

Preschool Early Literacy Indicators (PELI®) Benchmark Goals and Composite Score

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Benchmark Goals

PELI *benchmark goals* are empirically derived, criterion-referenced target scores that represent adequate early literacy progress for children in preschool. A benchmark goal indicates a level of skill where the child is likely to achieve the next PELI benchmark goal or early literacy outcome. Benchmark goals for PELI are based on research that examines the predictive validity of a score on a measure at a particular point in time, compared to later PELI measures and compared to external outcome assessments. If a child achieves a benchmark goal, then the odds are in favor of that child achieving later early literacy outcomes if he/she receives generally effective instructional support and learning opportunities.

Benchmark Goal Research

These PELI benchmark goals and cut points for risk were developed based upon a study conducted during the 2013–2014 school year. The goals represent a series of conditional probabilities of meeting later important early literacy outcomes. Two outcome criteria were used to develop and evaluate the benchmark goals and cut points for risk: (a) the Peabody Picture Vocabulary Test-4 raw score (PPVT-4; Dunn & Dunn, 2007); and (b) Dynamic Indicators of Basic Early Literacy Skills, Next Edition (DIBELS Next; Good, Kaminski, et al., 2010). The kindergarten, beginning of year composite score was used as the outcome for DIBELS Next. The 40th percentile on the PPVT-4 assessment was used as the outcome on the PPVT. Data for the study were collected in 106 schools in 16 U.S. states and one Canadian province. Data collection included administering the PELI measures to participating 3/4-year-old children and 4/5-year-old children. A subgroup of 4/5-year-old children also were administered the PPVT-4 and DIBELS Next assessments. Participants in the study were 3,233 children in public school, Head Start, and private preschool program who were receiving English instruction. The sample included children with disabilities and children who were dual-language learners provided they had the response capabilities to participate.

Cut Points for Risk

The cut points for risk indicate a level of skill below which a child is unlikely to achieve subsequent early literacy goals without receiving additional, targeted instructional support. Children with scores below the cut point for risk are identified as likely to need intensive support. Intensive support refers to interventions that incorporate something more or something different from the core curriculum or supplemental support. Intensive support might entail:




- delivering instruction in a smaller group,
- providing more instructional time or more practice,
- presenting smaller skill steps in the instructional hierarchy,
- providing more explicit modeling and instruction, and/or
- providing greater scaffolding and practice

Because children who need intensive support are likely to have individual and sometimes unique needs, we recommend that their progress be monitored more frequently and their intervention modified dynamically to ensure adequate progress. For PELI, conducting progress monitoring assessment weekly or every other week may be appropriate for children who are likely to need intensive instructional support.

Between a benchmark goal and a cut point for risk is a range of scores where children's future performance is harder to predict. To ensure that the greatest number of children achieve later early literacy success, we recommend that children with scores in this range receive carefully targeted additional support in the skill areas where they are having difficulty, to be monitored regularly to ensure that they are making adequate progress, and to receive increased or modified support as necessary to achieve subsequent early literacy goals. This type of instructional support is referred to as strategic support. For children who are likely to need strategic support, PELI progress monitoring monthly or bi-monthly may be appropriate.

Table 1 provides the target probabilities of achieving later early literacy outcomes and the corresponding labels for likely need for support for each of the score levels. Benchmark goals and cut points for risk are provided for the PELI Composite Score as well as for individual PELI measures.

Table 1. Odds of Achieving Subsequent Early Literacy Goals, PELI Benchmark Goal Levels, and Likely Need for Support

Probability of achieving subsequent early literacy goals	Visual Representation	PELI Score Level	Likely need for support to achieve subsequent early literacy goals
80% to 90%		At or Above Benchmark <i>scores at or above the benchmark goal</i>	Likely to Need Core Support
40% to 60%		Below Benchmark <i>scores below the benchmark goal and at or above the cut point for risk</i>	Likely to Need Strategic Support
10% to 20%		Well Below Benchmark <i>scores below the cut point for risk</i>	Likely to Need Intensive Support

PELI Composite Score

The PELI Composite Score is a combination of multiple PELI scores and provides the best overall estimate of a child’s early literacy skills. The PELI Composite Score (PCS) is calculated using the following formula:

$$PCS = (2*AK)+(4*Comp)+(4*PA)+(3*V-OL)$$

PCS = PELI Composite Score; AK=Alphabet Knowledge Total Score; Comp=Comprehension Total Score; PA=Phonological Awareness Total Score; V-OL=Vocabulary-Oral Language Total Score.

