	2	2	100*

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

<sup>a</sup>OAS label both Reading Foundations and Reading and Writing Process as standard 2.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016a).

<sup>6</sup> OAS label both Reading Foundations and Reading and Writing Process as standard 2.

The KOT aligns with all four mathematics standards (see table 2):

- Standard 1. Number and Operations
- Standard 2. Algebraic Reasoning and Algebra
- Standard 3. Geometry and Measurement
- Standard 4. Data and Probability

**Table 2. Range of Knowledge for the KOT on the preK mathematics standards**

Mathematics standard	Number of objectives covered	Total number of objectives	Range of Knowledge
<b>Standard 1. Number and Operations</b> —Know number names and count in sequence; Count to tell the number of objects; Compare sets using numbers.	5	8	63*
<b>Standard 2. Algebraic Reasoning and Algebra</b> —Recognize, duplicate, and extend patterns.	1	2	50*
<b>Standard 3. Geometry and Measurement</b> —Identify common shapes; Describe and compare measurable attributes.	3	4	75*
<b>Standard 4. Data and Probability</b> —Collect and organize categorical data.	1	2	50*

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016b).

The KOT aligns with the following two social-emotional competencies (see table 3):

- Competency 2. Knowledge of Others (mutual trust and cooperation)
- Competency 3. Approaches to Learning (task persistence and problem solving)

The KOT does not align with the following social-emotional competency (see table 3):

- Competency 1. Knowledge of Self (self-awareness and self-control).

**Table 3. Range of Knowledge for the KOT on the social-emotional competencies**

Social-emotional competency	Number of objectives covered	Total number of objectives	Range of Knowledge
<b>Competency 1. Knowledge of Self</b> —Exhibits self-awareness and personal responsibility; develops self-control and follows simple rules.	3	7	43
<b>Competency 2. Knowledge of Others</b> —Builds relationships of mutual trust and respect with others; works cooperatively with children and adults.	4	5	80*
<b>Competency 3. Approaches to Learning</b> —Displays persistence; uses problem-solving skills.	2	4	50*

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Staff, Oklahoma State Department of Education, personal communication, December 20, 2018.



### Early Learning Quick Assessment—Kindergarten

The ELQA-K aligns with the following two ELA standards (see table 4):

- Standard 2. Reading Foundations with Reading and Writing Process<sup>7</sup>
- Standard 4. Vocabulary

The ELQA-K does not align with the following six ELA standards (see table 4):

- Standard 1. Speaking and Listening
- Standard 3. Critical Reading and Writing
- Standard 5. Language
- Standard 6. Research
- Standard 7. Multimodal Literacies
- Standard 8. Independent Reading and Writing

This finding is largely consistent with the developers' expectations because the ELQA-K was designed to tap foundational skills related to reading, not speaking or writing (L. Trautman & A. Romo, personal communication, March 19, 2019). The ELQA-K literacy tool intentionally targets a smaller, specific set of literacy skills in depth.

**Table 4. Range of Knowledge for the ELQA-K on the preK ELA standards**

ELA standard	Number of objectives covered	Total number of objectives	Range of Knowledge
<b>Standard 1. Speaking and Listening</b> —Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.	0	6	0
<b>Standard 2. Reading Foundations<sup>a</sup></b> —Students will develop foundational skills for future reading success by working with sounds, letters, and text. Includes phonological awareness, print concepts, phonics and word study, and fluency. <b>Standard 2. Reading and Writing Process<sup>a</sup></b> —Students will use a variety of recursive reading and writing processes.	12	16	75*
<b>Standard 3. Critical Reading and Writing</b> —Students will apply critical thinking skills to reading and writing.	1	5	20
<b>Standard 4. Vocabulary</b> —Students will expand their working vocabularies to effectively communicate and understand texts.	3	5	60*
<b>Standard 5. Language</b> —Students will apply knowledge of grammar and rhetorical style to reading and writing.	0	4	0
<b>Standard 6. Research</b> —Students will engage in inquiry to acquire, refine, and share knowledge.	0	2	0
<b>Standard 7. Multimodal Literacies</b> —Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non-verbal, and interactive texts.	0	2	0

<sup>7</sup> OAS offer both Reading Foundations and Reading and Writing Process as standard 2.

