Analysis Coaching Project: Interpreting findings from an Early Learning Inventory study, Part 2

Session 5

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Coaching sessions conducted with Lauren Jenks-Jones, Executive Director of Early Childhood, and team at the Oklahoma State Department of Education on November 3, 2022

Agenda

1. Introductions and SWECE Research Partnership overview
2. Overview of the project
3. Additional implementation findings
4. Additional validation findings

Session objectives

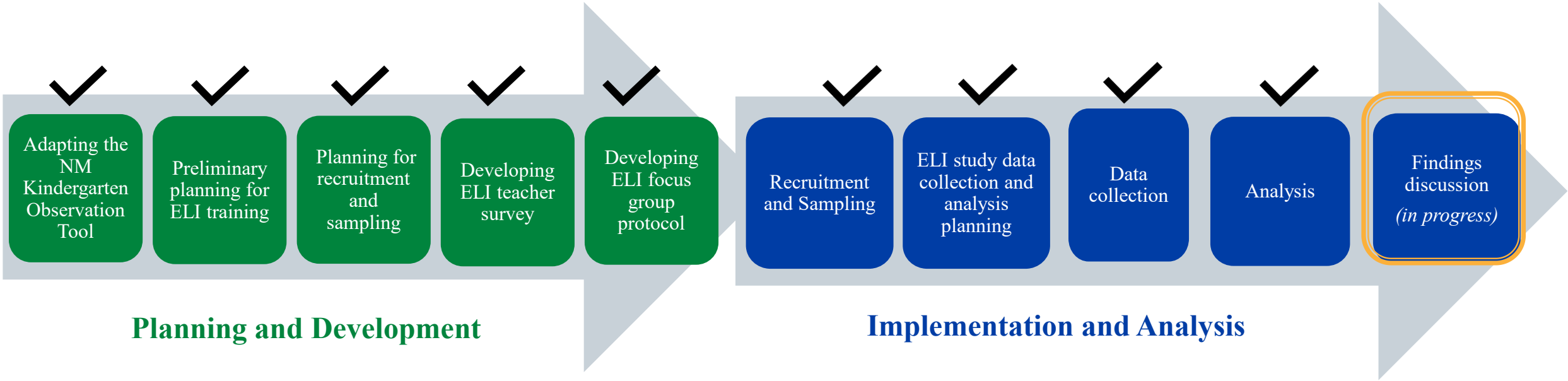
1. Increase understanding of findings from the implementation and validation follow up analyses.
2. Discuss implications of findings for developing or expanding supports for educators.

Introductions

- Name
- Title

Project overview

REL Southwest provided coaching to OSDE.



What is the ELI?

Observational measure of children's knowledge and skills

26 indicators across 6 areas:

- Literacy
- Mathematics
- Approaches toward learning
- Physical development, health, and well-being
- Scientific conceptual understanding
- Self, family, and community

Teachers observe students during regular classroom activities and assign ratings for each indicator using the 26 ELI indicator rubrics.

Domain 1: Physical Development, Health, and Well Being

Indicator 2: Develops manual coordination to use writing and crafting tools.

Outcome: The child independently uses fine motor skills.

Aligned Oklahoma Academic Standards:

ELA Standard 2: Reading and Writing Foundations: Students will develop foundational skills for reading and writing proficiency by working with sounds, letters, and text.

- K.2.PC.6 Students will correctly form letters to write their first and last name and most uppercase and lowercase letters correctly.

ELA Standard 2: Reading and Writing Process: Students will use a variety of recursive reading and writing processes.

- K.2.W.1 Students will express themselves through drawing and emergent writing.
- K.2.W.4 Students will add to their drawing and emergent writing.

ELA Standard 3: Critical Reading and Writing: Students will apply critical thinking skills to reading and writing.

- K.3.W Students will use drawing, labeling, and writing to tell a story, share information, or express an opinion with prompting.

ELA Standard 8: Independent Reading and Writing: : Students will read and write independently for a variety of purposes and periods of time.

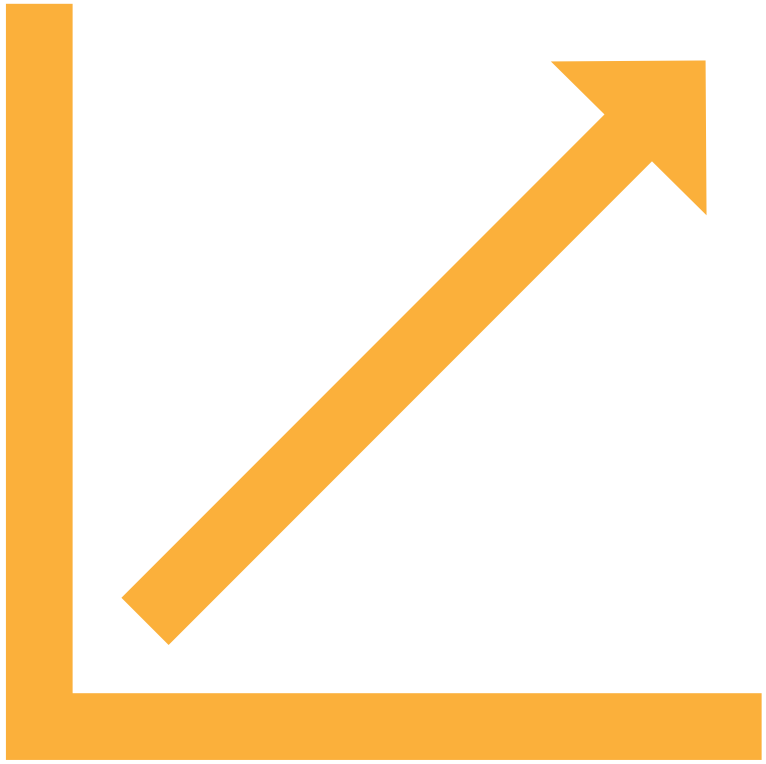
- K.8.W Students will express their ideas through a combination of drawing and emergent writing with guidance and support.