The purpose of the calculation is to weight the scores for each section so that they contribute approximately equally to the Composite Score.

PELI Language Index

The PELI Language Index combines the Vocabulary-Oral Language and Comprehension scores and provides the best estimate of overall language skill. The Language Index is calculated by using the following formula:

$$PLI = (4*Comp)+(3*V-OL)$$

PLI = PELI Language Index; Comp = Comprehension; V-OL = Vocabulary-Oral Language.

Equated Scores

While every effort was made to design the PELI to have all forms be equally difficult, small variations in difficulty exist between forms. To increase the likelihood that differences in a child’s scores across different forms are due to actual differences in child performance rather than difficulty of the forms, an equipercentile linking study was conducted to equate all 10 alternate forms of the PELI. Equipercentile linking is an approach to equating forms in which scaled scores from one form are linked to a common form through percentile ranks (Kirkpatrick, Turhan, and Lin, 2012; Livingston, 2004). Equated scores were computed for the PCS and the Language Index only; subtest scores were not equated. For users of the Dynamic Measurement Group (DMG) data management system, the PCS and Language Index are automatically converted to equated scores. For PELI users who do not use the DMG data management system, look-up tables for equated scores for the PCS and the Language Index are available by contacting DMG.

2015–2016 PELI Benchmark Goals and Cut Points for Risk

PELI Benchmark Goals and Cut Points for Risk for 4-and-5-year olds

Time of year/ Measure	Benchmark goal	Cut point for Risk
Beginning of year		
Alphabet knowledge	6	2
Phonemic awareness	4	1
Comprehension	13	10
Vocabulary/Oral Language	18	13
PELI Language Index	114	88
PELI Composite Score	159	115
Middle of year		
Alphabet knowledge	17	8
Phonemic awareness	10	4
Comprehension	16	12
Vocabulary/Oral Language	21	16
PELI Language Index	132	111
PELI Composite Score	201	160
End of year		
Alphabet knowledge	23	14
Phonemic awareness	13	9
Comprehension	17	14
Vocabulary/Oral Language	23	19
PELI Language Index	143	124
PELI Composite Score	231	195

Note. Benchmark goals and cut points were revised in June 2015. Benchmark goals and cut points for risk for the PELI Language Index and PELI Composite Score are based on equated scores.

PELI Benchmark Goals and Cut Points for Risk for 3-and-4-year olds

Time of year/ Measure	Benchmark goal	Cut point for Risk
Beginning of year		
Alphabet knowledge	1	0
Phonemic awareness	--	--
Comprehension	6	2
Vocabulary/Oral Language	8	4
PELI Language Index	62	33
PELI Composite Score	68	35
Middle of year		
Alphabet knowledge	3	1
Phonemic awareness	1	0
Comprehension	10	5
Vocabulary/Oral Language	12	6
PELI Language Index	87	50
PELI Composite Score	101	59
End of year		
Alphabet knowledge	5	2
Phonemic awareness	2	0
Comprehension	11	7
Vocabulary/Oral Language	14	8
PELI Language Index	100	59
PELI Composite Score	128	85

Note. Benchmark goals and cut points were revised in June 2015. Benchmark goals and cut points for risk for the PELI Language Index and PELI Composite Score are based on equated scores.

References

- Dunn, L. M., & Dunn, D. M. (2007). *Peabody Picture Vocabulary Test, 4th Edition*. Minneapolis, MN: Pearson Assessments.
- Good, R. H., Kaminski, R. A. Cummings, K., Dufour-Martel, C., Petersen, K., Powell-Smith, K. Stollar, S., & Wallin, J. (2010). *Dynamic Indicators of Basic Early Literacy Skills, Next Edition*. Longmont, CO: Sopris.
Available: <http://dibels.org/>.
- Kirkpatrick, R., Turhan, A., & Lin, J. (2012, April). *Linking two assessment systems using common-item IRT method and equipercentile linking method*. Paper presented at the Annual Meeting of the National Council of Measurement in Education, Vancouver, CA.
- Livingston, S.A. (2004). *Equating test scores (without IRT)*. Princeton, NJ: Educational Testing Service.