ELA standard	Number of objectives covered	Total number of objectives	Range of Knowledge
<b>Standard 8. Independent Reading and Writing</b> —Students will read and write for a variety of purposes including, but not limited to, academic and personal.	0	2	0

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

<sup>a</sup>OAS label both Reading Foundations and Reading and Writing Process as standard 2.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016a).

The ELQA-K aligns with the following three of four mathematics standards (see table 5):

- Standard 1. Number and Operations
- Standard 2. Algebraic Reasoning and Algebra
- Standard 3. Geometry and Measurement

The ELQA-K does not align with the following mathematics standard (see table 5):

- Standard 4. Data and Probability.

**Table 5. Range of Knowledge for the ELQA-K on the preK mathematics standards**

Mathematics standard	Number of objectives covered	Total number of objectives	Range of Knowledge
<b>Standard 1. Number and Operations</b> —Know number names and count in sequence; Count to tell the number of objects; Compare sets using numbers.	7	8	88*
<b>Standard 2. Algebraic Reasoning and Algebra</b> —Recognize, duplicate, and extend patterns.	2	2	100*
<b>Standard 3. Geometry and Measurement</b> —Identify common shapes; Describe and compare measurable attributes.	3	4	75*
<b>Standard 4. Data and Probability</b> —Collect and organize categorical data.	0	2	0

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016b).

The ELQA-K does not measure social-emotional competencies. As mentioned previously, the ELQA-K consists of a literacy tool and a mathematics tool. Thus, it was examined for alignment with the preK ELA and mathematics OAS. It was not compared with the social-emotional competencies provided by OSDE staff.

## Conclusions

In summary, the KOT demonstrated good alignment to a greater number of OAS standards than the ELQA-K, both in ELA and mathematics (see table 6). However, the ELQA-K assesses the standards to which it is aligned in greater depth than the KOT. For example, the ELQA-K has 41 items that measure



OAS mathematics standard 1 (Numbers and Operations), whereas, the KOT has 5 items measuring the same standard (as shown in Appendix Table A6). That is, the ELQA-K targets specific skills and measures them directly with many direct assessment items per skill. For example, for PK.2.PWS.2 ‘Students will produce some sounds represented by letters with guidance and support.’ The KOT simply requires that the student know and apply letter-sound correspondence and beginning sound recognition skills whereas the ELQA-K presents the child with each of the 26 letters in the alphabet and assesses for which ones the child knows the corresponding sound. Thus, the KOT assessment of this objective is broader and less targeted than the ELQA-K assessment.

The KOT also demonstrated good alignment to two social-emotional competencies, whereas the ELQA-K is not intended to be used as a measure of social-emotional competencies (see table 7).