Indicator 2 Rubric

Accomplished for 3s (First Steps for 4s)	Making Progress for 4s	Accomplished for 4s (First Steps for K)	Making Progress for K	Accomplished for K (First Steps for Grade 1)	Making Progress for Grade 1
Uses writing and crafting tools (e.g., crayons, pencils, paintbrushes, glue sticks) with some adult guidance and support.	Uses writing and crafting tools (e.g., crayons, pencils, paintbrushes, glue sticks) with a 3-point grip but too close to either end. Uses scissors to snip materials.	Uses writing and crafting tools with a 3-point grip. Uses scissors to cut a line.	Demonstrates fine motor control in using writing and crafting tools independently with a 3-point grip (e.g., cuts simple geometric shapes).	Demonstrates fine motor coordination in using a variety of writing and crafting tools independently so that work products have detail.	Consistently demonstrates fine motor coordination and skill in using a variety of writing and crafting tools to create intricately detailed work products..

Study objectives

A continuous improvement study of the ELI that will inform changes to the measure, training, and guidance provided by OSDE.



Additional implementation findings

Implementation questions and data sources

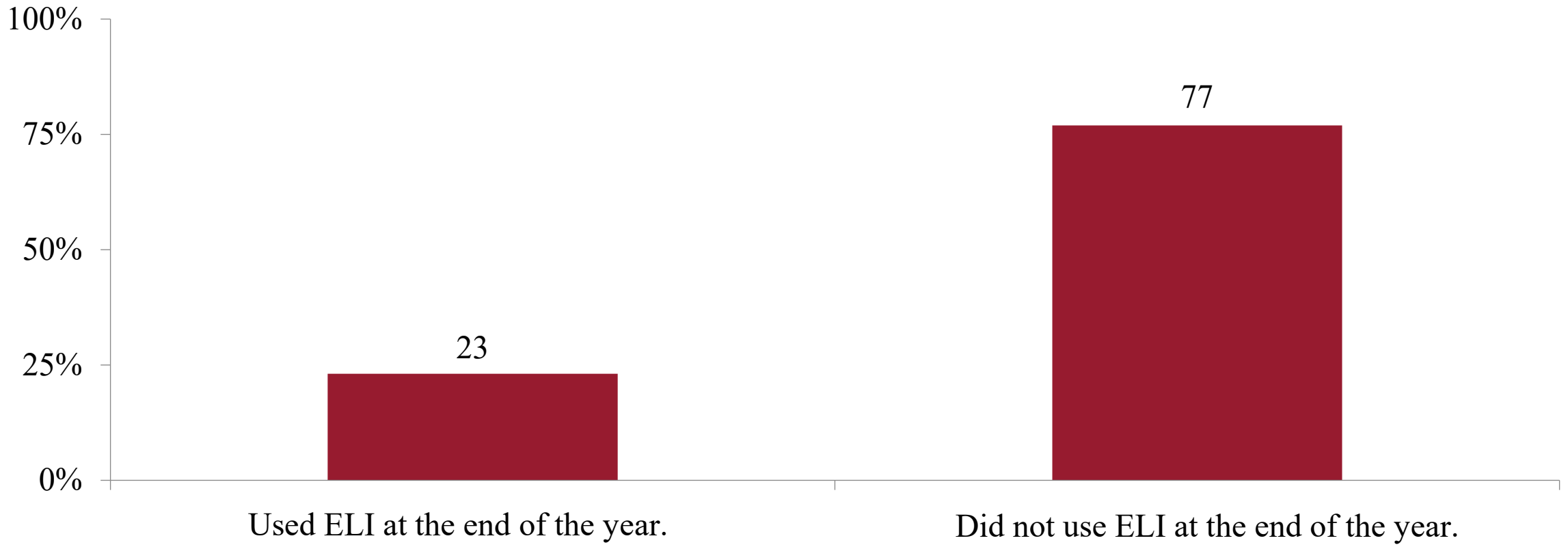
Implementation research questions	Pre-training survey	Post-training survey	First follow-up survey	Focus group protocol	Admin. survey	Second follow-up survey
5. To what extent do the ELI training and resources prepare teachers to use the ELI?	•	•	•	•		
6. How do teachers report administering the ELI in their classroom, and do they report using the ELI data to inform instruction?			•	•	+	+
7. What are teachers' perceptions about the feasibility and value of using the ELI in their classroom?			•	•		
8. What are the key facilitators and challenges for teachers implementing the ELI with fidelity?			•	•		
9. What improvements could be made to the ELI training, measure, and technology platform to increase feasibility and fidelity?		•	•	•		
10. What motivated districts to use the ELI?					+	+
10 a. What are administrators' perceptions about the value of the ELI?					+	+

• = BOY data presented in the last session; + = EOY data presented in this session.

Implementation research question 6

How do teachers report administering the ELI in their classroom, and do they report using the ELI data to inform instruction?

About three quarters (77 percent) of the teachers did not use the ELI at the end of the school year.



Note: *N* = 39.
Source: Authors' analysis of ELI Second Follow-Up Survey.

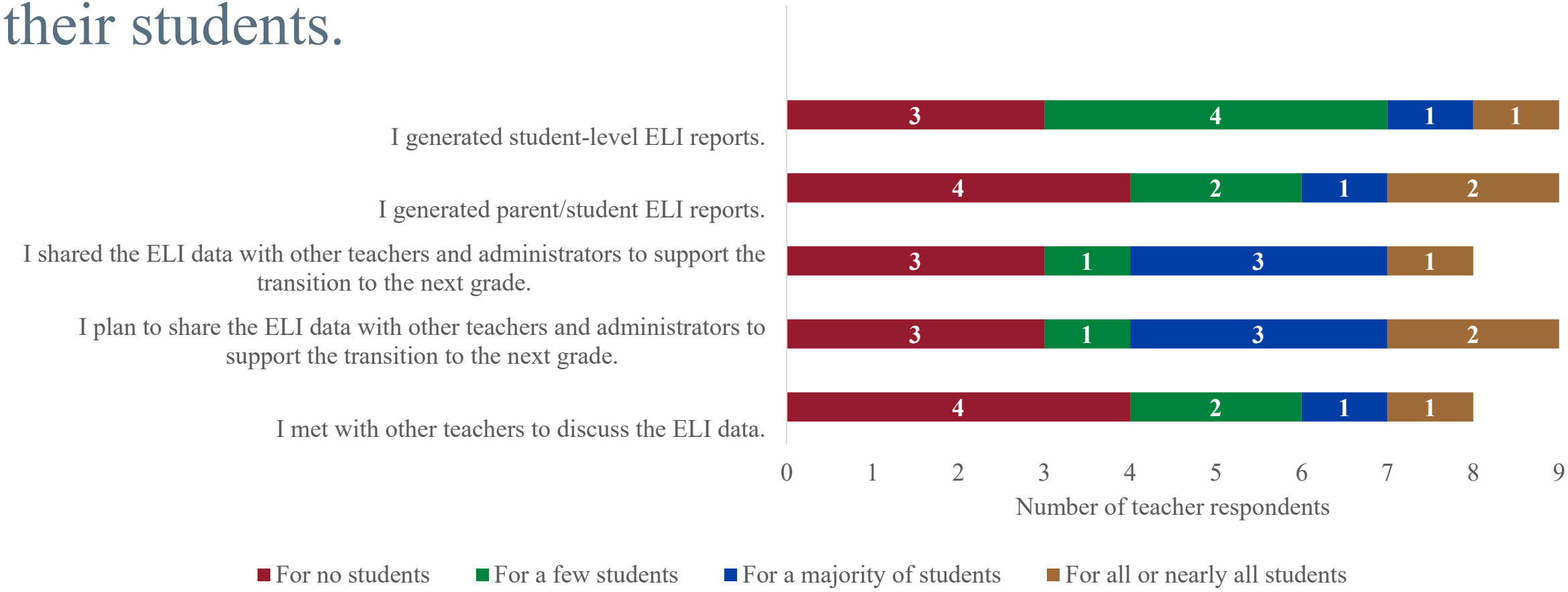
Most common reasons teachers did not use the ELI at the end of the school year (approximately March 22 – April 16, 2022).

- Teachers had to complete other required assessments, such as their Reading Sufficiency Act assessments.
- Teachers did not have enough time.
- Teachers did not need the ELI data at the end of the year.

Example quote: "I was doing my best to just keep up with the requirements of my district and meeting those needs and did not find myself with enough adequate time to do all of it again." – teacher

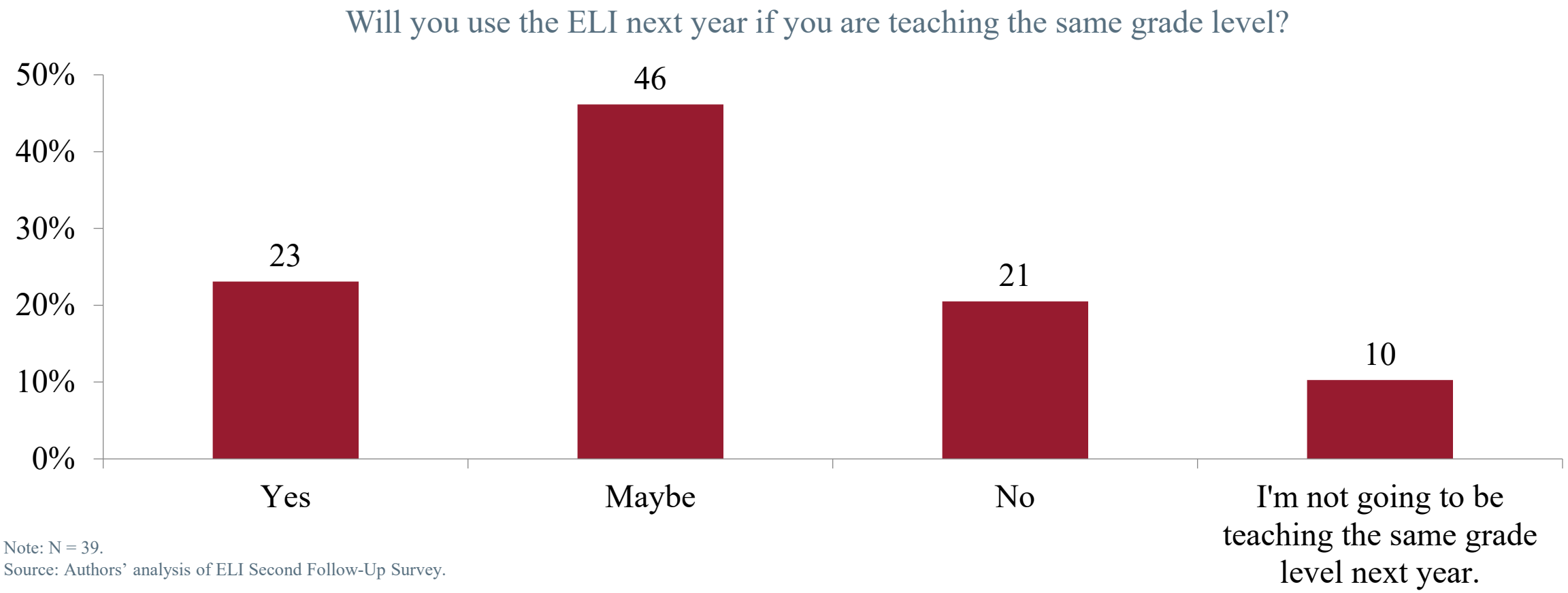
Note: N = 30.
Source: Authors' analysis of Second Follow-Up Survey.

Among the nine responding teachers who reported using the ELI at EOY, most did not generate reports for a majority of their students.



Note: N = 9. Only 8 teachers provided answers to two of the items.
Source: Authors' analysis of ELI Second Follow-Up Survey.

Nearly one quarter of respondents would use the ELI again and nearly half were undecided.



Note: N = 39.
Source: Authors' analysis of ELI Second Follow-Up Survey.