**Table 6. KOT and ELQA-K alignment with the preK ELA and mathematics standards**

OAS standard	Good content alignment	
	KOT	ELQA-K
ELA standard		
<b>Standard 1. Speaking and Listening</b> —Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.	Yes	No
<b>Standard 2. Reading Foundations<sup>a</sup></b> —Students will develop foundational skills for future reading success by working with sounds, letters, and text. Includes phonological awareness, print concepts, phonics and word study, and fluency.	Yes	Yes
<b>Standard 2. Reading and Writing Process<sup>a</sup></b> —Students will use a variety of recursive reading and writing processes.		
<b>Standard 3. Critical Reading and Writing</b> —Students will apply critical thinking skills to reading and writing.	Yes	No
<b>Standard 4. Vocabulary</b> —Students will expand their working vocabularies to effectively communicate and understand texts.	Yes	Yes
<b>Standard 5. Language</b> —Students will apply knowledge of grammar and rhetorical style to reading and writing.	No	No
<b>Standard 6. Research</b> —Students will engage in inquiry to acquire, refine, and share knowledge.	No	No
<b>Standard 7. Multimodal Literacies</b> —Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non-verbal, and interactive texts.	Yes	No
<b>Standard 8. Independent Reading and Writing</b> —Students will read and write for a variety of purposes including, but not limited to, academic and personal.	Yes	No
Mathematics standard		
<b>Standard 1. Number and Operations—Know number names and count in sequence; Count to tell the number of objects; Compare sets using numbers.</b>	Yes	Yes
<b>Standard 2. Algebraic Reasoning and Algebra</b> —Recognize, duplicate, and extend patterns.	Yes	Yes
<b>Standard 3. Geometry and Measurement</b> —Identify common shapes; Describe and compare measurable attributes.	Yes	Yes
<b>Standard 4. Data and Probability</b> —Collect and organize categorical data.	Yes	No

<sup>a</sup>OAS label both Reading Foundations and Reading and Writing Process as standard 2.  
Source: Oklahoma State Department of Education (2016a, b).

**Table 7. KOT and ELQA-K alignment to social-emotional competencies**

Social-emotional competencies	Good content alignment	
	KOT	ELQA-K
<b>Knowledge of Self</b> —Exhibits self-awareness and personal responsibility; develops self-control and follows simple rules.	No	No
<b>Knowledge of Others</b> —Builds relationships of mutual trust and respect with others; works cooperatively with children and adults.	Yes	No
<b>Approaches to Learning</b> —Displays persistence; uses problem-solving skills.	Yes	No

Source: Staff, Oklahoma State Department of Education, personal communication, December 20, 2018.

Both assessments make different types of demands on the classroom teacher administering them. Direct child assessments, such as the ELQA-K, take time outside instructional activities to administer. The teacher administering the KOT observes children during regular classroom activities during the first 30 days of instruction. The teacher administering the ELQA-K is required to sit with each child to complete the assessment.

## Considerations for next steps

OSDE would like the ELI used for the pilot study to gather information about children across multiple domains (specifically, ELA, mathematics, and social-emotional competencies) to inform instruction and support student learning, with a focus on the whole child. With this desire in mind, two additional considerations are offered:

1. **Consider trade-off of teacher burden versus the reliability of ratings.** Consideration should be given to what sorts of demands are reasonable to expect from kindergarten teachers in terms of administering the assessment. One rationale for selecting an indirect measure with greater breadth than depth is that it may reduce teacher burden. If information is needed across multiple domains, administering indirect observational assessments can be a solution for measurement within normal classroom activities to reduce (though not eliminate) the time burden for teachers. This decision has a trade-off, however, in that the indirect, observational measure does not measure the skill or competency with the same depth. Moreover, the indirect, observation measure may require additional training time to address concerns about rater error with this type of indirect, observational measure.
2. **Examine alignment to kindergarten standards.** Now that OSDE has articulated its primary purposes for the ELI—to inform instruction rather than as a snapshot of children’s competencies at the beginning of kindergarten—the ELI could be administered at multiple time points during the kindergarten year to track student progress. The KOT is not currently used throughout the kindergarten year, however. Therefore, consider examining alignment to OAS kindergarten standards.

With these considerations in mind and on the basis of the content alignment, the following potential next steps are offered:

3. **Use the KOT items.** The KOT aligns to a greater number of standards within ELA, mathematics, and the OSDE identified social-emotional competencies. The KOT could be used in its current version after obtaining permission from NMPED. If OSDE chooses to pilot the KOT, it should consider updating the rubric document to reference Oklahoma standards.
4. **Develop supplemental items for the KOT.** OSDE could develop supplemental items to measure additional standards to which the KOT is not currently aligned and use those supplemental items along with the KOT items in an updated rubric.