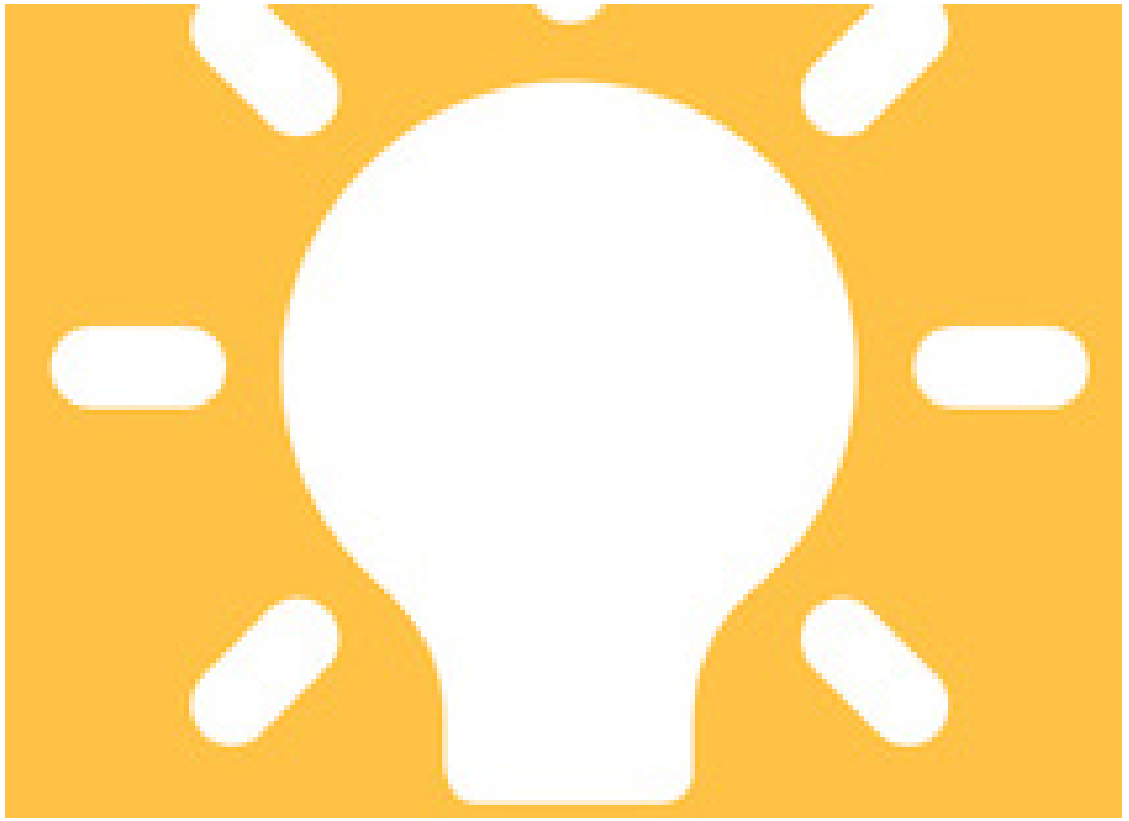
Teachers described concerns and considerations that will influence their decision to use the ELI during the next year.

- The extent to which there are other required assessments.
- Time availability.
- Support from school.

Note: N = 31.
Source: Authors' analysis of Second Follow-Up Survey.

Implications

- Most teachers in this small pilot sample (N=44) did not use the ELI at the EOY.
- Only a quarter affirmatively said they will use it next year (at any point during the year), but the large portion of undecided suggests there is an opportunity to address teacher concerns and increase use of the ELI substantially.
- Teachers expressed a need for support with using the ELI (at any point during the year) given limited time and other district requirements.



Validation research question 6 Jamboard

Takeaways

Implications for expanding use of the ELI

Implementation research questions 10 and 10a

10. What motivated districts to use the ELI?

10.a What are administrators' perceptions about the value of the ELI?

Administrators' primary reasons for deciding to use the ELI

Themes	*n*	Exemplary quotes
Teachers were interested or excited about the opportunity.	3	"We are a small rural school with one teacher per classroom. My Kindergarten teacher approached me regarding the program and sold me with her enthusiasm for it."
Administrators wanted to provide a formative assessment tool to teachers.	3	"Providing a formative assessment tool and protocol for teachers to follow."
Administrators wanted to gain information to improve early learning	2	"To gain knowledge to improve our early learning program in kindergarten to achieve the best results for our students."

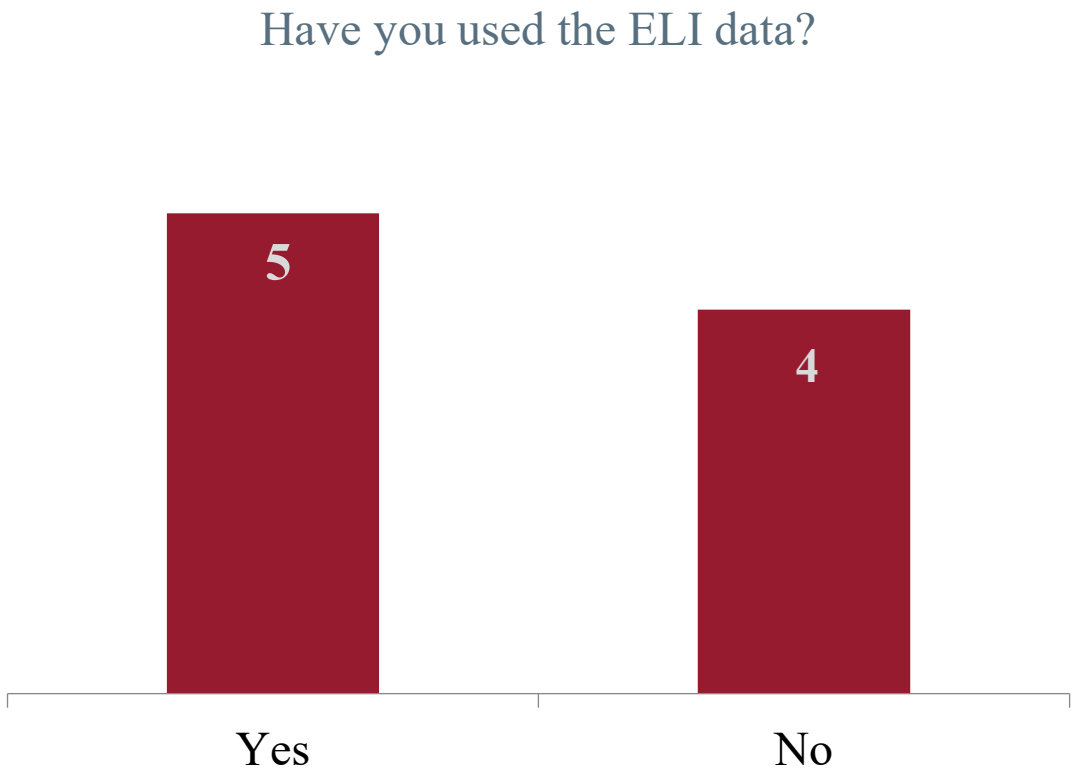
Note: N = 9. Only 8 administrators responded to this item.
Source: Authors' analysis of Administrator Survey.

Teachers' primary reasons for deciding to use the ELI

Themes	*n*	Percentage	Exemplary quotes
Teachers wanted to learn about alternate/better assessment options.	15	39	"Wanted to see if it was different from other assessments I had used in the past, i.e. (DIBELS, Map Growth, etc.). It is a different type of assessment, more observational comments as opposed to cut & dry, one answer assessments."
Teachers wanted to better understand the needs of their students.	8	21	"I was interested in a more well-rounded form of assessment. I appreciated all the areas the ELI offered when assessing the whole child and it was not just based on academics, but physical abilities and social-emotional abilities as well."
It was required in some schools.	6	16	"I was required to [use the ELI] at the beginning of the school year."
A stipend was provided.	5	13	"Our principal asked us if we were interested and there would be a stipend."

Note: N = 38. Four teachers gave answers to this open-ended item that did not fit into one of these categories or didn't answer it.
Source: Authors' analysis of Second Follow-Up Survey.

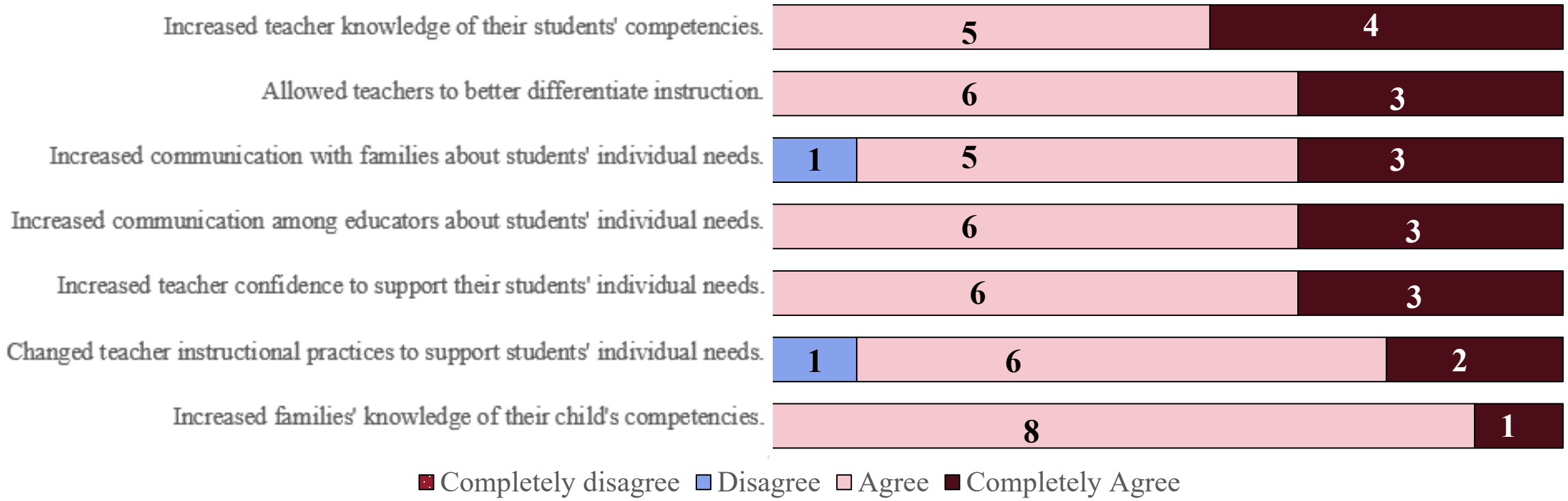
Five of the nine responding district administrators had used the ELI data.



Note: N = 9.

Source: Authors' analysis of Administrator Survey.

All responding administrators agreed or completely agreed that the ELI **increased teacher knowledge of their students' competencies** and **allowed teachers to better differentiate instruction.**



Note: N = 9.
Source: Authors' analysis of Administrator Survey.

Administrators provided feedback on how to make the ELI training more effective.

- Conduct trainings in person.
- Provide continuous training on how to use the data.
- Offer professional learning communities.
- Provide more practices sessions using real classroom examples.
- Offer trainings for administrators.

Note: N = 9.

Source: Authors' analysis of Administrator Survey.

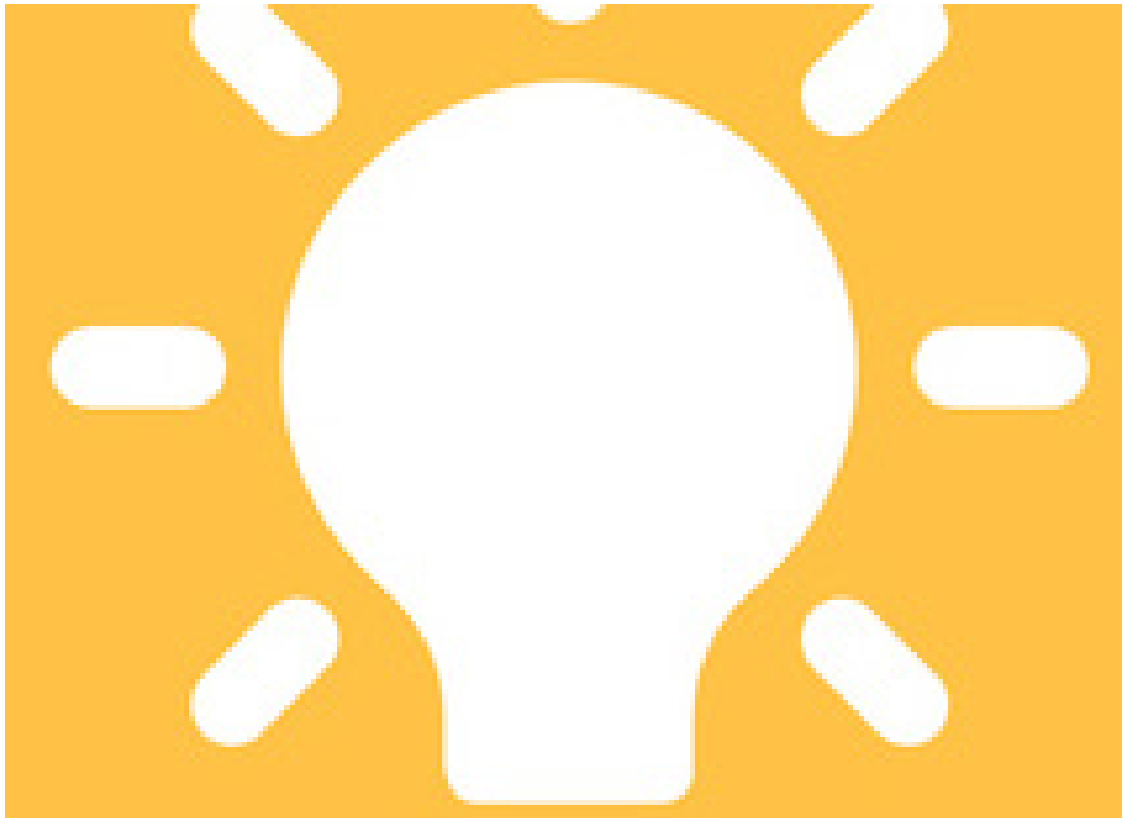
Most responding administrators will support teachers' use of the ELI next year and would recommend the ELI to other school districts.