5. **Use the ELQA-K in addition to an indirect assessment of children’s social-emotional competencies.** The ELQA-K aligns with standards in ELA and mathematics. If OSDE would like to ensure that a subset of ELA and mathematics standards is measured in greater depth, OSDE could select to use the ELQA-K for the pilot study. However, because the ELQA-K does not measure social-emotional competencies, OSDE would need to field and train teachers to use another measure of children’s social-emotional competencies.

## References

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## Appendix

**Table A1. Objectives not covered by the KOT on the preK ELA standards**

Standard	Total number of objectives	Range of Knowledge	Objectives not covered
Standard 1. Speaking and Listening	6	83*	<i>PK.1.W.2 Students will work respectfully with others with guidance and support.</i>
Standard 2. Reading Foundations with Reading and Writing Process <sup>a</sup>	16	88*	<i>PK.2.PC.6 Students will recognize ending punctuation marks in print during shared reading or other text experiences with guidance and support.</i> <i>PK.2.F.1 Students will read first name in print.</i>
Standard 3. Critical Reading and Writing	5	80*	<i>PK.3.R.1 Students will describe the role of an author and illustrator, telling how they contribute to a story, with guidance and support.</i>
Standard 4. Vocabulary	5	100*	
Standard 5. Language	4	25	<i>PK.5.R.1 Students will begin to understand the function of grammar through exposure to conversations, read-alouds, and interactive reading.</i> <i>PK.5.R.2 Students will recognize concrete objects as persons, places or things (i.e., nouns) with guidance and support.</i> <i>PK.5.R.3 Students will recognize words as actions (i.e., verbs) with guidance and support.</i>
Standard 6. Research	2	0	<i>PK.6.R Students will begin to identify pictures, charts, grade-appropriate texts, or people as sources of information on a topic of interest.</i> <i>PK.6.W Students will generate topics of interest and decide if a friend, teacher, or expert can answer their questions with guidance and support.</i>
Standard 7. Multimodal Literacies	2	50*	<i>PK.7.W Students will use appropriate technology or media to communicate with others with guidance and support.</i>
Standard 8. Independent Reading and Writing	2	100*	

Note Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

<sup>a</sup>OAS label both Reading Foundations and Reading and Writing Process as standard 2.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016a).

**Table A2. Objectives not covered by the KOT on the preK mathematics standards**

Standard	Total number of objectives	Range of Knowledge	Objectives not covered
Standard 1. Number and Operations	8	63*	<i>PK.N.1.3 Recognize that zero represents the count of no objects.</i> <i>PK.N.2.3 Understand the last numeral spoken, when counting aloud, tells how many total objects are in a set.</i> <i>PK.N.2.4 Count up to 5 items in a scattered configuration; not in a row or column.</i>
Standard 2. Algebraic Reasoning and Algebra	2	50*	<i>PK.A.1.2 Recognize, duplicate, and extend repeating patterns involving manipulatives, sound, movement, and other contexts.</i>
Standard 3. Geometry and Measurement	4	75*	<i>PK.GM.1.1 Identify circles, squares, rectangles, and triangles by pointing to the shape when given the name.</i>
Standard 4. Data and Probability	2	50*	<i>PK.D.1.2 Use categorical data to create real-object graphs.</i>

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016b).

**Table A3. Objectives not covered by the KOT on the social-emotional competencies**

Standard	Total number of objectives	Range of Knowledge	Objectives not covered
Competency 1. Knowledge of Self	7	43	<i>SA.1. Shows respect for self.</i> <i>SA.2. Knows personal information.</i> <i>SA.4. Begins to accept the consequences of his or her own actions.</i> <i>SC.2. Expresses feelings through appropriate gestures, actions and language.</i>
Competency 2. Knowledge of Others	5	80*	<i>WC.3. Uses courteous words and actions.</i>
Competency 3. Approaches to Learning	4	50*	<i>DP.2. Copes with frustration.</i> <i>PS.2. Works with others to solve problems.</i>

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

Note: SA stands for self-awareness. SC stands for self-control. WC stands for works cooperatively. DP stands for displays persistence. PS stands for problem-solving.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Staff, Oklahoma State Department of Education, personal communication, December 20, 2018.