- Most responding administrators (8 of 9) will support teachers' use of the ELI during the next school year.
- All responding administrators (9 of 9) would recommend the ELI to other school districts.

Note: N = 9.
Source: Authors' analysis of Administrator Survey.

Implications

- In general, teachers and administrators chose to use the ELI in order to better understand and support their students. A few teachers reported participating because of the stipend or a school requirement.
- Administrators perceive the ELI to be an effective tool for understanding students and differentiating instruction.
- Additional training and supports could strengthen implementation of the ELI.



Implementation research questions 10 and 10a Jamboard

Takeaways

Implications for expanding ELI use

Validation analysis

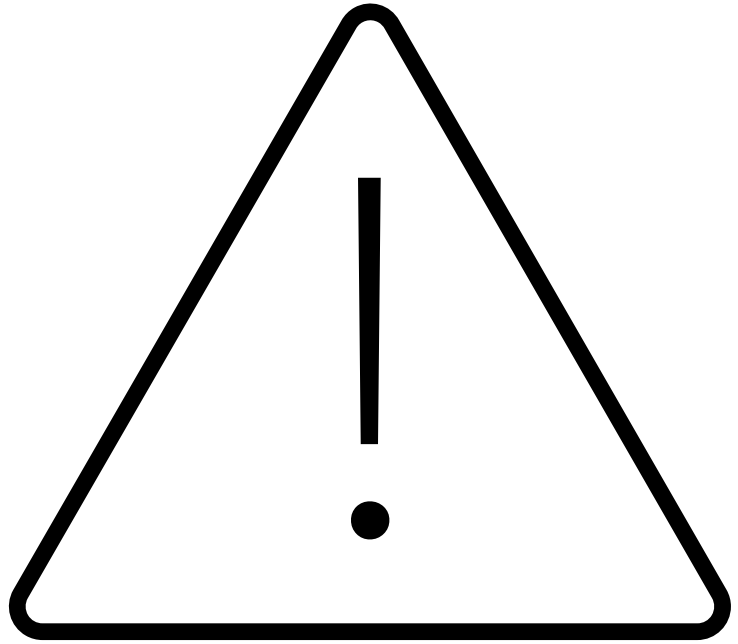
Session 4 validation questions and data sources

Validation research questions	ELI BOY ratings from OSDE	Reading Sufficiency Act assessment BOY from OSDE
1. What domains of students' learning and development does the ELI validly measure? ***(Results presented during last session.)***	•	•
2. Do any of the ELI indicators exhibit potential bias for student groups? ***(Results presented during last session.)***	•	
3. Do teachers use rating categories for each ELI item as intended? ***(Results presented during last session.)***	•	
4. To what extent does the ELI provide information about individual student abilities? ***(Results presented during last session.)***	•	

Original proposed session 5 validation analyses

- Original plan was to replicate the analyses for research questions 1-4 with the ELI EOY ratings.

- Data were available for only 25 students from one teacher at EOY, which is not enough to conduct the planned analyses.



What can we do with such a small sample?

- Sample size is too small for originally planned analyses to establish additional evidence of the validity of the ELI with end-of-year data.
- Reliability tests are possible
  - Cronbach's alpha
  - Rasch person reliability
  - Test-retest reliability

Session 5 validation analyses

- Alternative validation analyses conducted at EOY included:
  - Examination of reliability, specifically internal consistency and test-retest reliability.
  - Development of cut scores to support summarizing validated domains in the aggregate using the Fall 2021 data.
- Results from EOY validation analyses should be considered exploratory and illustrative of what kind of information can be obtained with a larger sample.

Session 5 validation subquestions and data sources

Validation research questions	ELI BOY Ratings	ELI EOY Ratings
1. What domains of students' learning and development does the ELI validly measure? ***(Results presented during last session.)***	•	
1a. Is the ELI a reliable measure for its specified purpose and for the population with which it will be used?	•	•
1b. How do the raw scores on the ELI items correspond to the students' performance-levels measured by the ELI domains?	•	•
1c. What is the distribution of students' performance levels at the beginning and end of year ELI administrations?	•	•

Demographic information of validation analysis participants

Demographic Information	Fall 2021		Spring 2022	
	N	Percent	N	Percent
Gender				
Male	433	51	11	44
Female	420	49	14	56
Race				
White	596	70	22	88
Multiracial	105	12	[a]	[a]
Native American or Alaskan Native	85	10	[a]	[a]
Black or African American	42	5	[a]	[a]
Asian	21	3	[a]	[a]
Other races	[a]	[a]	[a]	[a]

[a] Numbers of students not presented due to small cell size to ensure confidentiality.
Source: Authors' analysis of data from the fall 2021 and spring 2022 Early Learning Inventory.

Demographic information of validation analysis participants

Demographic Information	Fall 2021		Spring 2022	
	N	Percent	N	Percent
Free and reduced-price lunch eligibility				
Not receiving free or reduced-price lunch	346	41	23	92
Community eligible lunch	272	32	[a]	[a]
Free lunch	155	18	[a]	[a]
Reduced-price	47	6	[a]	[a]
Provision 2	33	4	[a]	[a]
Economic disadvantage			[a]	[a]
Yes	489	57	[a]	[a]
No	364	43	[a]	[a]

[a] Numbers of students not presented due to small cell size to ensure confidentiality.
. Source: Authors' analysis of data from the fall 2021 and spring 2022 Early Learning Inventory.

Demographic information of validation analysis participants

Demographic Information	Fall 2021		Spring 2022	
	N	Percent	N	Percent
Special education				
Yes	95	11	[a]	[a]
No	758	89	[a]	[a]
English language learner			[a]	[a]
Yes	201	24	[a]	[a]
No	652	76	[a]	[a]

[a] Numbers of students not presented due to small cell size to ensure confidentiality.
Source: Authors' analysis of data from the fall 2021 and spring 2022 Early Learning Inventory.

Revised validation analysis plan

- Sample size is too small for originally planned psychometric analyses.
- Reliability tests are possible.
  - Cronbach's alpha.
  - Rasch person reliability.
  - Test-retest reliability.
- We examined change in students' ELI levels from Fall 2021 to Spring 2022 with a subsample.
- Results should be considered exploratory.

Validation research question 1a

Is the ELI a reliable measure for its specified purpose and for the population with which it will be used?

Both ELI domains had high internal consistency reliability and good test-retest reliability in the classroom with EOY data.

Internal consistency: The extent to the items within the test are related with each other. It is assumed that if all the items in a test measure the same concept or construct, these items should be correlated with each other.

Test-retest reliability: The degree to which test scores are consistent among the same group of individuals when the test is administered on different occasions.

Domain name	Cronbach's alpha		Rasch person reliability		Test-retest reliability (Pearson correlation)	
	Fall	Spring	Fall	Spring	Fall	Spring
Early academic competencies	0.96	0.98	0.95	0.87	NA	0.68
Skills to support learning	0.92	0.93	0.94	0.80	NA	0.71

Note: N = 25 students who had follow-up teacher report data.

Source: Authors' analysis of ELI data from the fall 2021 and spring 2022.

Validation research question 1b.

How do the raw scores on the ELI items correspond to the students' performance-levels measured by the ELI domains?

Threshold for each developmental level was established in both ELI domains.

- REL Southwest used the Fall 2021 full data to calculate cut scores for different ELI levels ($N = 853$).
- The analysis established six developmental levels in both domains.
- These results are based on teachers who had just been trained to use the ELI. Results may be different for teachers with more experience using the ELI.

Sum scores threshold for each ELI level

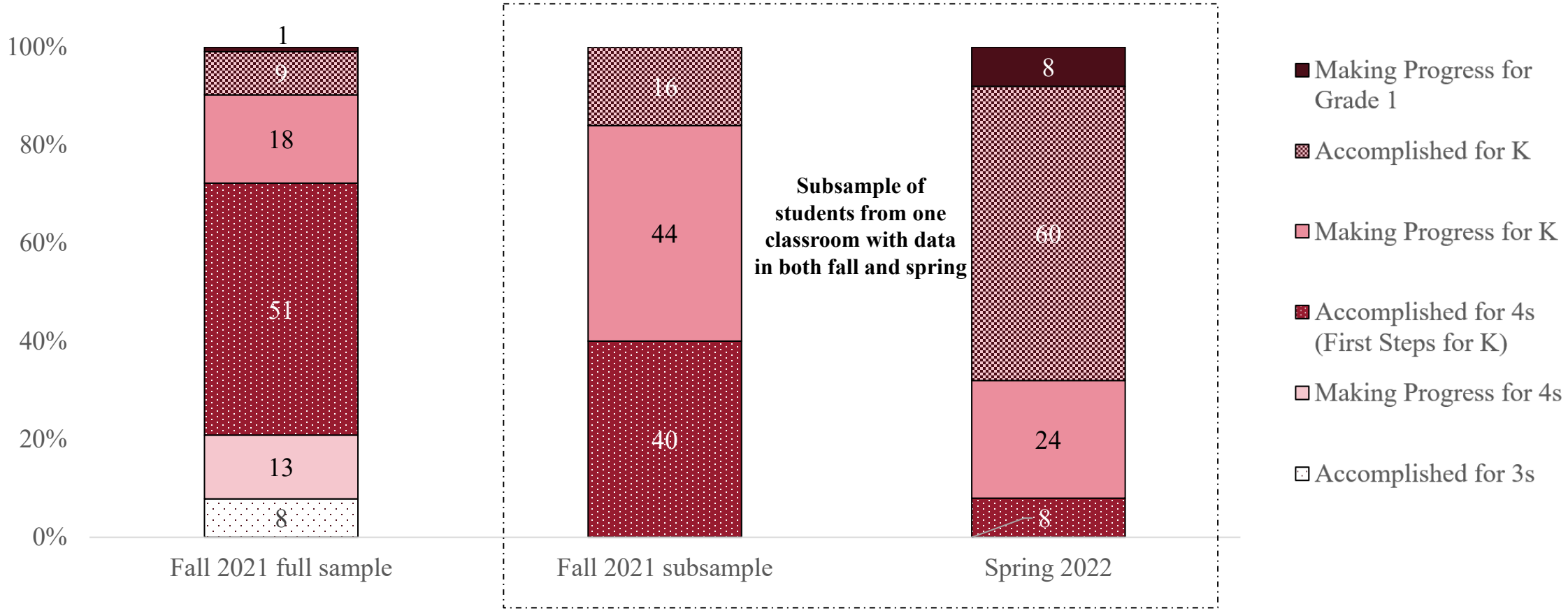
Domain name	Accomplished for 3s	Making progress for 4s	Accomplished for 4s	Making progress for K	Accomplished for K	Making progress for grade 1
Early academic competencies	0-27	28-38	39-55	56-71	72-87	88 or above
Skills to support learning	0-12	13-19	20-30	31-35	36-43	44 or above

Source: Authors' analysis of ELI data from the fall 2021.