**Table A4. Objectives Not Covered by the ELQA-K on the preK ELA standards**

Standard	Total number of objectives	Range of Knowledge	Objectives not covered
Standard 1. Speaking and Listening	6	0	<p><i>PK.1.R.1 Students will actively listen and speak using agreed-upon rules with guidance and support.</i></p> <p><i>PK.1.R.2 Students will begin to ask and answer questions about information presented orally or through text or other media with guidance and support.</i></p> <p><i>PK.1.R.3 Students will begin to engage in collaborative discussions about appropriate topics and texts with peers and adults in small and large groups with guidance and support.</i></p> <p><i>PK.1.R.4 Students will follow simple oral directions.</i></p> <p><i>PK.1.W.1 Students will begin to orally describe personal interests or tell stories to classmates with guidance and support.</i></p> <p><i>PK.1.W.2 Students will work respectfully with others with guidance and support.</i></p>
Standard 2. Reading Foundations with Reading and Writing Process <sup>a</sup>	16	75*	<p><i>PK.2.PA.1 Students will distinguish spoken words in a sentence with guidance and support.</i></p> <p><i>PK.2.PC.1 Students will write the majority of the letters in their first name and some uppercase and lowercase letters with guidance and support.</i></p> <p><i>PK.2.PC.3 Students will begin to demonstrate correct book orientation and identify the front and back covers of a book.</i></p> <p><i>PK.2.W Students will begin to express themselves through drawing, dictating, and emergent writing.</i></p>
Standard 3. Critical Reading and Writing	5	20	<p><i>PK.3.R.1 Students will describe the role of an author and illustrator, telling how they contribute to a story, with guidance and support.</i></p> <p><i>PK.3.R.2 Students will describe characters in a story with guidance and support.</i></p> <p><i>PK.3.R.3 Students will tell what is happening in a picture or illustration with guidance and support.</i></p> <p><i>PK.3.W Students will use drawing, labeling, and dictating to express thoughts and ideas with guidance and support.</i></p>
Standard 4. Vocabulary	5	60*	<p><i>PK.4.W.1 Students will begin to use new vocabulary to produce and expand complete sentences in shared language activities.</i></p> <p><i>PK.4.W.2 Students will begin to select appropriate language according to purpose.</i></p>

Standard	Total number of objectives	Range of Knowledge	Objectives not covered
Standard 5. Language	4	0	<p><i>PK.5.R.1 Students will begin to understand the function of grammar through exposure to conversations, read-alouds, and interactive reading.</i></p> <p><i>PK.5.R.2 Students will recognize concrete objects as persons, places or things (i.e., nouns) with guidance and support.</i></p> <p><i>PK.5.R.3 Students will recognize words as actions (i.e., verbs) with guidance and support.</i></p> <p><i>PK.5.R.4 Students will group pictures and/or use movement to determine spatial and time relationships such as up, down, before, and after with guidance and support.</i></p>
Standard 6. Research	2	0	<p><i>PK.6.R Students will begin to identify pictures, charts, grade-appropriate texts, or people as sources of information on a topic of interest.</i></p> <p><i>PK.6.W Students will generate topics of interest and decide if a friend, teacher, or expert can answer their questions with guidance and support.</i></p>
Standard 7. Multimodal Literacies	2	0	<p><i>PK.7.R Students will recognize formats of print and digital text with guidance and support.</i></p> <p><i>PK.7.W Students will use appropriate technology or media to communicate with others with guidance and support.</i></p>
Standard 8. Independent Reading and Writing	2	0	<p><i>PK.8.R Students will demonstrate interest in books during read-alouds and shared reading and interact independently with books.</i></p> <p><i>PK.8.W Students will express their ideas through a combination of drawing and emergent writing with guidance and support.</i></p>

Note: Range of Knowledge is the percentage of objectives per standard that align with an item, either fully or partially.