Validation research question 1c

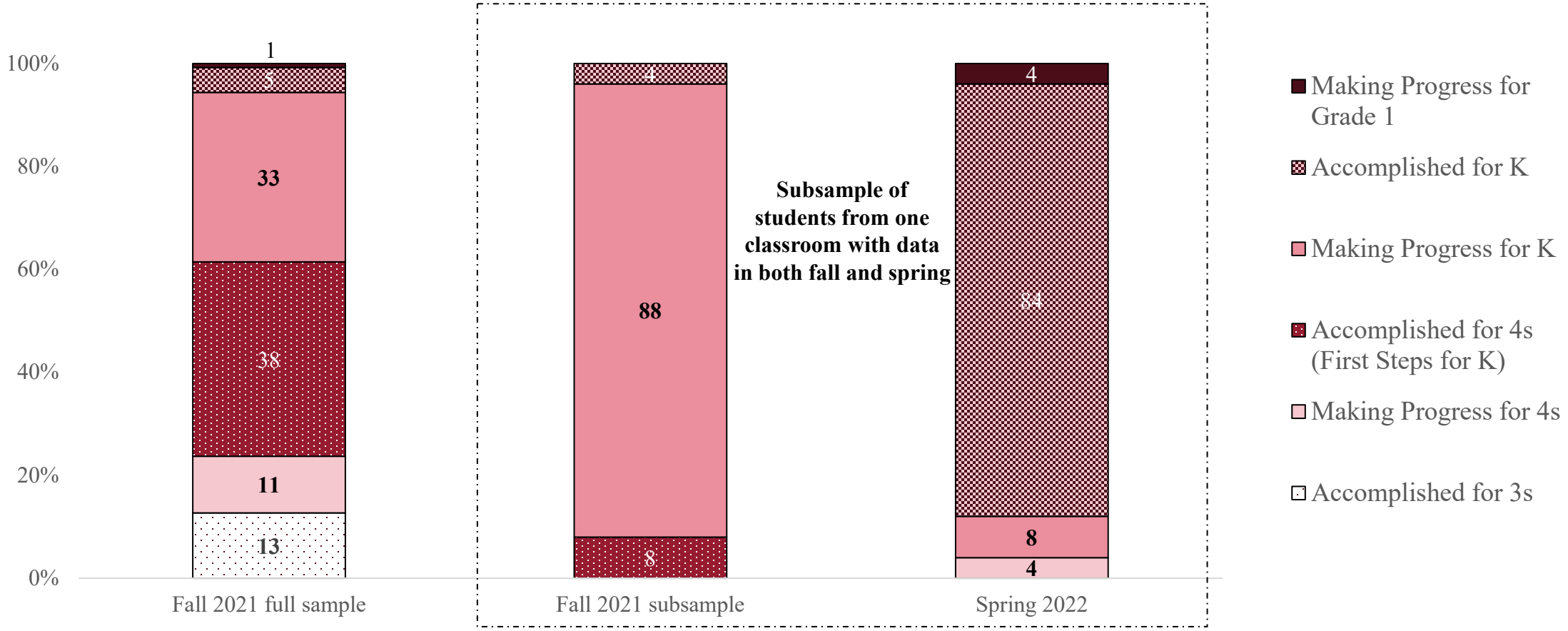
What is the distribution of students' performance levels at the beginning and end of year administrations?

For the subsample of students from one classroom with data in both data points, more were in the two highest levels in the spring than in the fall in the **Early Academic Competencies** domain.



Note: *N* (fall 2021 full sample) = 851; *N* (fall 2021 subsample) = 25; *N* (spring 2022) = 25.
Source: Authors' analysis of fall 2021 and spring 2022 Early Learning Inventory data.

For the subsample of students from one classroom with data in both data points, more were in the two highest levels in spring 2022 than in fall 2021in the **Skills to Support Learning** domain



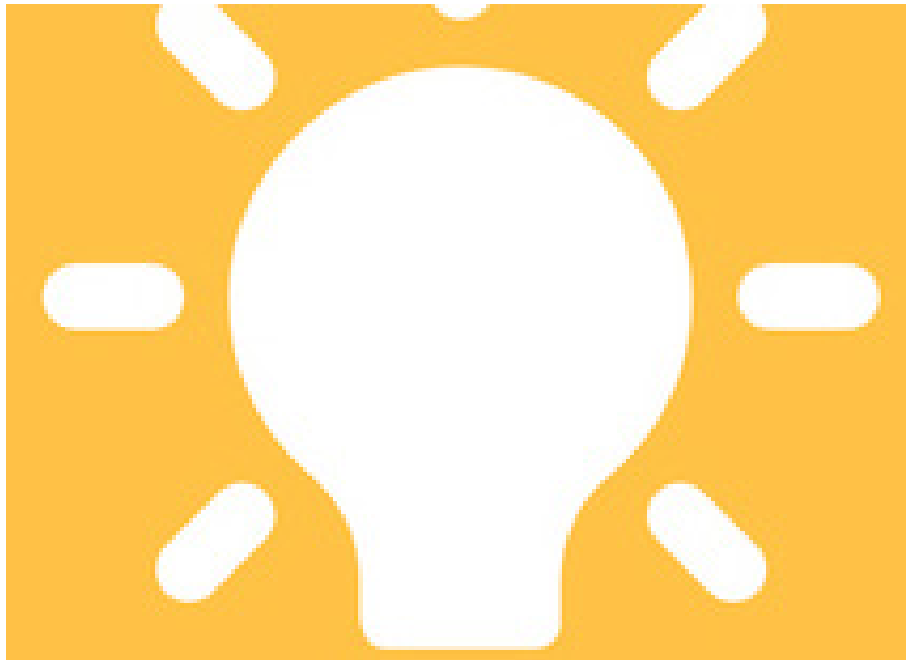
Note: *N* (fall 2021 full sample) = 851; *N* (fall 2021 subsample) = 25; *N* (spring 2022) = 25.
Source: Authors' analysis of ELI fall 2021 and spring 2022 Early Learning Inventory.

Implications

- Analyses from the fall 2021 ELI administration provides preliminary evidence of the reliability of the ELI to provide information about students:
  - Early Academic Competencies
  - Skills to Support Learning

- OSDE and local education agencies can summarize findings in the aggregate using performance level cut scores (based on BOY data).

- For the small sample of 25 students from one classroom with data at BOY and EOY, the ELI measured improvement for both domains. More research is needed to understand if this finding generalizes.



Validation findings Jamboard

Takeaways

Recommendations for changes to ELI


What's
NEXT?

Supporting analyses for research question 1b.

Threshold for each developmental category was established in both ELI domains.

Levels	Early academic competencies		Skills to support learning	
	Logit value	Sum score	Logit value	Sum score
Accomplished for 3s	-3.56	28	-4.29	13
Making Progress for 4s	-2.35	39	-2.44	20
Accomplished for 4s	-0.52	56	-0.47	31
Making Progress for K	1.85	72	2.11	36
Accomplished for K	4.58	88	5.09	44
Making Progress for Grade 1		Above 88		Above 44

Note: N = 851 students.
Source: Authors' analysis of data from the fall 2021 Early Learning Inventory.