<sup>a</sup>OAS offer both Reading Foundations and Reading and Writing Process as standard 2.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016a).

**Table A5. Objectives not covered by the ELQA-K on the preK mathematics standards**

Standard	Total number of objectives	Range of Knowledge	Objectives not covered
Standard 1. Number and Operations	8	88*	<i>PK.N.1.3 Recognize that zero represents the count of no objects.</i>
Standard 2. Algebraic Reasoning and Algebra	2	100*	
Standard 3. Geometry and Measurement	4	75*	<i>PK.GM.2.1 Identify measurable attributes of objects. Describe them as little, big, long, short, tall, heavy, light, or other age appropriate vocabulary.</i>
Standard 4. Data and Probability	2	0	<i>PK.D.1.1 Collect and organize information about objects and events in the environment. PK.D.1.2 Use categorical data to create real-object graphs.</i>

Note: Range of Knowledge is the number of objectives per standard that align with an item, either fully or partially.

\*Threshold for good alignment met, that is, at least 50 percent of the objectives within a standard are measured at least partially by the items within a measure.

Source: Oklahoma State Department of Education (2016b).

**Table A6. Number of assessment items with full or partial alignment for standards and competencies with good content alignment (by assessment)**

Standard or Competency	Number of items with full or partial alignment	
	KOT	ELQA-K
ELA standard		
<b>Standard 1. Speaking and Listening</b> —Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.	7	N/A
<b>Standard 2. Reading Foundations<sup>a</sup></b> —Students will develop foundational skills for future reading success by working with sounds, letters, and text. Includes phonological awareness, print concepts, phonics and word study, and fluency. <b>Standard 2. Reading and Writing Process<sup>a</sup></b> —Students will use a variety of recursive reading and writing processes.	22	145
<b>Standard 3. Critical Reading and Writing</b> —Students will apply critical thinking skills to reading and writing.	5	N/A
<b>Standard 4. Vocabulary</b> —Students will expand their working vocabularies to effectively communicate and understand texts.	7	41
<b>Standard 5. Language</b> —Students will apply knowledge of grammar and rhetorical style to reading and writing.	N/A	N/A
<b>Standard 6. Research</b> —Students will engage in inquiry to acquire, refine, and share knowledge.	N/A	N/A
<b>Standard 7. Multimodal Literacies</b> —Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non-verbal, and interactive texts.	1	N/A
<b>Standard 8. Independent Reading and Writing</b> —Students will read and write for a variety of purposes including, but not limited to, academic and personal.	2	N/A
Mathematics standard		
<b>Standard 1. Number and Operations—Know number names and count in sequence; Count to tell the number of objects; Compare sets using numbers.</b>	5	41
<b>Standard 2. Algebraic Reasoning and Algebra</b> —Recognize, duplicate, and extend patterns.	1	10
<b>Standard 3. Geometry and Measurement</b> —Identify common shapes; Describe and compare measurable attributes.	3	9
<b>Standard 4. Data and Probability</b> —Collect and organize categorical data.	2	N/A
Social-emotional competency		
<b>Knowledge of Self</b> —Exhibits self-awareness and personal responsibility; develops self-control and follows simple rules.	N/A	N/A
<b>Knowledge of Others</b> —Builds relationships of mutual trust and respect with others; works cooperatively with children and adults.	4	N/A
<b>Approaches to Learning</b> —Displays persistence; uses problem-solving skills.	2	N/A

<sup>a</sup>OAS label both Reading Foundations and Reading and Writing Process as standard 2.

Sources: Oklahoma State Department of Education (2016a, b); Staff, Oklahoma State Department of Education, personal communication, December 20, 2018.

Note. N/A indicates that the standard or competency is not applicable because the assessment did not have good alignment to that standard or competency.